

# **SALLIS**

## **Installation & Maintenance Guide**

**Issue: 01.10**

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Author: Jon Mendizabal

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## Version information

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# 1 SYSTEM SETUP

## 1.1 System Definition

SALLIS (**SA**lto **L**ock **L**ink **S**ystem) is a solution to connect the SALTO Wireless locks to a third party Access Control System named Host.

## 1.2 System Components

The following figure shows a schematic overview of the system components:

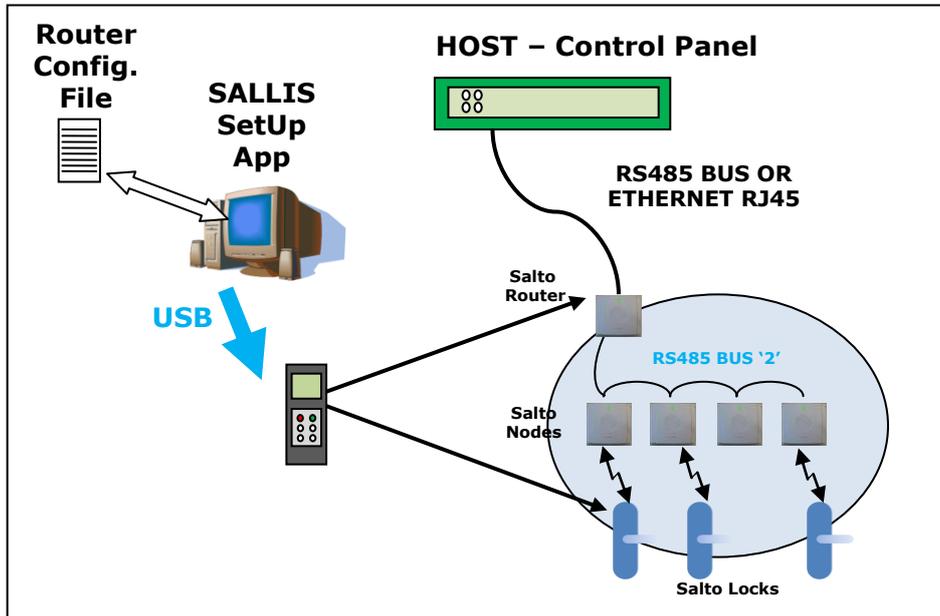


Figure 1-1 System Components

<b>HOST - Control Panel</b>	Third party Access Control Software.
<b>ROUTER</b>	Salto Wireless communications central manager device.
<b>NODE</b>	Salto RS485 to wireless bridge.
<b>Salto Locks</b>	Any wireless lock device manufactured or sold by Salto to control the physical access to a premise: the XS4 electronic locks, Aelement series, GEO electronic cylinder and any other compatible locks developed by Salto in the future.
<b>PPD</b>	Portable Programmer Device for Router and Locks initialization. It is also a diagnosis tool and a way to open the lock in case of battery failure.
<b>SALLIS App</b>	The SALLIS Application is the piece of software that handles all the information regarding the SALLIS system. The information for each installation is stored in a specific Database.
<b>Router Config.File</b>	Encrypted file including setup parameters of the Router and related nodes and doors.

Table 1-1 System Components

## 1.3 Setup Process

The Setup process includes 3 steps:

- **Hardware Setup:** Hardwire the communication devices HOST-ROUTERS-NODES.
- **Router Configuration Setup:** Define the system in SALLIS Application:
  - Create a Router configuration file.
  - Create the list of allowed card types.
  - Create the list of Nodes with their MAC wireless address.
  - Create the list of Locks including the nodes each of them belong to.
- **Devices Setup:**
  - Download the information to a PPD.
  - Initialize the Router and the Locks with the PPD.

## 2 HARDWARE SETUP WITH ROUTER RS485

The Host communicates with the Router through an RS485 Link or Ethernet depending on the router device. This chapter specifies the hardware setup with a RS485 Router.

### 2.1 Overview

The hardware setup includes the hard-wiring of the wireless communication devices (Router and Nodes) to the Host.

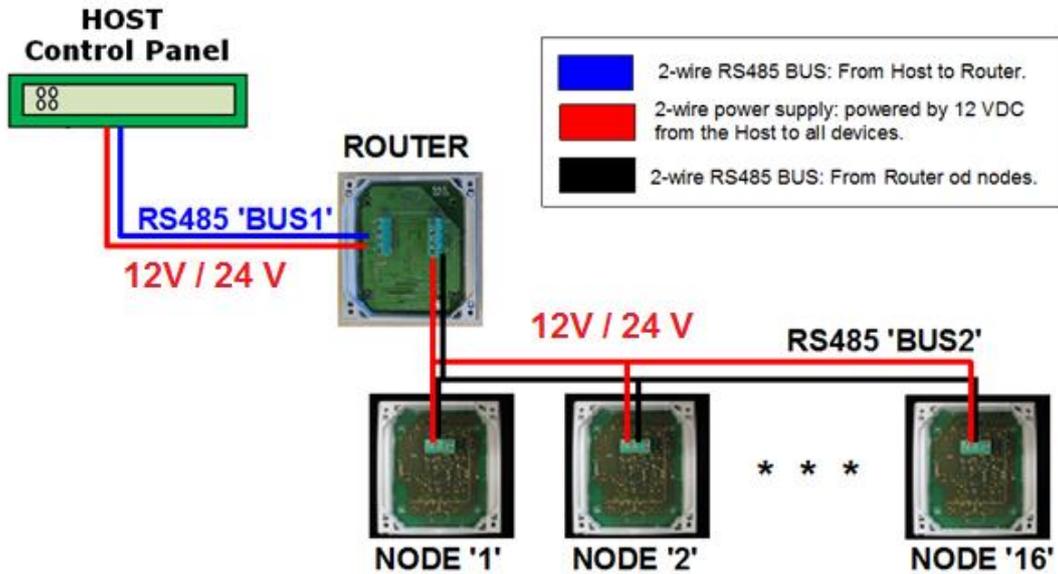


Figure 2-1 Hardware setup diagram

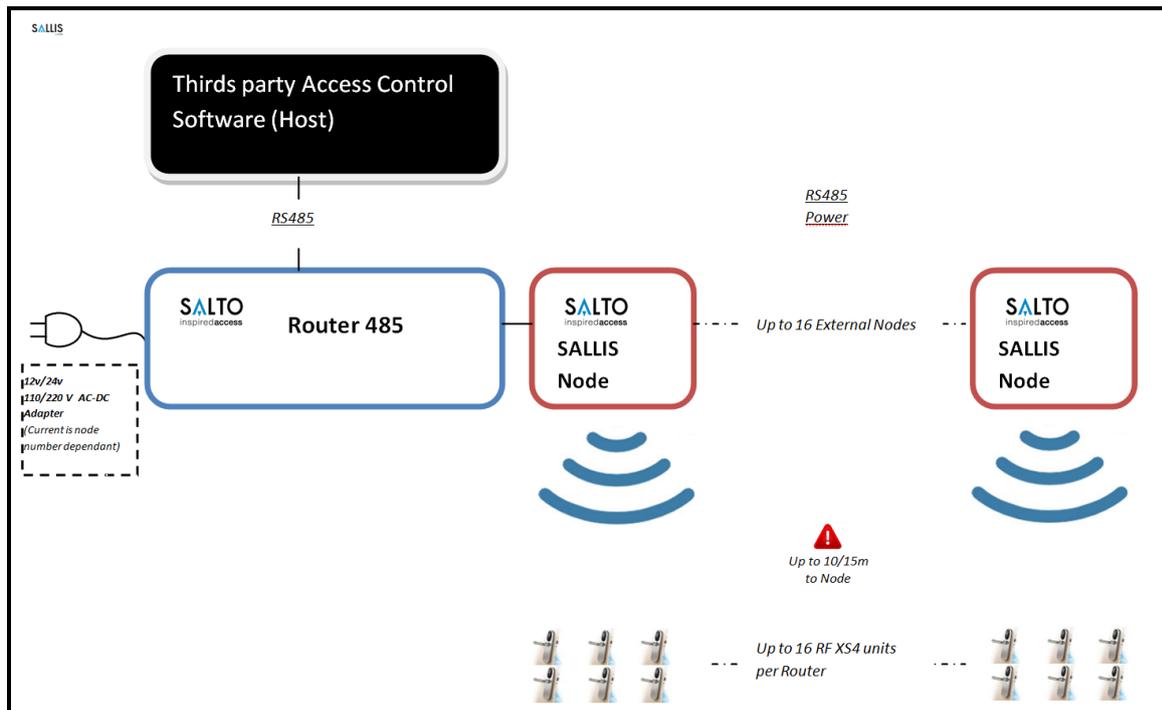


Figure 2-2 Router 485 limits

### 2.1.1 Power supply

- The Router and the Nodes are powered by 12/24 VDC from the Host.
- The Router has a current consumption of 75mA and the current consumption of each node is 45mA.

### 2.1.2 Limits and Recommendations

- A maximum of 16 Locks can be controlled by a Router.
- The distance between the Router and the last Node can be up to 1200 meters according to the wire chosen and the number of nodes attached to the bus.
- The number of nodes that can be attached to the bus over a CAT5 or a CAT6 UTP cable built with four twisted pairs of 24AWG copper conductors can be looked up in the table below. The results have been obtained assuming the same distance between the nodes and between the router and the nearest node. With other configurations consult to factory.

DISTANCE BETWEEN DEVICES (meters)	VOLTAGE (V)	NUMBER OF TWISTED PAIRS FOR THE POWER SUPPLY	MAXIMUM NUMBER OF NODES
30	12	1	6
		2	9
30	24	1	12
		2	16
50	12	1	5
		2	7
50	24	1	9
		2	13

Table 2-1 Number of nodes supported & distance Limits

- Nodes must be placed so that they are close enough to the doors locks they intended to provide with wireless connection: The locks have to be at a maximum distance of 10 meters from a Node.
- If the 16 locks would be far away one of each other a total of 16 Nodes would need to be connected to the Router, one per lock. However if some locks are in the same nearby area they can share the same Node and the number of Nodes will be less than the number of Locks.

- Installation examples:

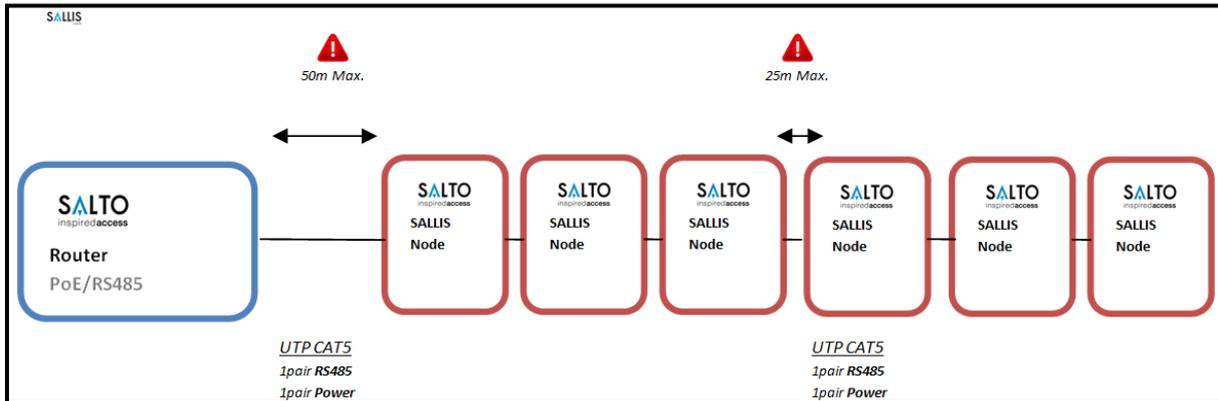


Figure 2-3 Installation example 1 Router RS485

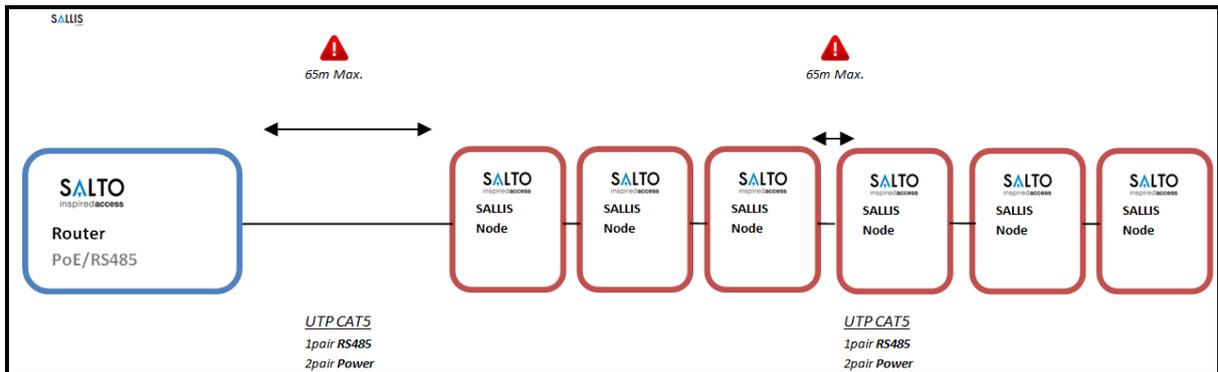


Figure 2-4 Installation example 2 Router RS485



Figure 2-5 Installation example 3 Router RS485

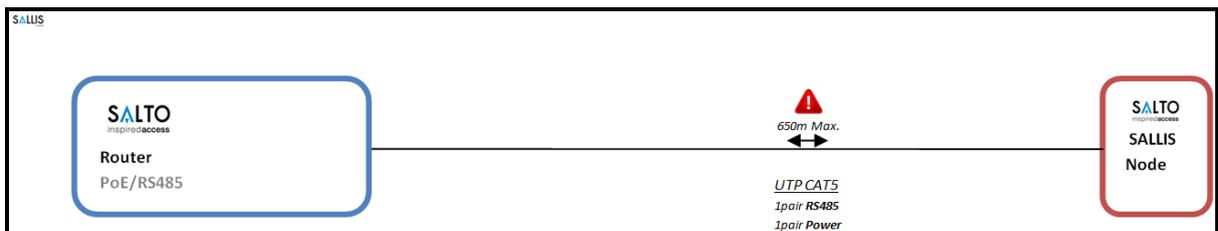


Figure 2-6 Installation example 4 Router RS485

## 2.2 Host to Router connection

### 2.2.1 Wiring

The Salto Router is connected to the Host through 4 wires (left green connector in figure):

- 2 wires for power supply: powered by 12/24 VDC from the Host
- 2 wires A and B for RS485 communication

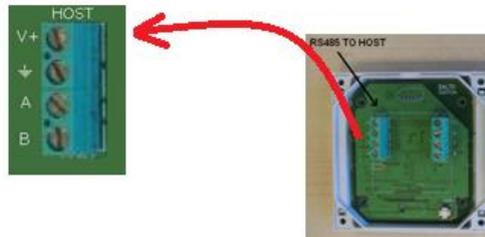


Figure 2-7 Host To Router 4-wire connection

### 2.2.2 Termination Resistor

In order to meet RS485 requirements, Routers are provided with a Termination Resistor of 120  $\Omega$  in both to-host and to-node connections.

## 2.3 Router to Nodes connection

### 2.3.1 Wiring

The Nodes are connected to the Router through a second 4-wire bus.



Figure 2-8 Router to Nodes 4-wire connectors

### 2.3.2 Termination Resistor

In order to meet RS485 requirements, Nodes are provided with a Termination Resistor. It is necessary to 'activate' that resistor in the RS485 Bus End Node (the one placed in the far end) and deactivate in all the others.

#### Termination Resistor Deactivated

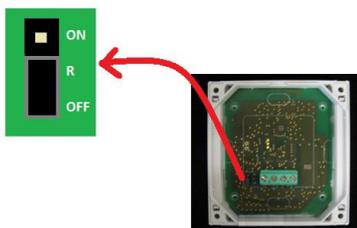


Figure 2-9 Intermediate Node: Jumper between 'R' and 'OFF' pins

#### Termination Resistor Activated

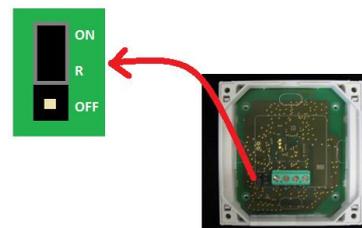


Figure 2-10 End Node: Jumper between 'R' and 'ON' pins

### 3 HARDWARE SETUP WITH A ROUTER POE

This chapter specifies the hardware setup needed for Sallis System with a Router PoE.

#### 3.1 Overview

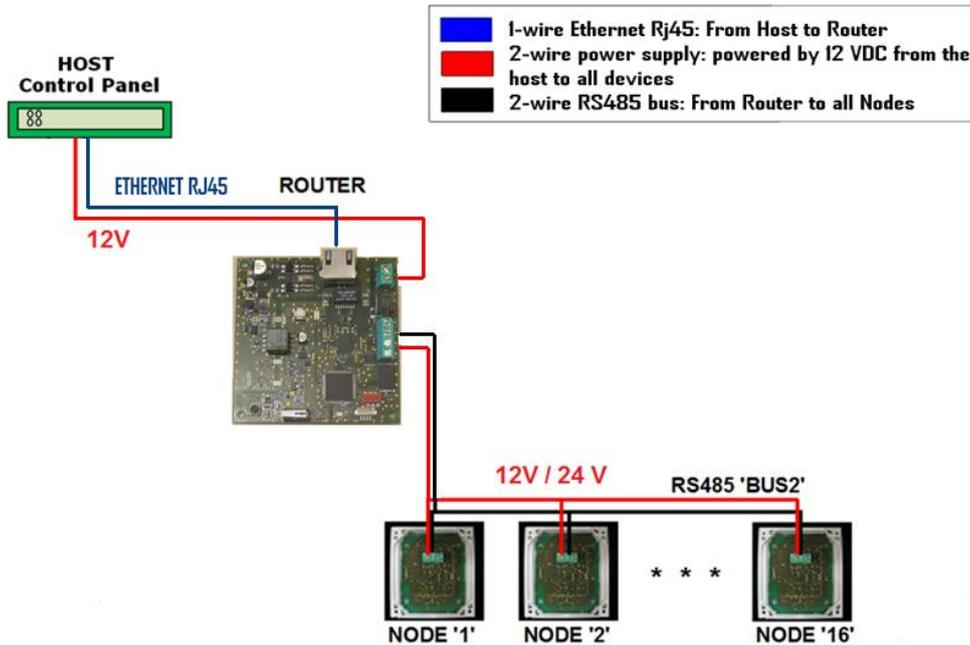


Figure 3-1 Hardware Setup Diagram

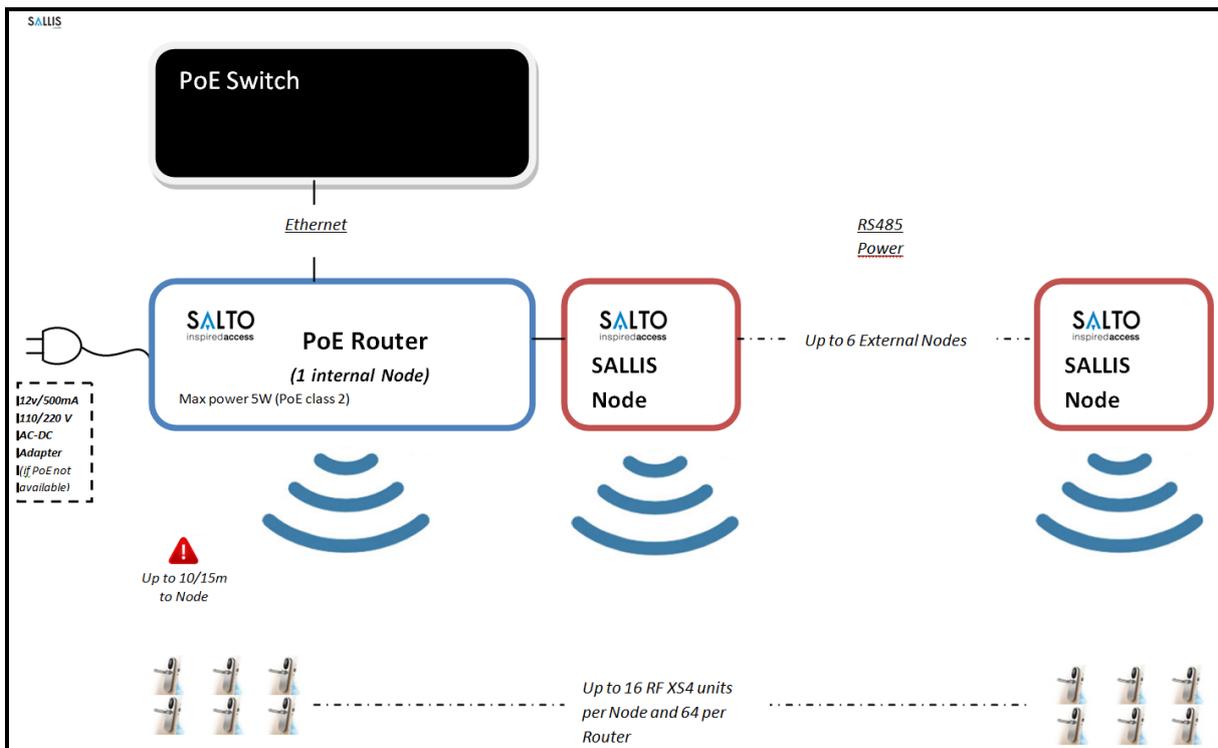


Figure 3-2 Router PoE Limits

### 3.1.1 Power supply

The Router and Nodes can be powered through PoE supporting the IEEE802.3at standard as a type1 6W class 2 PD. Alternatively a plug power supply of 500mA at 12 volts can be used if 'PoE' is not supported in the installation.

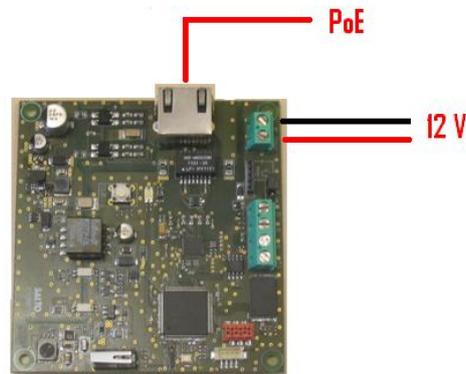


Figure 3-3 Router PoE Power Supply

### 3.1.2 Limits and Recommendations

- A maximum of 7 Nodes can be controlled by a Router PoE: 6 Nodes connected to the RS485 bus plus one internal node. Each node can control a maximum of 16 Locks.



Figure 3-4 Internal Node

- The maximum number of Locks controlled by a Router PoE is 64 Locks.
- The distance between the Router and the last Node can be up to 1200 meters according to the wire chosen and the number of nodes attached to the bus.
- Nodes must be placed so that they are close enough to the doors locks they intended to provide with wireless connection: The locks have to be at a maximum distance of 10 meters from a Node.
- If the 64 locks would be far away one of each other a total of 7 Nodes would need to be connected to the Router. However if some locks are in the same nearby area they can share the same Node and the number of Nodes will be less than the number of Locks.

- Installation examples:

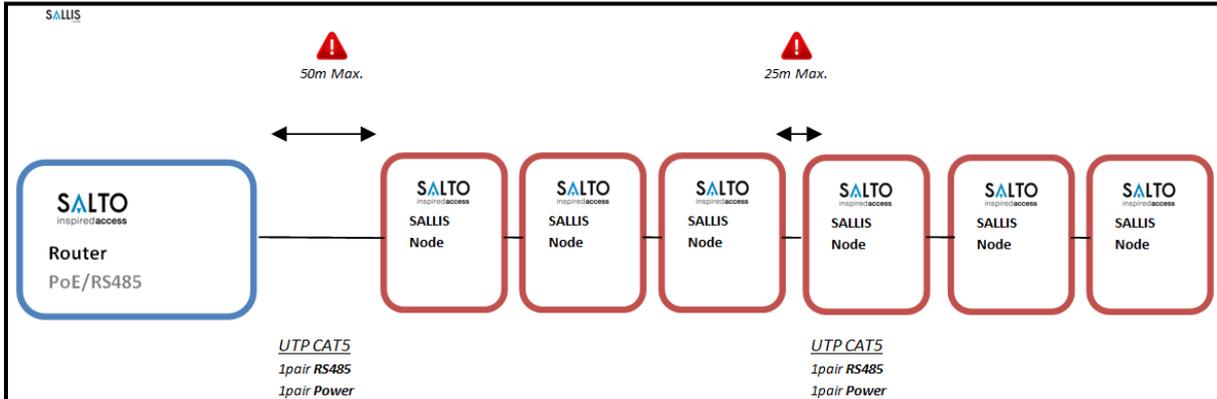


Figure 3-5 Installation example 1 Router PoE

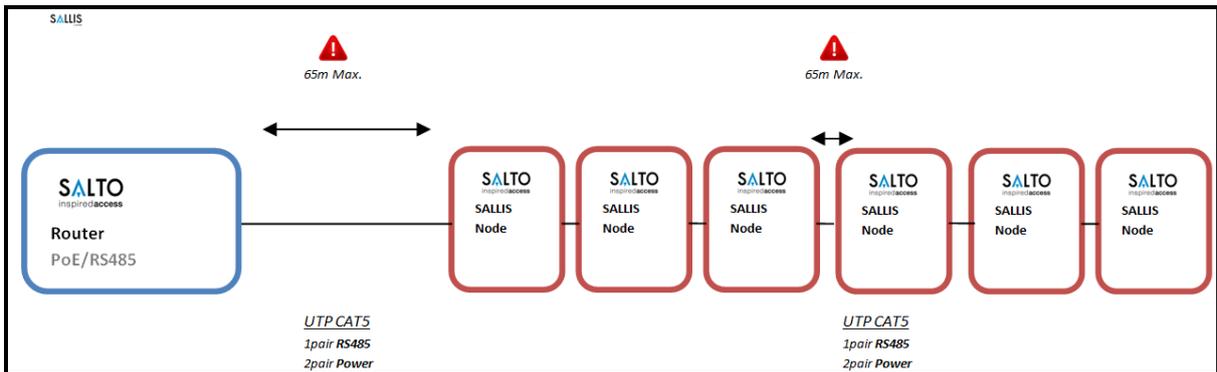


Figure 3-6 Installation example 2 Router PoE



Figure 3-7 Installation example 3 Router PoE

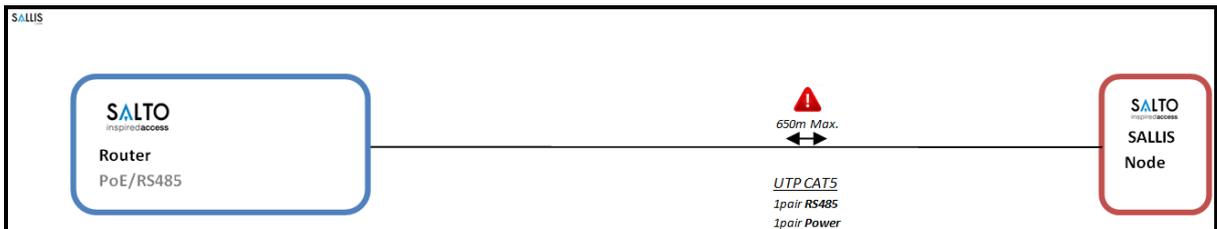


Figure 3-8 Installation example 4 Router PoE

## 3.2 Host to Router connection

### 3.2.1 Wiring

The Salto Router can be connected to the Host through a RJ45 wire in a 10Base-T or 100Base-Tx Ethernet Lan.

## 3.3 Router to Nodes connection

### 3.3.1 Wiring

The Nodes are connected to the Router through a 4-wire bus.

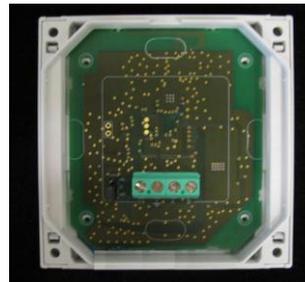


Figure 3-9 Router to Nodes 4-wire connectors

### 3.3.2 Termination Resistor

In order to meet RS485 requirements, Nodes are provided with a Termination Resistor. It is necessary to 'activate' that resistor in the RS485 Bus End Node (the one placed in the far end) and deactivate in all the others.

#### Termination Resistor Deactivated

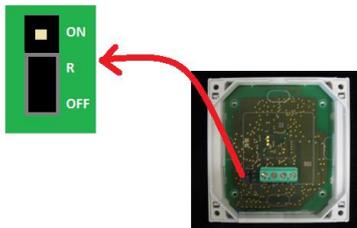


Figure 3-10 Intermediate Node: Jumper between 'R' and 'OFF' pins

#### Termination Resistor Activated

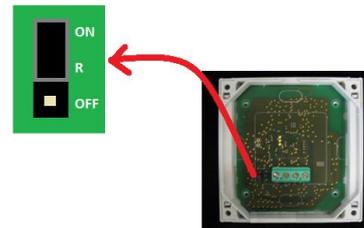


Figure 3-11 End Node: Jumper between 'R' and 'ON' pins

## 4 ROUTER CONFIGURATION SETUP

### 4.1 Overview

The SALLIS software application (SALLIS.exe) manages the Router configuration file which gathers all the information required in order to setup the SALLIS system. It includes the following information:

- General Installation data (name, RF parameters,..)
- Card types information.
- Devices information (Nodes, Locks, etc).

Additionally, the SALLIS application offers the interface to the PPD (through an USB port of the PC) in order to download the information to Router and Doors.

### 4.2 Data base Setup process

Once you open the application for the first time a new must be created:

- **STEP 1:** Select 'New' under File menu:

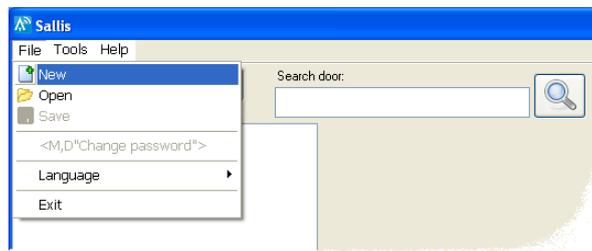


Figure 4-1 Create new Router file: select new database

- **STEP 2:** Create a new Router File introducing a new file name.

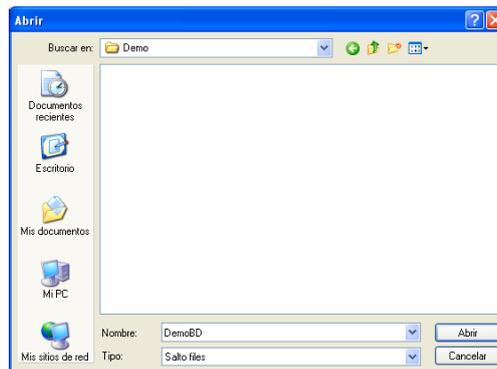


Figure 4-2 Create new Router File: choose location and file name.

- **STEP 3:** Enter a password or leave it blank if none is required.



Figure 4-3 Create New Router File: create password

After the Router File is created, general parameter fields must be filled.

- **STEP 4:** Select 'INSTALLATION DATA' icon in the explore-like window:

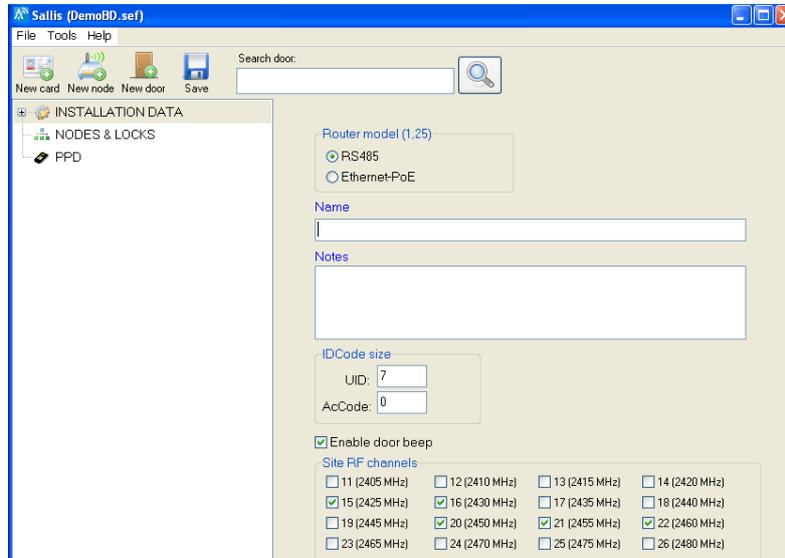


Figure 4-4 Installation Data Parameters

- **STEP 5:** fill-in the following fields in the Installation descriptor:

<b>Router Model</b>	Select the Router Device type
<b>Name</b>	Descriptive name of the Installation
<b>IDCodeSize</b>	<b>UID:</b> portion of tag's UID to use when retrieving an IDCode. <b>AcCode:</b> portion of length of data stored in tag memory $IDCODE = UID(UIDLength) + ACCODE(AcCode)$
<b>Enable door Beep</b>	Check if locks should activate acoustic signalling when operated (Open, close, etc..).
<b>Site RF Channels</b>	List of 2.4GHz band channels allowed to be used in wireless network.

Table 4-1 Installation Data Parameters

### 4.2.1 Add New Card type

A card type specifies how the lock will retrieve the access id (IDCode) when a tag of that specific type is presented to the lock. At least one type must be defined.

- **STEP 1:** Press  button to define a new type of card (MifareClassic, MifarePlus or Desfire)



Figure 4-5 Create New Card type

- **STEP 2:** Fill-in the parameter fields.

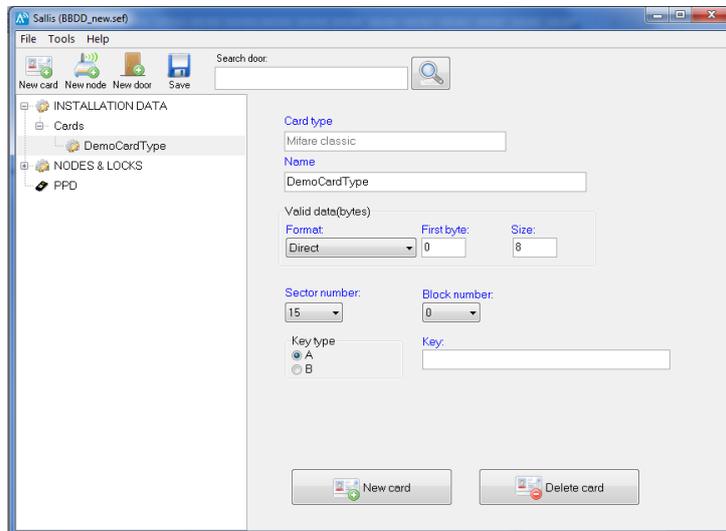


Figure 4-6 Create New Card type Parameters

### Mifare Classic cards

Parameter	Description
<b>Name</b>	Descriptive name of the CardType Created.
<b>Format</b>	Direct: no processing required, data straight obtain. Double Hex Ascii: convert ...
<b>First byte</b>	Start byte address inside block for the AcCode string.
<b>Size</b>	Size of AcCode string.
<b>Sector Number</b>	Mifare Classic Sector where to find the AcCode.
<b>Block number</b>	Block inside sector where to find the AcCode.
<b>Key Type</b>	key type used to protect the sector.
<b>Key</b>	6-byte hexadecimal representation of the key (A or B) to protect the sector.

Table 4-2 Mifare Classic Card type Parameters

### Mifare Plus cards

Parameter	Description
<b>Name</b>	Descriptive name of the CardType Created.
<b>Format</b>	Direct: no processing required, data straight obtain. Double Hex Ascii: convert ...
<b>First byte</b>	Start byte address inside block for the AcCode string.
<b>Size</b>	Size of AcCode string.
<b>Sector Number</b>	Mifare Plus Sector where to find the AcCode.
<b>Block number</b>	Block inside sector where to find the AcCode.
<b>Key Type</b>	key type used to protect the sector (KeyA or KeyB).
<b>Key</b>	16-byte hexadecimal representation of the AES Key (A or B) to protect the sector.

Table 4-3 Mifare Plus Card type Parameters

### Desfire and Desfire EV1 cards

Parameter	Description
<b>Name</b>	Descriptive name of the CardType Created.
<b>Format</b>	Direct: no processing required, data straight obtain. Double Hex Ascii: convert ...
<b>First byte</b>	Start byte address inside block for the AcCode string.
<b>Size</b>	Size of AcCode string.
<b>AID</b>	Application Identifier of (Least Significant Byte first)
<b>AMK Type</b>	Key type use is (DES or AES).
<b>File number</b>	File identifier within the application.
<b>Key number</b>	Key number to be used to authenticate with the application

Table 4-4 Desfire and Desfire EV1 Card type Parameters

#### 4.2.2 Add new Nodes

The information of each installed node must be included in the Router File. For each node in the installation, the steps below must be followed:

- **STEP 1:** Press  button to add the node to the Router File. A new icon will be created under 'NODES & LOCKS' icon.

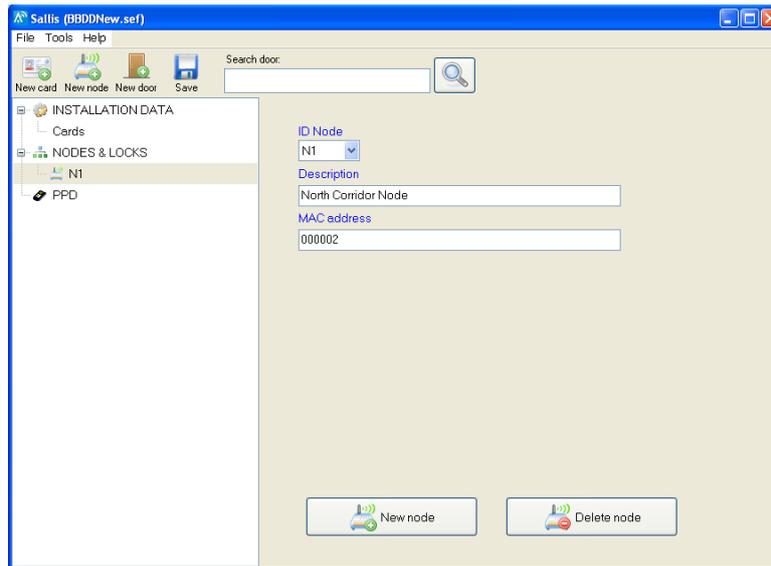


Figure 4-7 Node Parameters

- **STEP 2:** fill the following fields in the Node descriptor:

Parameter	Description
<b>ID Node</b>	This parameter will be automatically assigned (from 'N1' up to 'N16') by the application.
<b>Description</b>	Description of the Node created.
<b>MAC address</b>	MAC address included in the sticker at the back of the device.

Table 4-5 Node Parameters

- **STEP 3:** Press  button to save the recently created Node to the Router File.

### 4.2.3 Add new Doors

- **STEP 1:** Press  button to add as many doors as there will be installed.

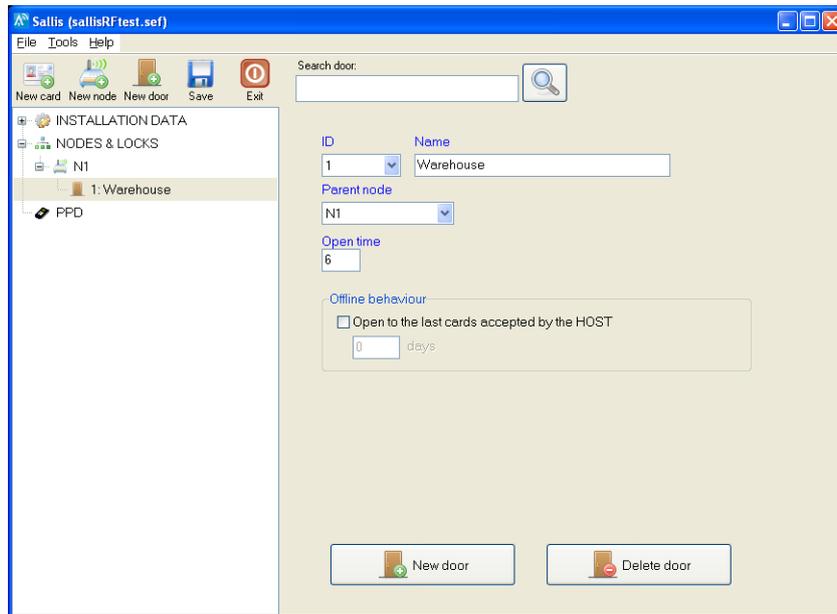


Figure 4-8 Create new Door Parameters

- **STEP 2:** fill the following fields in the Lock descriptor:

Param	Description
<b>ID</b>	Number automatically assigned by the application from 1 to 16 representing the door number for the specific Node.
<b>Name</b>	Descriptive name of the door to created.
<b>Parent node</b>	Node to which the door will connect after initialization with the PPD.
<b>Open Time</b>	Period of time (seconds) while the lock will remain open in an open operation.
<b>Offline behaviour</b>	<ul style="list-style-type: none"> <li>• Open to the last cards accepted by the Host: Only cards which have been presented to the lock in the last days specified in 'days' field will open the door. Additionally will open the cards that match the emergency codes if they exist.</li> </ul>

Table 4-6 Lock Parameters

- **STEP 3:** Press  button to save the recently created Door to the Router File.

## 5 DEVICES SETUP

### 5.1 Overview

The device setup consists of downloading the data defined in the Router File to the Router and each of the locks.

	<p><b>Note:</b> Nodes are automatically configured by the Router. No further actions are required.</p>
---	--

### 5.2 Download data to PPD.

- **STEP 1:** Connect the PPD to an USB port of the PC.
- **STEP 2:** Select the 'PPD' icon in the in the explore-like window of the application.

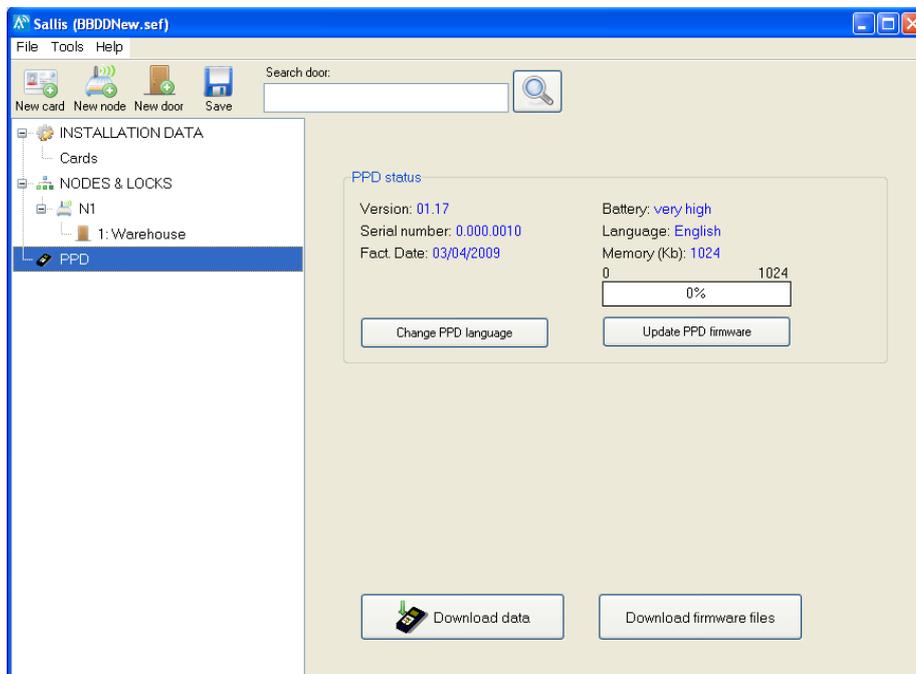


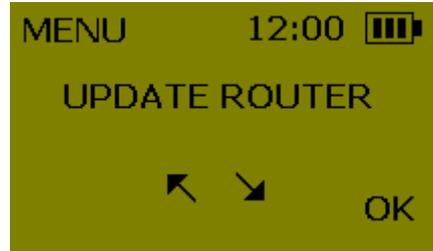
Figure 5-1 PPD icon

- **STEP 3:** Press  button to download all the necessary information for the Router and locks in order to finish the set up process.

	<p>Data are valid on the PPD during 15 days</p>
---	---

### 5.3 Update Routers

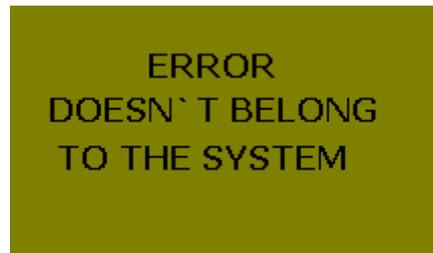
- **STEP 1:** Switch on the PPD and select the 'Update Router' option in the general menu.



- **STEP 2:** Connect the PPD connector to the Router to be initialized and press 'OK'.



- **STEP 3:** Error case: if the PPD shows 'ERROR DOESN'T BELONG TO THE SYSTEM' proceed again with step 2 keeping the clear button of the router pressed.

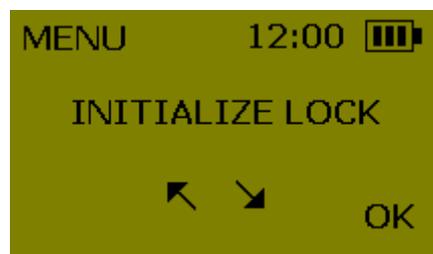


- **STEP 4:** Initialization finishes when 'UPDATED' message is displayed.

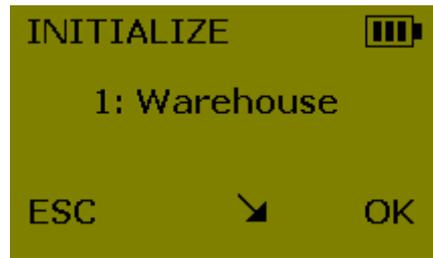


### 5.4 Initialize Locks

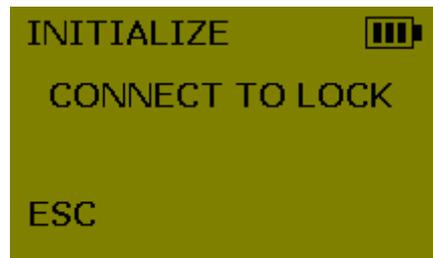
- **STEP 1:** Switch on the PPD and select the 'INITIALIZE LOCK' option (use arrow buttons to navigate) in the general menu.



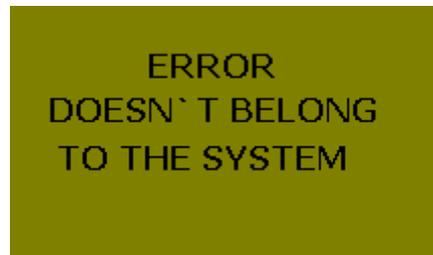
- **STEP 2:** After pressing 'OK' a list of all doors is displayed (use arrow buttons to navigate) Select the correct lock in the lock list in the screen and press OK.



- **STEP 3:** Connect PPD cable in the PPD connection socket of the lock.



- **Error case:** if the PPD shows 'ERROR DOESN'T BELONG TO THE SYSTEM' proceed again with STEP 2 keeping the clear button of the lock pressed.



- **STEP 4:** When the PPD finalizes the initialization process the lock tries to connect with the assigned Node. It will show the result of the operation with:
  - **Green LED flash:** the lock is successfully connected to the Node.
  - **Red LED flash:** the lock indicates a connection error. Check that the node is correctly installed, initialized, within range and proceed with STEP 1 again.

## 5.5 Router LEDS

### 5.5.1 Router 485

The LEDs of the Router show the state of the system:

LED colour	Description
<b>No light</b>	Lack of power supply
<b>Flashing Blue</b>	There has not been communication with the HOST in the last 10 seconds
<b>Flashing Red</b>	There is a problem with at least one Node or one Lock. Use the PPD diagnosis function to isolate the problem. The possible problems are: <ul style="list-style-type: none"> <li>• A Node does not communicate with the Router through the RS485.</li> <li>• A Lock that does not communicate with its Node through the air.</li> <li>• A Lock has low batteries.</li> </ul>
<b>Green</b>	Everything is ok

Table 5-1 Router RS485 LEDS

Both Flashing Blue and Flashing Red colour can be activated at the same time, in this case the LED will alternate between Red and Blue colour.

### 5.5.2 Router PoE

There are 3 LEDS in the Router, one of them in the top layer of the Router and other two LEDS in the Ethernet Connector.

The LED in the top layer of the Router shows the state of the system:

LED colour	Description
<b>No light</b>	Lack of power supply
<b>Flashing Red</b>	There is a problem with at least one Node or one Lock. Use the PPD diagnosis function to isolate the problem. The possible problems are: <ul style="list-style-type: none"> <li>• A Node does not communicate with the Router through the RS485.</li> <li>• A Lock that does not communicate with its Node through the air.</li> <li>• A Lock has low batteries.</li> </ul>
<b>Green</b>	Everything is ok
<b>Orange</b>	Router in 'Addressing Mode' state
<b>Red</b>	Router in 'Bootloader' state

Table 5-2 Router PoE LEDS

The LEDs on the Ethernet Connector show the state of the Ethernet communication:

LED colour	Description
<b>No light</b>	Lack of power supply
<b>Green</b>	Ethernet active
<b>Flashing orange</b>	Data transfer taking place through Ethernet.

Table 5-3 Router Ethernet Connector LEDS

Green and Flashing Orange LEDs could be active at the same time.

### **5.6 Node LED**

The Green LED of the Node indicates that the Node is properly powered.

### **5.7 Lock LED**

Immediately after been the lock updated or initialized with the PPD it will try to communicate with the Node. A Green light indicates the successful connection and a Red light indicates that the communication has been impossible.

Every time the lock reads a card will flash an Orange light indicating that it will start the Request to the Host through the air.

## 6 Router PoE – Host communication setup

### 6.1 Starting the Router

When 'Sallis Router PoE' is delivered to the customer, it's programmed to use DHCP. This means that after power up, the router will try to obtain a dynamic IP address from the DHCP server of the local net. If there is no DHCP server on the local net, or the communication fails for any reason, the router will automatically reset after 10 seconds and try again.

The Internet protocol used for communication between Host and Router is 'Transmission Control Protocol' or TCP, where 'Sallis Router' is configured as TCP server and Host program must be configured by the user as a TCP client.

First of all, before starting any communication, some parameters related to the TCP socket between Host and Router must be defined by the user.

These configurations will be made through the '*Router Sallis Web Server*', a web server implemented on the Router software application.

### 6.2 Configuration Parameters

In order to access '*Router Sallis Web Server*', these steps must be followed:

- **STEP 1:** Switch on the Router. After few seconds of starting up, a green led will show that application is running correctly.
- **STEP 2:** Press the router clear button 'CLR' for approximately 5 seconds until the led changes from green to orange.
- **STEP 3:** Now, the router have entered 'Addressing mode' (it can be verified by the orange colour of the led) and it will remain in this state for 10 minutes.



**Note:** It can exit this state at anytime by pushing 'CLR' button briefly.

In 'Addressing mode', User can access the 'Router Sallis Web Server' clicking [http://](http://192.168.0.234/) followed by the 'Addressing IP' of the router: [192.168.0.234](http://192.168.0.234/) in any web browser.



After pressing 'Enter' button the web page will be displayed on the screen.

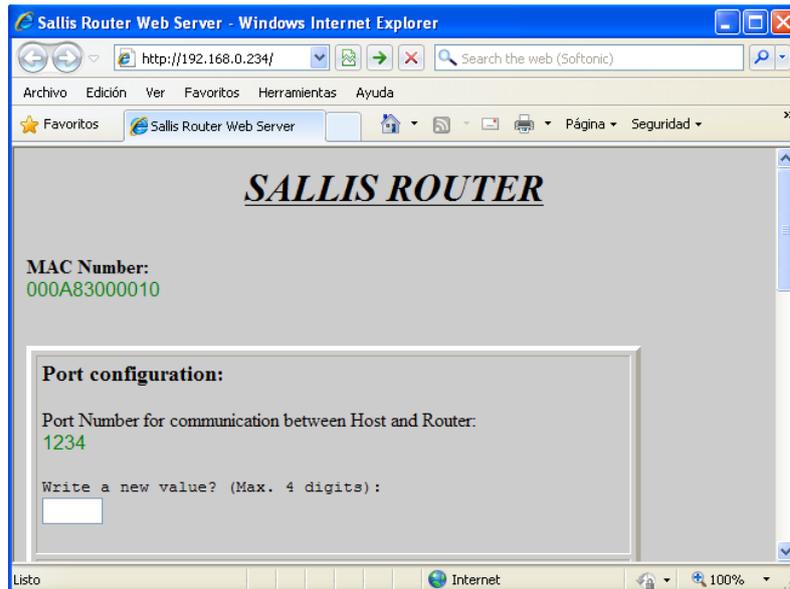


Figure 6-1 Sallis Router Web Page

At the beginning of the web page, in the upper-left side, we can read the MAC number of the Router, and just below it, there are four different blocks showing all parameters related to the TCP/IP communication that must be configured.

- **STEP 4:** The first block's name is 'Port Configuration'. This parameter refers to the Router local port used for TCP communication with the Host. The current value of this parameter can be seen in green colour (1234 by default). In order to change it, write the new value in the check box below with a maximum size of 4 digits.

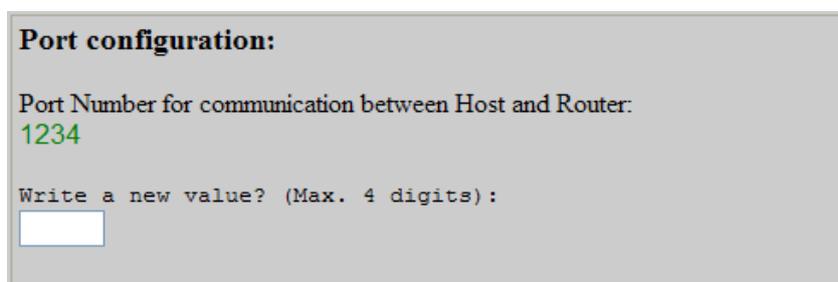


Figure 6-2 Port Configuration

- **STEP 5:** The second block's name is 'DHCP Configuration'. Here, the user can enable DHCP client in the router (to obtain a dynamic IP Address) or disable it. It is enabled by default.

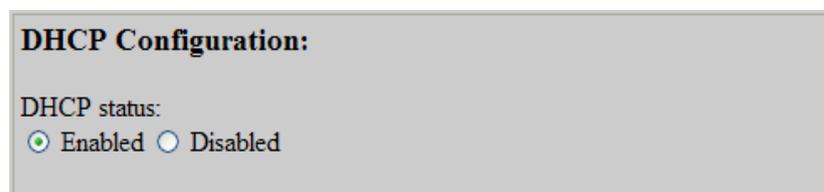


Figure 6-3 DHCP Configuration

- **STEP 6:** Next block's name is 'IP static Configuration'. Here, the user can configure the static IP address, IP gateway and the Net Mask that 'Sallis Router' will use in the local net in case of disabling DHCP.

Figure 6-4 IP Static Configuration

The web page shows in green colour the default value of these parameters. To change these values the user only needs to define the new values in the white boxes below.

- **STEP 7:** The last block refers to the 'Router Name'. Here the user can configure a name for the router that will only be used when DHCP is enabled. The Host will use this name to easily address the router in the local net. User can change it to any alphanumeric name desired, with a maximum size of 30 characters. The procedure to change this name is the same as usual: type the new name in the check box below.

Figure 6-5 Router Name

- **STEP 8:** After fulfilling all the form, it is mandatory to push 'Send' button in order to send all the new values to the router, otherwise no-changes will be made to the previous configuration.

The router, after receiving all the data, will show this feedback message in the screen:

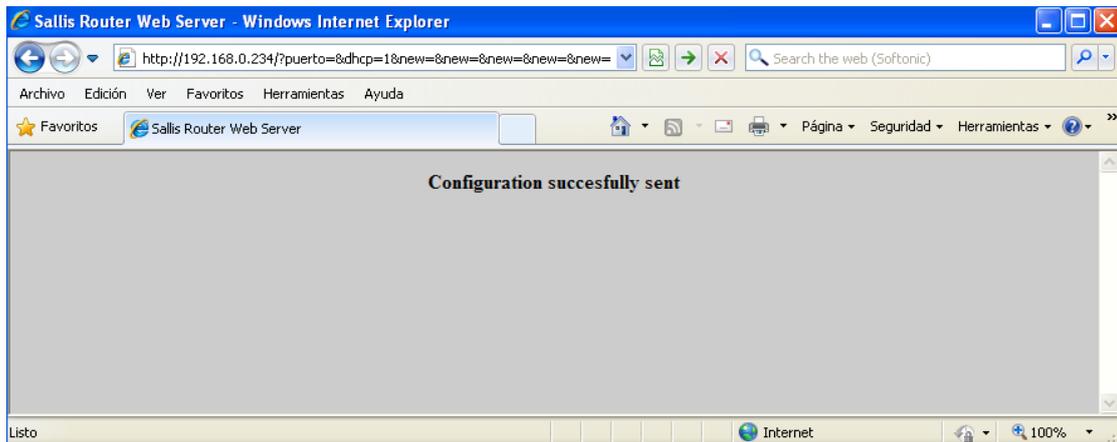


Figure 6-6 Feedback message

And 2 seconds later, it will leave 'Addressing mode' status and will restart with the new configuration. This way, the web server won't be available again until 'CLR' button is pressed.

If any error has been made during configuration, the user can always push 'Clear' (in the web page) to erase all the changes made.

	<p><b>Note:</b> If neither 'Send' nor 'Clear' buttons are pressed during 10 minutes, the router will automatically reset and start again with the previously configured parameter values. This is a security measure, as it will be considered that 'CLR' button has been pressed accidentally in the router.</p>
---	---

### 6.3 Create a Socket

Now that all parameters required for communication have been configured, it's time for the host to connect to the router.

The communication starts as follows: After power up, the router (TCP server) binds to the previously configured port and opens it for connections. Once this step is completed, (5 seconds approximately) it remains in a listen state waiting for a unique connection coming from any IP. Now, the TCP client (the Host) must initiate and active open sending a SYN command from his local port to the router port and IP. This will be the beginning of the TCP protocol for a connection establishment.

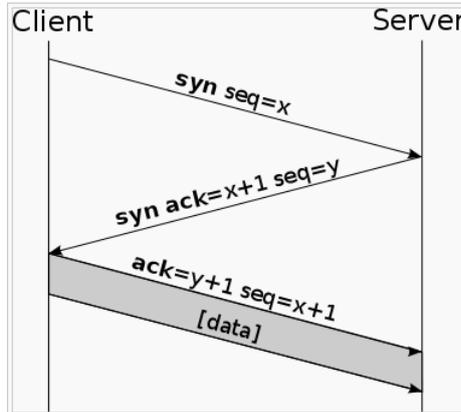


Figure 6-5 TCP Communication Establishment

When the connection is established, a communication socket will have been created between both ports, and any of two sides could start now sending 'Sallis Protocol Commands'.



**Note:** In some cases (an update via PPD or web server, or an accidental power down of the installation) a reset could be caused in the router and the current connexion will not be available any more. For these situations, it's advisable for the host to send periodically a 'diagnostic' command to the router in order to see if it's always answering. If it doesn't, the host should try to reconnect again to the router.

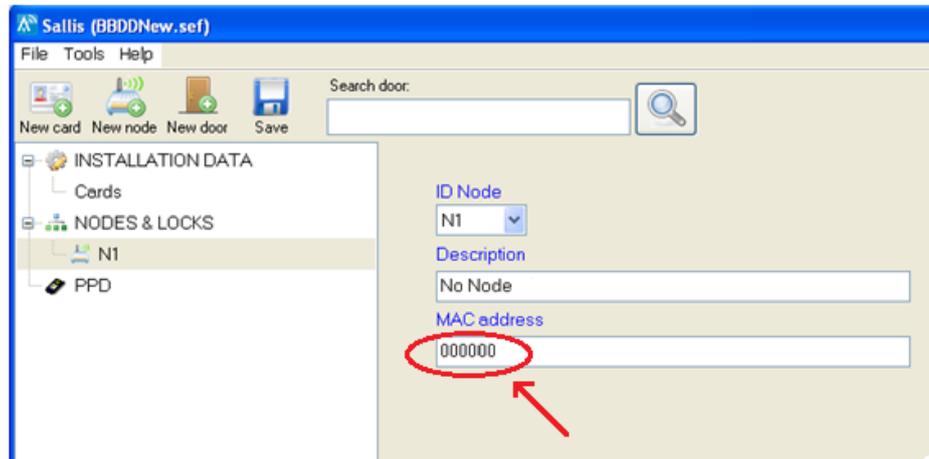
## 7 Lock in pre-installation mode

### 7.1 Introduction

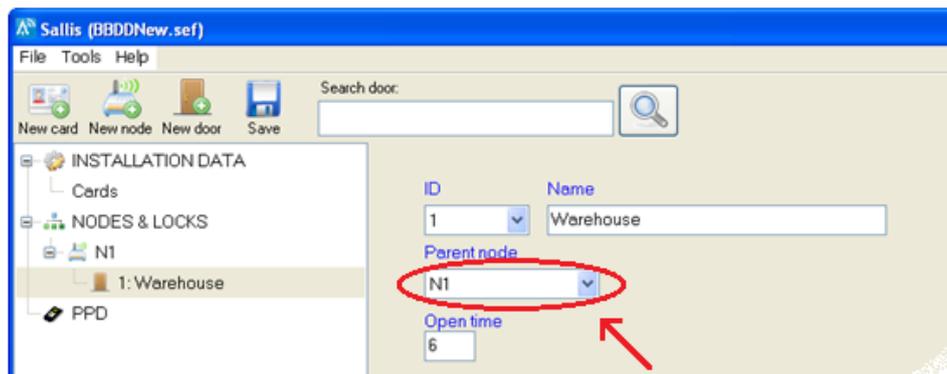
There may be the case where at the time Sallis Locks are installed in doors the wireless infrastructure is not set yet. For those cases, in order to make the locks operational, they can be 'pre-installed'.

### 7.2 How to proceed

**STEP1.** In SALLIS application, create a Node with Mac Address 0x000000



**STEP2.** Configure all locks we want to work in pre-installed mode selecting the Node with the MAC Address 0x000000



**STEP3.** Proceed with the initialization of the lock as described in the corresponding chapter in this document.

### 7.3 Lock behaviour

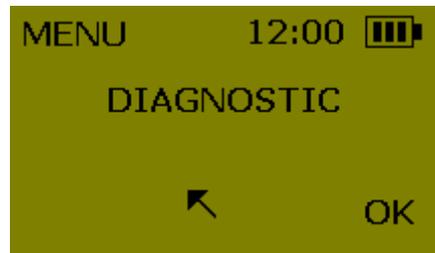
Once the lock has been initialized in this specific mode the lock will open to any badge which can be read according to the 'INSTALLATION DATA' parameters (see 'IDCodeSize' in Table 4-1) and any of the Card configurations included in the Router file (see chapter 'Add New Card').

## 8 System maintenance

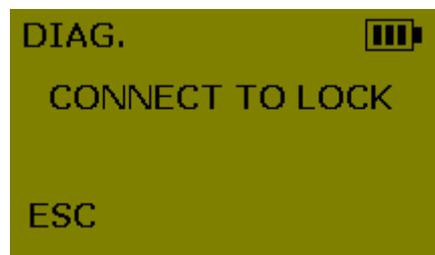
### 8.1 System Diagnosis

It is possible to check the state of nodes and locks connecting a PPD to the Router.

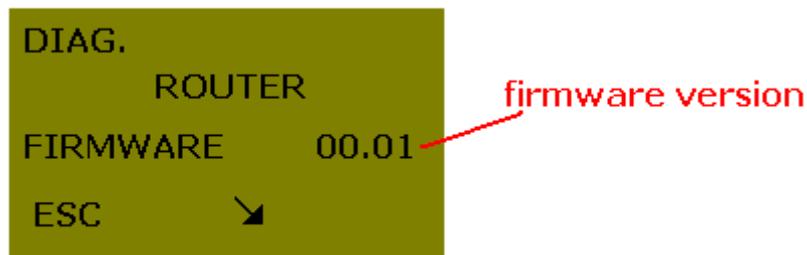
- **STEP 1:** Switch on the PPD and select the 'DIAGNOSTIC' option (use arrow buttons to navigate) in the main menu.



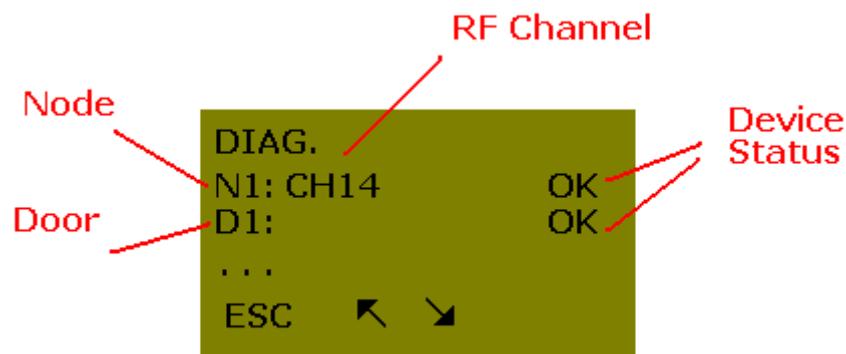
- **STEP 2:** Press OK and connect the PPD connector to the Router.



- **STEP 3:** Once the diagnosis is finished the retrieved data is available in the PPD.



- **STEP 4:** use arrow buttons to see the various screens.



<b>Node</b>	List of existing nodes (from N1 up to N16)
<b>Door</b>	List of existing nodes (from D1 up to D16)
<b>RF channel</b>	The RF channel in which the specific node is operating (from CH11 up to CH26)
<b>Device Status</b>	<p><b>OK:</b> device is working properly.</p> <p><b>NO Comm:</b> the device does not communicate</p> <p><b>No PAN:</b> the node is not initialized</p> <p><b>Low Battery:</b> batteries in the lock are low.</p>

Table 8-1 Diagnosis info screen data.

## 8.2 Router replacement.

If a Router needs to be replaced:

- **STEP 1:** Physically replace the Router.
- **STEP 2:** Initialise the new Router with exactly the same data as the replaced one: connect PPD to the new Router, select the Router in the list and run 'Update' option.
- **STEP 3:** Update **all locks**. Connect the PPD to the locks. The Update process is automatic.

	<p><b>Note:</b> The replacement of a Router involves updating all the locks of that specific network.</p>
---	---

## 8.3 Node replacement.

In the case a node needs to be replaced by a new one, it is necessary to follow the steps below:

- **STEP 1:** Update the data in the Router File: change the MAC address to the new one (check the sticker at the backside of the device).

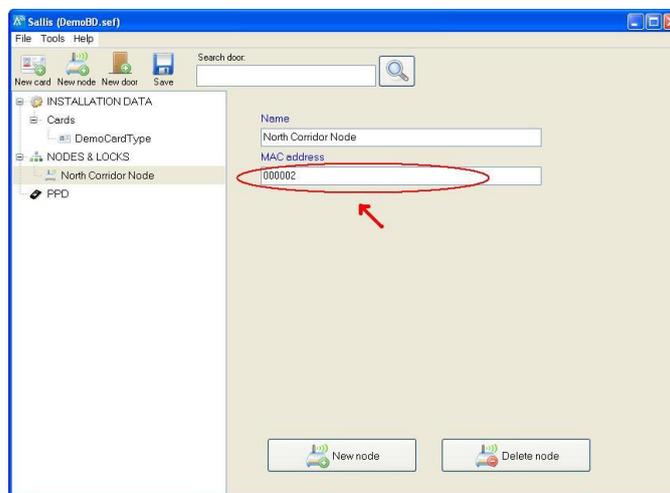


Figure 8-1 Node Replacement: step 1.

- **STEP 2:** Connect PPD to USB port and download the information to the PPD.

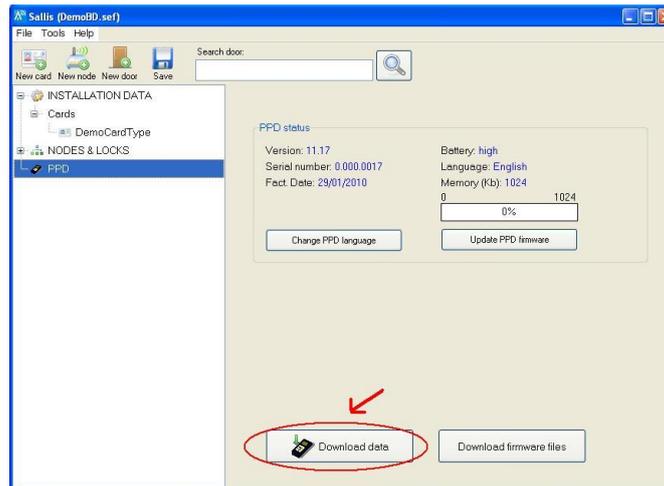


Figure 8-2 Node Replacement: step 2

- **STEP 3:** Physical replacement of the Node.
- **STEP 4:** Update the **Router** (as described in this document).
- **STEP 5:** Update **each of the locks** linked to the old node. Connect the PPD to the locks.

	<p><b>Note:</b> The replacement of a node involves updating all the locks related to the specific Node.</p>
---	---

## 8.4 Lock replacement.

If a lock, or any electronic part of it, needs to be replaced, follow the steps below:

- **STEP 1:** Physically replace the lock.
- **STEP 2:** Select Initialization in the screen menu of the PPD.
- **STEP 3:** Select the correct lock in the lock list in the screen and press OK.
- **STEP 4:** Connect PPD cable in the PPD connection socket of the lock.
- **STEP 5:** Wait until Lock shows a green led flash ('connection ok' signal).

## 9 Lock Firmware Update

### 9.1 Introduction

The Sallis Application together with the PPD offers the device firmware update feature. It is possible to update the firmware of the following 3 electronic modules within a lock:

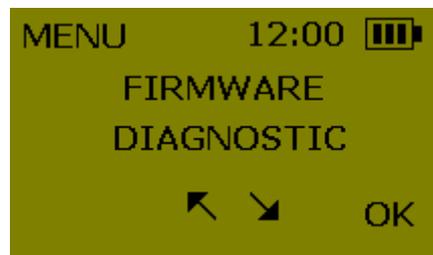
	Device Number	Description
Reader	00-08	Mifare reader Module
RF Module	00-38	RF communication Module
Control	00-61	Lock main Control

Table 9-1 Electronic modules within a lock and Device Numbers

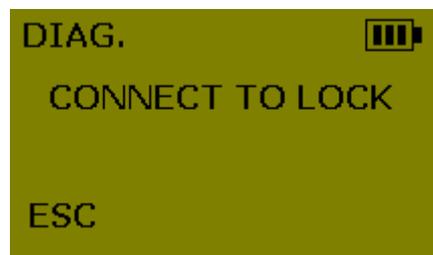
### 9.2 Firmware Diagnostic

It is possible to check the version of each module inside a lock.

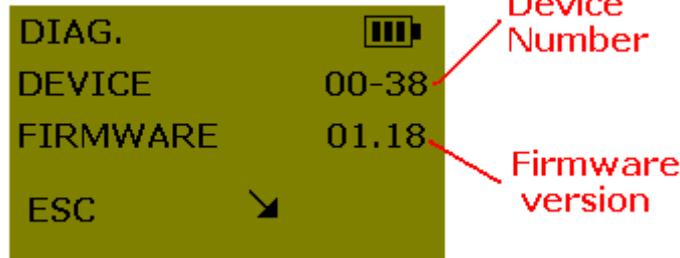
- **STEP 1:** Switch on the PPD and select 'FIRMWARE DIAGNOSTIC' option in main menu (use arrow buttons) and press 'OK'.



- **STEP 2:** Press OK and connect the PPD connector to the lock.



- **STEP 3:** Different modules firmware versions are displayed. Use arrow buttons to see them all.



See Table 9-1 for information on 'Device Number'.

### 9.3 Firmware Update

These are the steps to follow when updating any of the 3 firmwares within a lock:

- **STEP 1:** Download the firmware update file to the PPD.

Connect the PPD to an USB port, Select the PPD icon and press the 'Download firmware files' button.

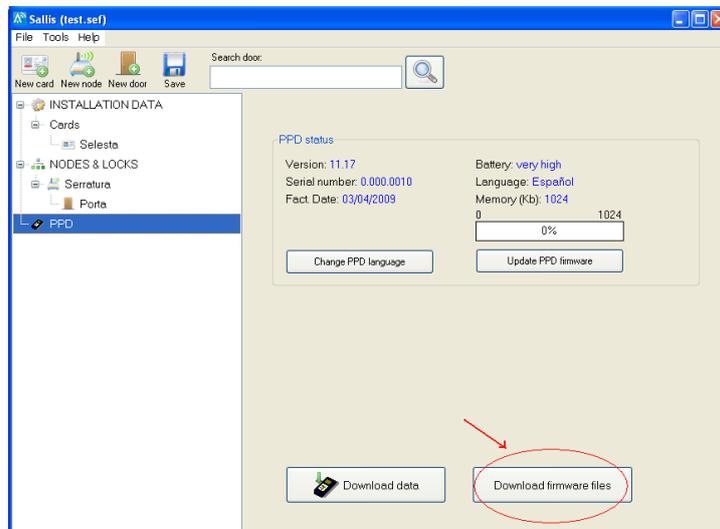


Figure 9-1 Firmware Updates: Download files to PPD.

- **STEP 2:** Select the file(s) in the browser and press the 'Add' button.

The name of the firmware files has the following structure:

**"saltofirmware\_<device number>\_<firmware version>.txt"**

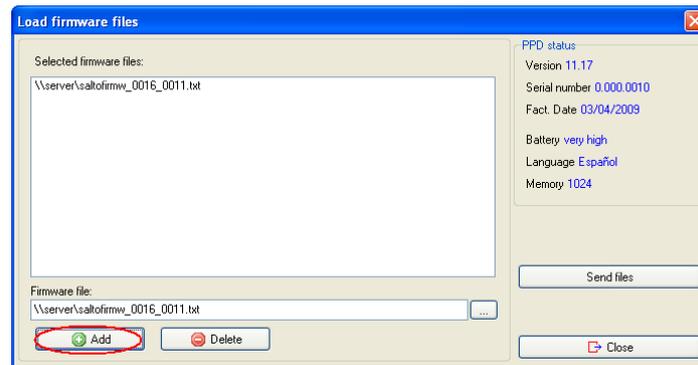


Figure 9-2 Firmware Updates: Select and add files to Download

- **STEP 3:** Press 'Send files' to download the file(s) to the PPD and 'Yes' when the warning is prompted.

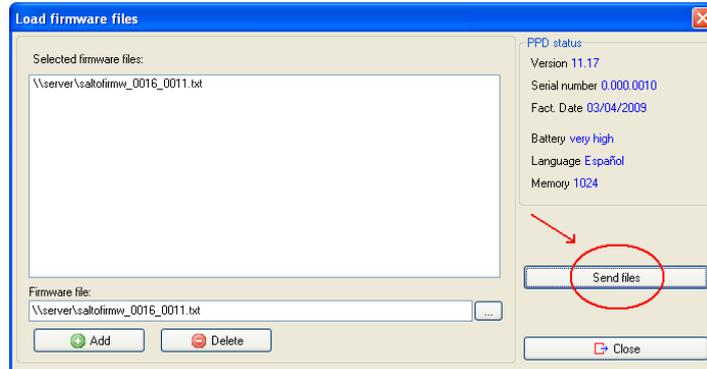


Figure 9-3 Send files to PPD

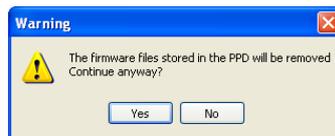
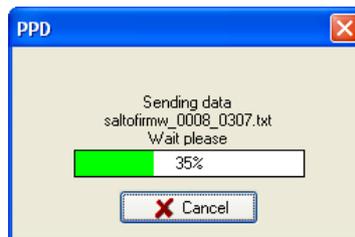


Figure 9-4 Send files to PPD: warning message

- **STEP 4:** A progress bar is displayed while downloading the firmware.



- **STEP 5:** The following message pops up when the process is finish.



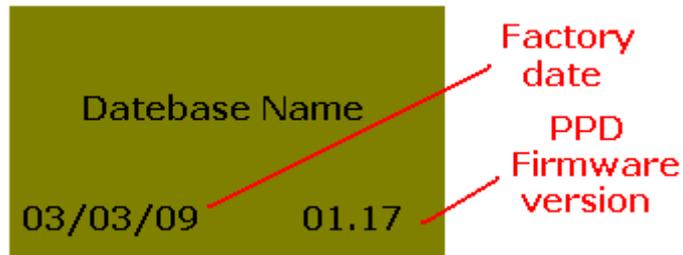
- **STEP 6:** In the PPD menu select 'Firmware Update'. Choose the firmware file to be updated, press 'OK' and connect the PPD to the device.



## 10 PPD Firmware Update

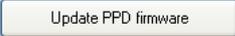
### 10.1 Current version

The current version number of a PPD is display for 2 seconds each time a PPD is switched on.



### 10.2 Firmware Update

It is possible to update the firmware of the PPD itself. These are the steps to follow:

- **STEP 1:** Connect the PPD to an USB port, Select the PPD icon and press the  button.

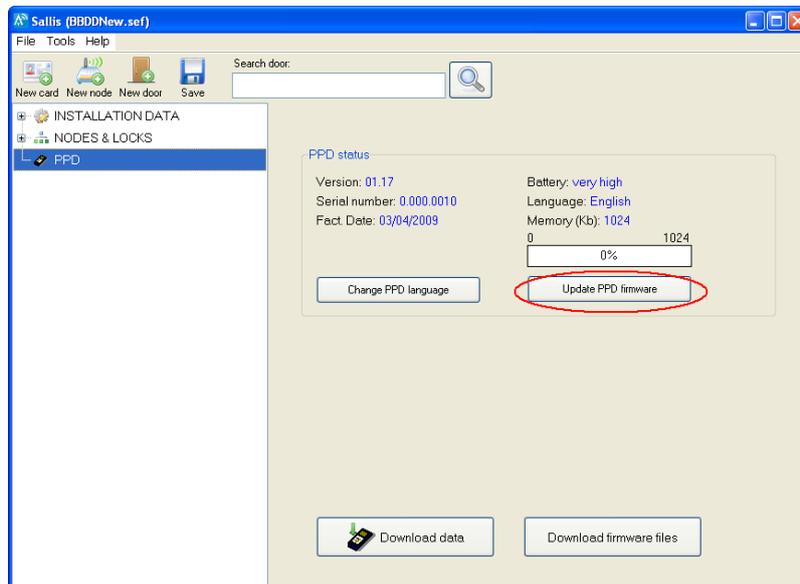


Figure 10-1 Update PPD firmware

- **STEP 2:** Choose the firmware file (only valid files are displayed)

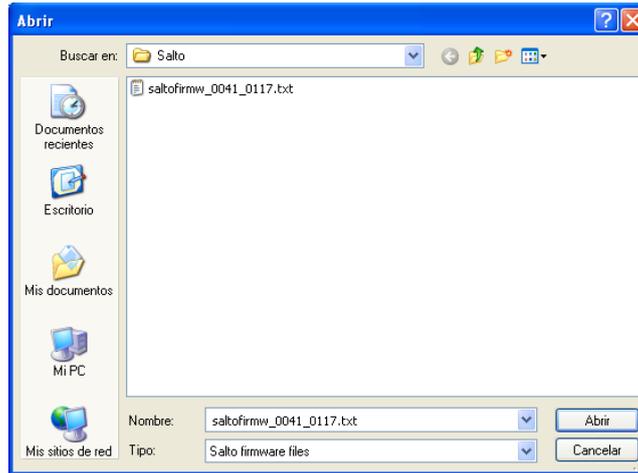
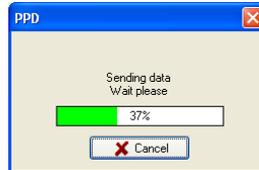


Figure 10-2 Open Update PPD firmware file

- **STEP 3:** A progress bar is displayed while updating the firmware.



- **STEP 4:** The following message pops up when the process is finish.



## 11 Valid Firmware Versions

The following table includes all the devices involved in a Sallis system together with their Device Number and minimum version:

### 11.1 With RS485 Router

Device	Device Number	Minimum Firmware Version
<b>Sallis Lock (Control)</b>	00-61	01.04 (or higher)
<b>Sallis Lock (RF Module)</b>	00-38	01.20 (or higher)
<b>Sallis Lock (Mifare Reader)</b>	00-08	03.08 (or higher)
<b>Node</b>	00-60	01.19 (or higher)
<b>Router</b>	00-59	01.03 (or higher)
<b>PPD</b>	00-41	01.19 (or higher)

Table 11-1 Electronic Devices vs. Minimum Firmware Versions

### 11.2 With Router PoE

Device	Device Number	Minimum Firmware Version
<b>Sallis Lock (Control)</b>	00-61	01.04 (or higher)
<b>Sallis Lock (RF Module)</b>	00-38	01.20 (or higher)
<b>Sallis Lock (Mifare Reader)</b>	00-08	03.08 (or higher)
<b>Node</b>	00-60	01.21 (or higher)
<b>Node mini (internal)</b>	00-71	01.21(or higher)
<b>Router</b>	00-72	01.01 (or higher)
<b>PPD</b>	00-41	01.21 (or higher)

Table 11-2 Electronic Devices vs. Minimum Firmware Versions