NETWORK DOCUMENTATION

260516-1001-PRN

Evolis printer network installation guide.

CONTENT

This documentation explains how to install set and troubleshoot Evolis printer in network environment.

ENVIRONMENT

- Evolis printer with Ethernet port or Wi-fi.
- Windows Operating System (XP SP 3 to 10).
- Linux or Mac OS Operating System

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26/05/2016	A0	Creation	FXB

KEYWORD

1. EVOLIS NETWORK PRINTER
2. INSTALLATION / USE
3. TROUBLESHOOTING

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1. Introduction

This guide intends to provide necessary information to be able to configure an Evolis printer in network environment (Local Area Network).
This documentation release ***does not*** cover Remote Desktop, Terminal services, Citrix environment and Server Operating System.

Changing the printer's basic settings without prior knowledge of the layout of the LAN in question or without genuine technical knowledge may result in a malfunction of the printer, and may even extend to failure of all or part of the LAN. Contact your System and Network Administrator before connecting to or changing the settings for your local area network.

2. Scope

Printer with Ethernet port available	Evolis Premium Suite (Windows only)	Linux / Mac OS
Primacy, Zenius (Expert only), Elypso,KC200/B, KM500B – KM2000B	Yes	Yes
Dualys, Dualys 2, Dualys 3, Pebble, New Pebble, Pebble 3, Pebble 4, Quantum, Quantum 2, Securion, Tatoo2.	No	Yes

Table above summarizes printer that has a network interface.
Printers that use the Evolis Premium Suite require a specific configuration described in section 1 of the prerequisite.

The network speed of the embedded Ethernet interface for Evolis printer is 100 Mbits full duplex, also compliant with half-duplex configuration.

This guide is not to set an Avansia printer that has a specific network.

Only Primacy printer is Wi-fi enabled, please refer to dedicated section.

The compliant Wi-fi norms for Primacy printer (only) are "B" and "G". The speed is up to 54 Mbits/s in the best possible conditions. The wireless range and data speed transmission may vary depending of your physical environment (building, closed area, metallic structure) and driver settings. For more information, do not hesitate to consult http://www.ieee802.org/11/ (external reference).

Example and screenshot provided in this documentation rely on a Windows 7 /Windows XP Operating system, Mac OS Yosemite and Linux Ubuntu 16.04. Depending on your Operating System and configuration, some details (mostly graphical elements) may vary.

Setup of Evolis Premium Suite release used to write this documentation is 6.22.0.638, driver release for Linux and Mac rely on setup release 6.5.1.86 (both available on the Evolis Website www.evolis.com/drivers-support section).

Firmware release used for this documentation is 1604 (Zenius, Elypso, Primacy printer, KC200/B, KM500/B and KM 2000/B), other printer's model (Quantum 2, Securion) has the latest firmware release

Currently, ***only*** magnetic encoding is held within a network environment (no smart encoding and no contactless encoding) for our standard range.

We do not use any third party communication protocol (Adobe Postscript, Hewlett Packard PCL) to communicate with our printer but our own communication protocol (raw communication on port 9100).

3. General check-list to set an Evolis network printer

- **Do not plug at the same time the USB cable and the network cable**. Plug your printer directly on your network if you plan to use DCHP, in case you plan to use Fixed IP address, please read carefully the following section "Install a fixed IP printer".

- **Check Firewall and Antivirus configuration:** it must be set to authorize communication on port 9100, you must have at least "power user "rights to perform Evolis network printer's installation.

- **IPV4 protocol:** Evolis printer is compliant with IP V4 communication protocol only (no IP V6). The port use to communicate with our printer is 9100 (Evolis raw printing port).

- **Multicast:** Pay attention that the protocol used to discover the printer on a network is multicast so then the routing table on your network equipment (router, server …) must be configured accordingly to your network architecture to allow communication.

- **Led Status**: Check the two status led at the rear of the Evolis printer to ensure communication is correct.

Primacy example :

LED: Green LED
On = 10Mbit/s
Off = 100Mbit/s
Orange LED
On = Printer connected to network
Flashing = Printer connected and network traffic

4. Install a fixed IP printer (All driver release)

1. Collect required information

In case of a fixed IP address, you need to know at least the following elements to make it work on your network:

- **IP address** (ex: 192.168.1.23)
- **Subnet mask** (ex : 255.255.255.0)
- **Gateway** (ex: 192.168.1.254)

Optionally you may have to configure:

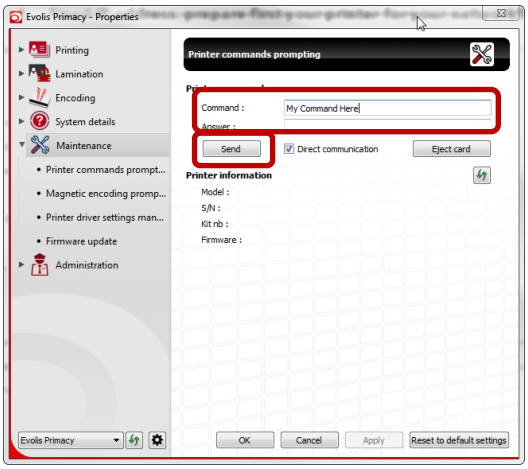
- **Wins Server** (ex: 192.168.1.1)
- **Multicast IP address** (ex: 224.69.86.79, described in RFC988, external link)

In most of the situation, you need to request those settings to IT department or technical team of the company where you plan to install the Evolis Network printer.

2. Plug your Evolis with USB cable to send commands

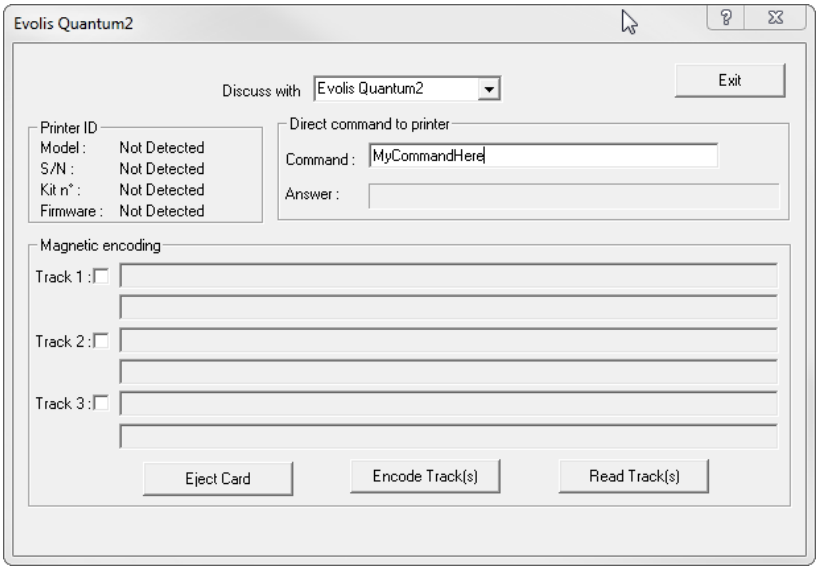
An efficient (no communication loss, fast) and easy way to communicate with an Evolis printer is to plug it first USB and install it for complete network manual configuration. Then you can delete the newly created USB printer and connect to network using wizard or manual installation described in this documentation.

Windows Operating System: To set your Evolis printer, you may use the graphical utility provided in the maintenance section of the minimal properties of the Evolis Premium Suite (available from the Windows start menu: "Evolis Card Printer\Evolis Premium Suite\Tools\ Evolis Printer properties (Minimal mode)"):

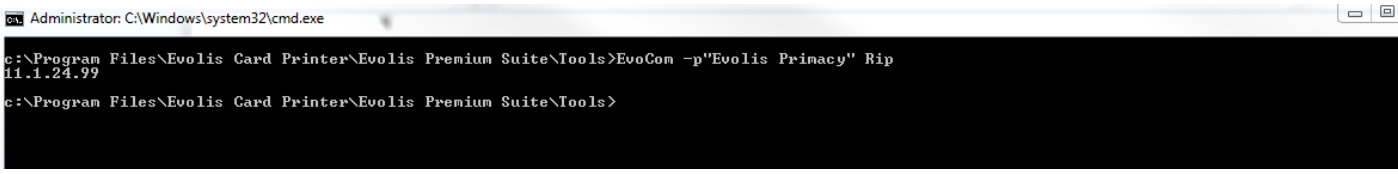


1 Type your command
2 click on "Send" to validate
3 If success printer returns « OK » answer or value of the parameter

For previous range printer, you can use the dialog tool that is available in utility tab of the driver properties (Quantum2 example below, from Microsoft printer and devices window)



Optionally use Evocom utility under Windows environment:

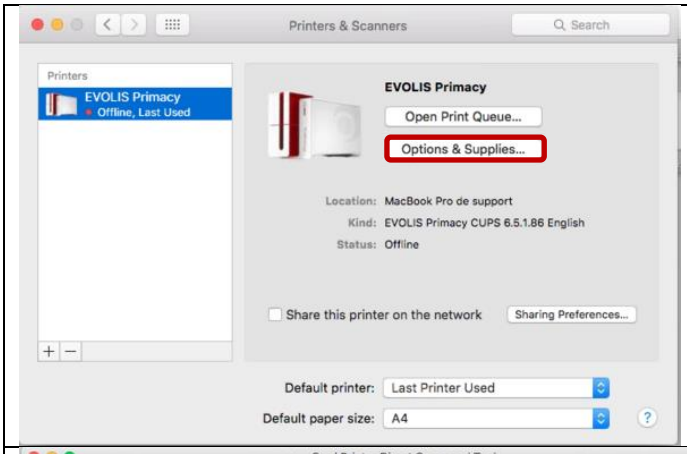


Evolis Premium Suite: The default path for Evocom utility is "C:\Program Files\Evolis Card Printer\Evolis Premium Suite\Tools\"

Previous generation driver: The default path for Evocom utility is "C:\Program Files\Evolis Card Printer\Drivers "Printer Model"\bin (ex: C:\Program Files\Evolis Card Printer\Drivers Dualys3\bin).

Linux: please contact your Evolis official distributor for additional details.

Mac OS: Use the comtool utility that is available from the "Printer & Scanners" window, then "Options and supplies…" menu, "Utility tab", finally "Open Printer Utility".

<table>
<tr>
<td> 
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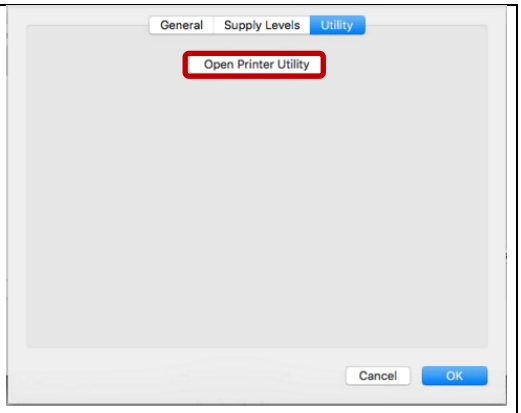
<td> 
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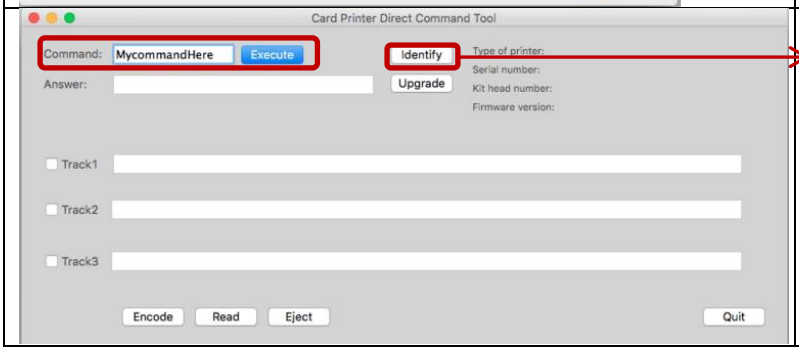
<tr>
<td> 
</td>
<td>Click first on "identify" to ensure to communicate with the target printer, then Type in your command and click on Execute.</td>
</tr>
</table>

3. Use case: Set a Fixed IP Evolis printer using commands

Send the command using the communication tools that are detailed in the previous section.

Pay attention that all Evolis commands begin with a capital letter, the separator for parameters and options is ";" (semicolon), example command: ***Pip;DHCP*** (to set the printer in DHCP mode)

If you do not respect this rule or send an incorrect option or parameter, then you will get an "ERRCDE" or "ERROR PARAMETER" message.

Mandatory settings example sequence:

Step	Command	Short description
1	Pip;192.168.1.25	Set the IP address to "192.168.1.25" value
2	Rip	Read The IP address set
3	Penm;255.255.255.0	Set the network mask to "255.255.255.0"
4	Renm	Read the network mask value set
5	Pegw;192.168.1.254	Set the default gateway
6	Regw	Read the gateway value set
7	Snetw	Validate settings

Optional settings example sequence

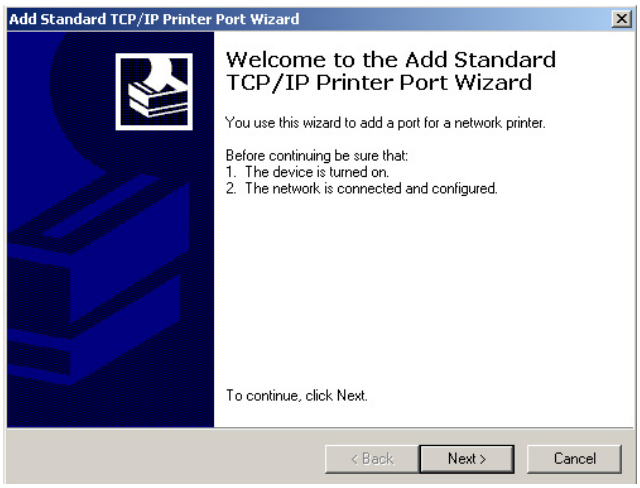
Step	Command	Short description	Comments
1	Pews;192.168.1.1	Set the Wins server address to "192.168.1.1" value	
2	Rews	Read the Wins server address	
3	Pmip; 224.69.86.79	Set the multicast IP to "224.69.86.79"	Evolis recommends not to modify this value
4	Renm	Read the network mask value set	
5	Pegw;192.168.1.254	Set the default gateway	
6	Regw	Read the gateway value set	
7	Snetw	Validate settings	

Pay attention to restart the printer for all the settings to take effect, or use "Snetw" command to apply the new network settings.

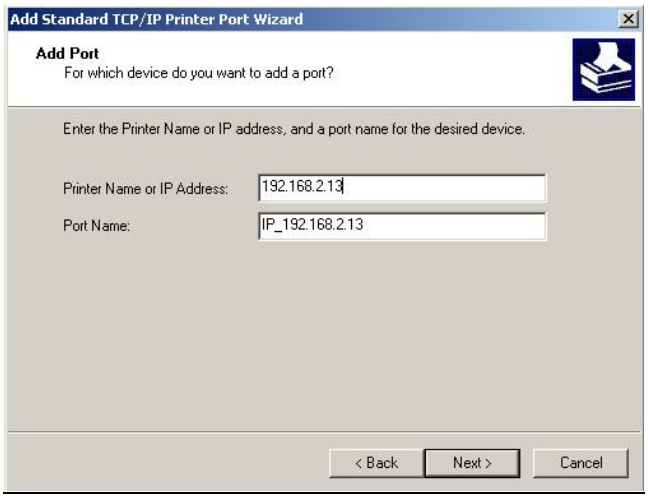
4. Installation via standard TCP/IP port

To configure the printer, select the 'Properties' function in your printer driver, then the '**Ports**' tab, and then '**Add a port**':

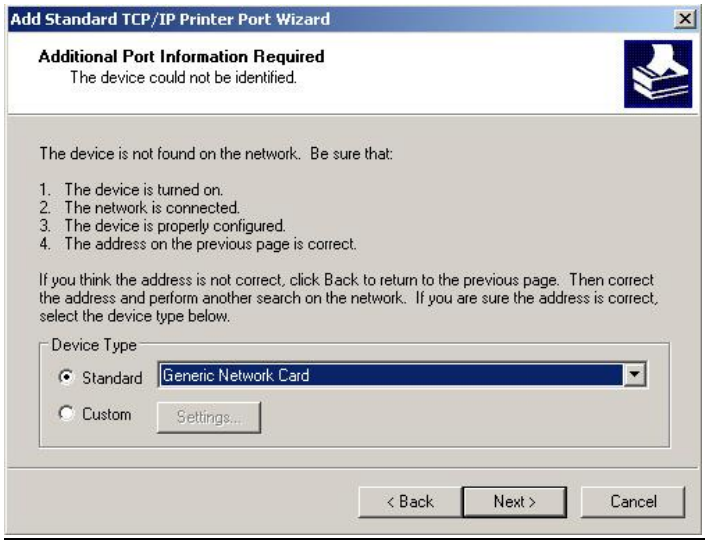
Select the 'Standard TCP/IP Port' row and click on 'Add a port'…:, select **Standard TCP/IP Port**



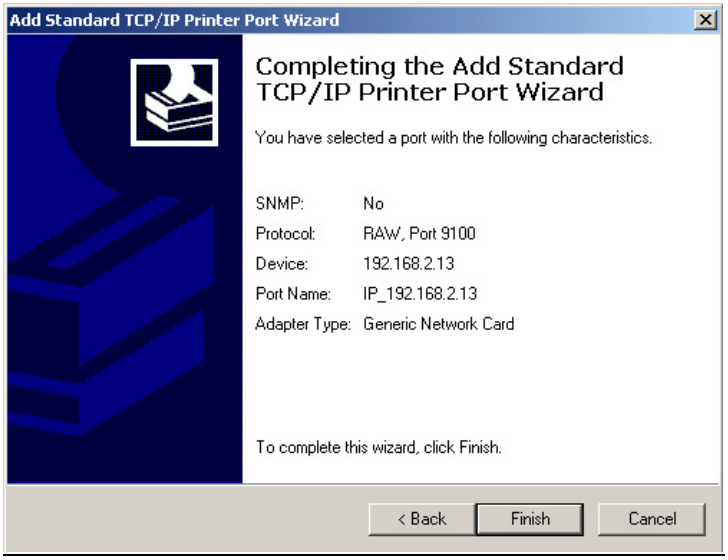
The Windows installation wizard starts up, click on 'Next' to continue.



Enter the printer's IP address in the first field, and then click on 'Next'.



Select the network card then click on 'Next'.

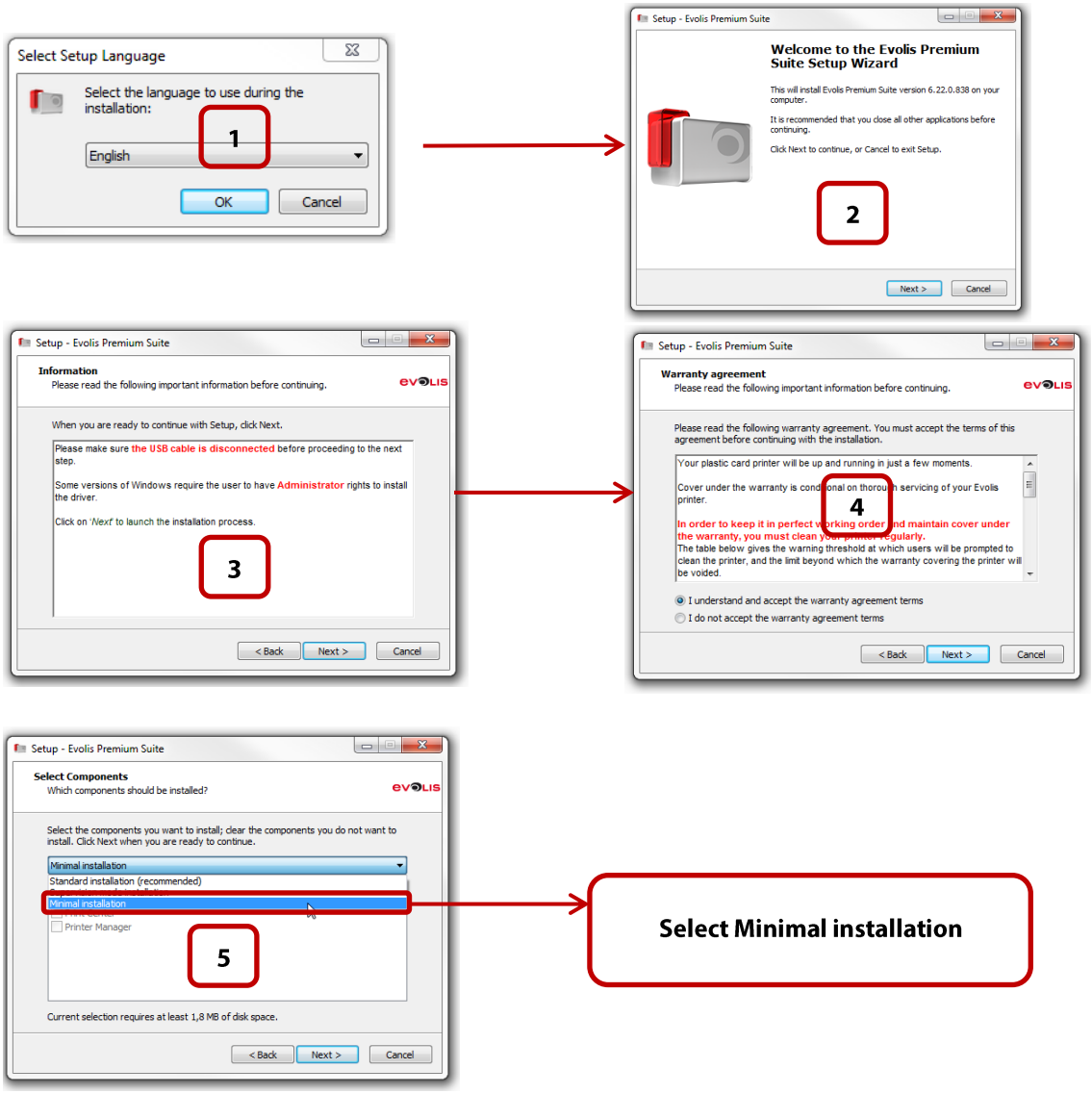


The installation confirmation window is displayed, stating your printer's properties. Click on 'Finish' to complete the installation.

5. Install network printer with Evolis Premium Suite

1. Prerequisite: Minimal mode installation

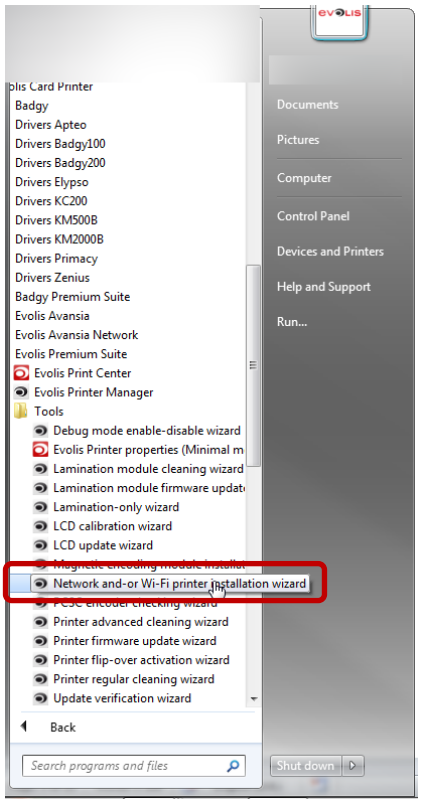
You need to install your Evolis Premium Suite in **Minimal mode** to make your Evolis network printer to work correctly, screenshot below:



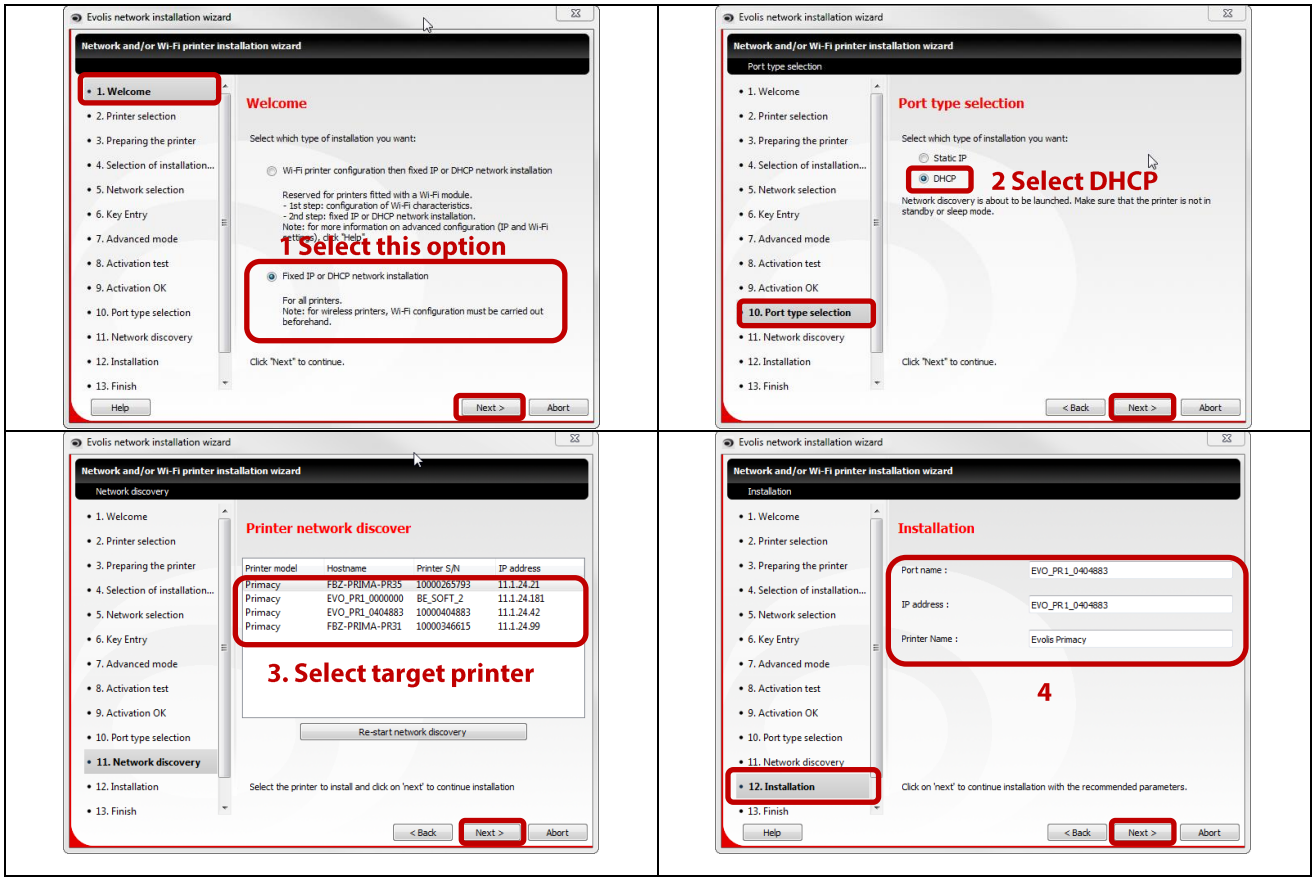
Pay attention that the Minimal installation does not include printer supervision (status of the printer in the Print Center and Printer Manager pop-up notifications in the Windows system tray).

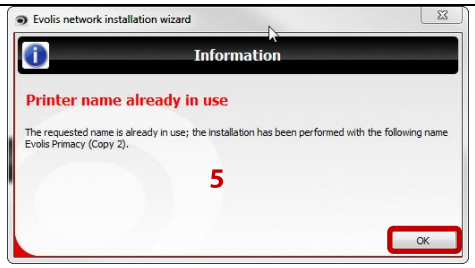
2. Using Evolis Premium Suite Network installation wizard

The network installation wizard is available from the Windows start menu -> “Evolis Card printer” folder -> “Evolis Premium Suite” -> “Tools” folder.

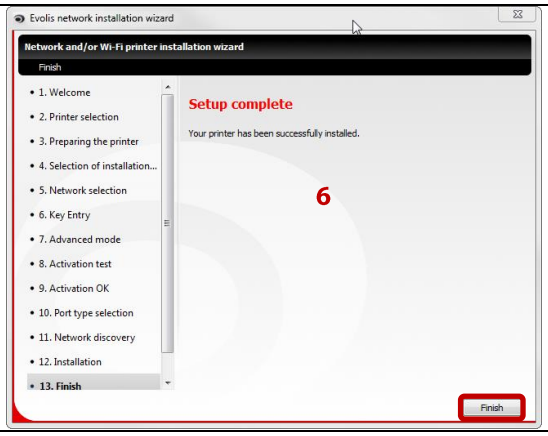


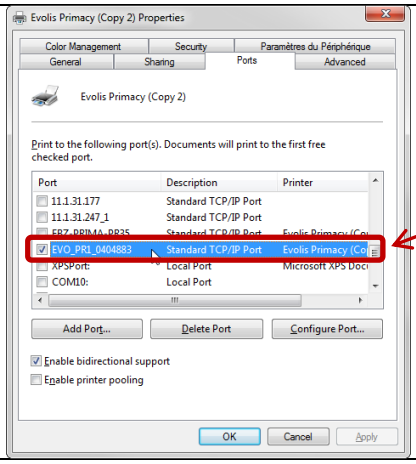
3. DHCP or fixed IP address standard Installation sequence





In case of an already existing printer name, then a new "Copy" is generated

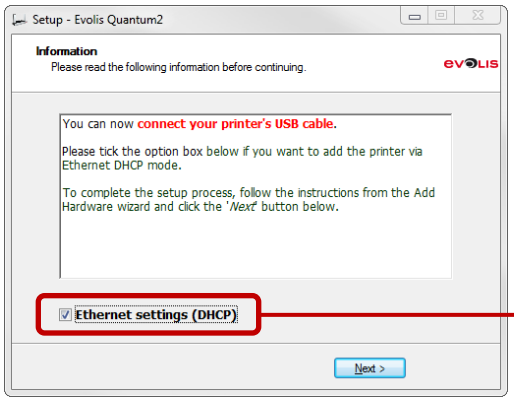




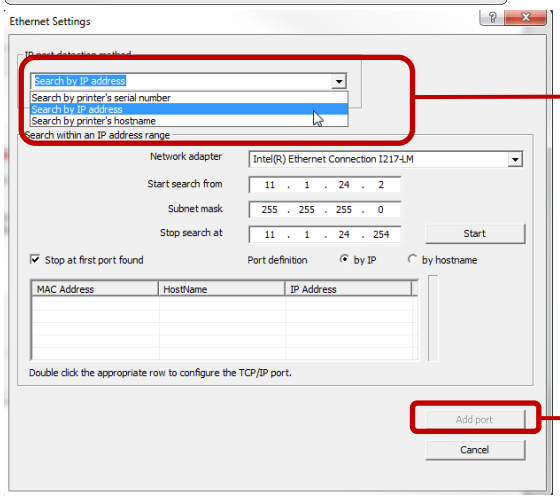
The printer properties (from windows printer and devices window) show the newly installed port. DHCP installation shows the Hostname (ex: EVO_PRI_0404883) of your printer in the port column. Fixed IP address shows the IP address (ex: IP_192.168.0.12) of the printer.

6. Install network printer with previous range driver (ex: Quantum 2)

Printer with the previous version of the Evolis driver can install directly their printer driver and then use the Ethernet wizard during the installation process:



Tick the Ethernet Settings (DHCP) to start procedure.



Select the detection mode:
Printer's serial number
IP address
Printer's hostname

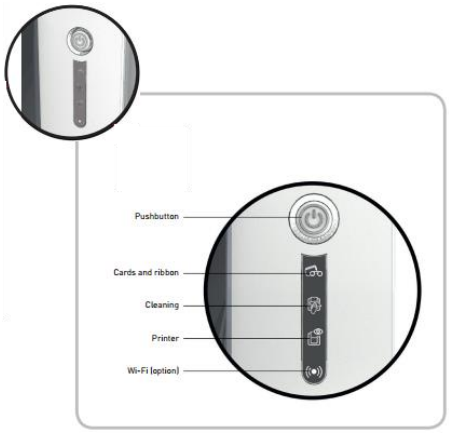
Finally click the "Add port" Button corresponding to target printer.

7. Primacy only: Wi-fi installation

1. Check the WI-FI option presence

- Physically on the printer

First check on the Primacy control panel for the presence of the WI-FI option (schematic below):



Pay attention that the **Wi-fi is factory setting only** (option not upgradable), that means if you require Wi-fi you need to order Primacy that already has option.

- Using Commands

Default Primacy configuration out of the box is Ethernet interface enabled and Wi-fi interface disabled.

To first check if the WI-FI option is present or not, use the ***"Rtp;w"*** (Read printer Type; Wifi) command, detailed below :

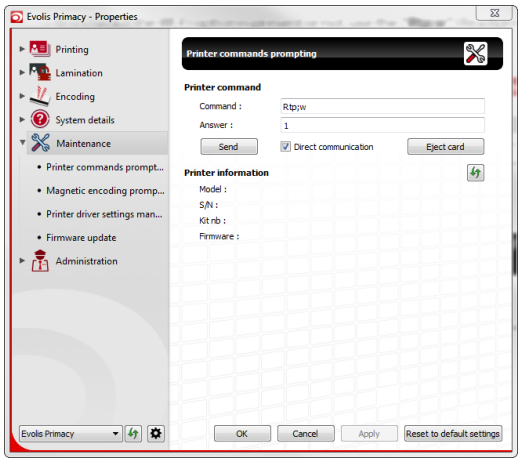
Escape sequence:	**Presence of Wi-fi module**
Command	**Rtp;w**
Return	**0 or 1**
Description	**1** if the Wi-fi module is present **0** if the WI-FI module is not present

Example command:

```
C:\Program Files\Evolis Card Printer\Evolis Premium Suite\Tools\Evocom –p"Evolis Primacy" Rtp;w
1
```

This command shows a WI-FI enabled printer because it returns "1" value.

You can also use the "Maintenance" section of the Evolis Premium Suite shown below to send commands:

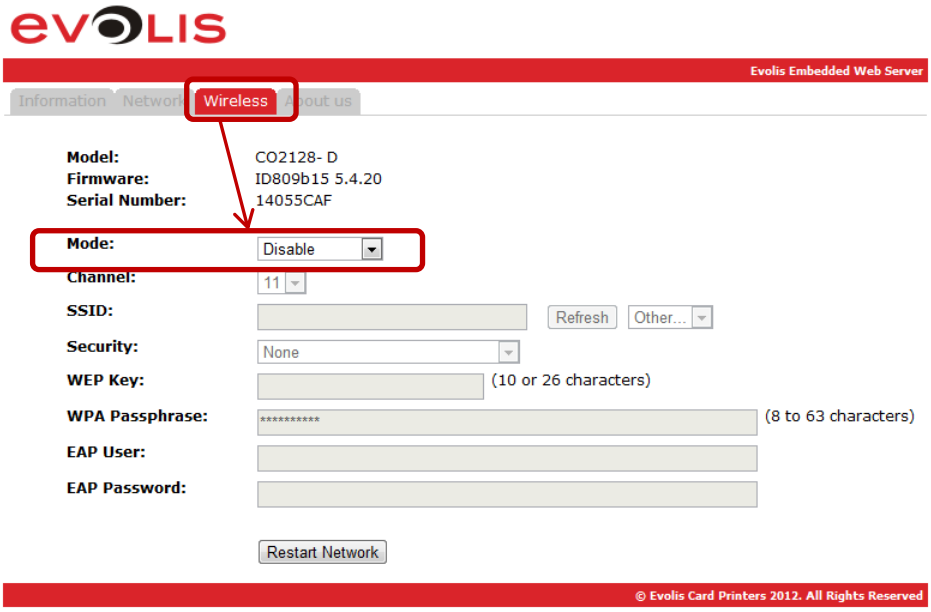


2. Enable the Wi-fi adapter interface

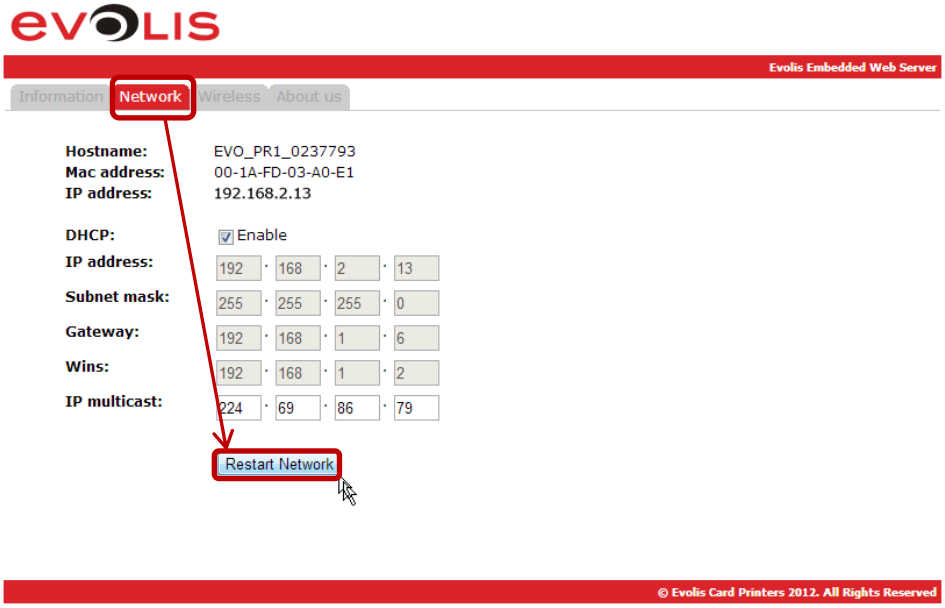
- Enable Wi-fi via the web interface

Type the IP address of the Evolis Primacy printer in a web browser address bard (i.e. Internet Explorer, Mozilla Firefox, Google Chrome), validate by enter, example below :

In the Wireless section, turn the Mode from “Disable” to “Enable”



Once it is enabled, the Wi-fi settings become available (fields are fillable and turn from grey to white color).



To complete configuration, fill in the correct information in the Network section and then Click on restart network

- Enable Wi-fi via the command line

To send commands to the printer, please rely on

Step	Command	Short description	Possible Values
4	Pwifi;MDE;2	Disable the Wi-fi (0), Ad hoc (1), or connect to SSID network (2)	0 : Wi-fi Disable 1 : Adhoc Mode 2 : SSID network
5	**Rwifi;MDE**	**Read the Wi-fi mode**	**0 : Wi-fi Disable 1 : Adhoc Mode 2 : SSID network**

The most common configuration is Pwifi;MDE;2 (SSID Network).

Example command:

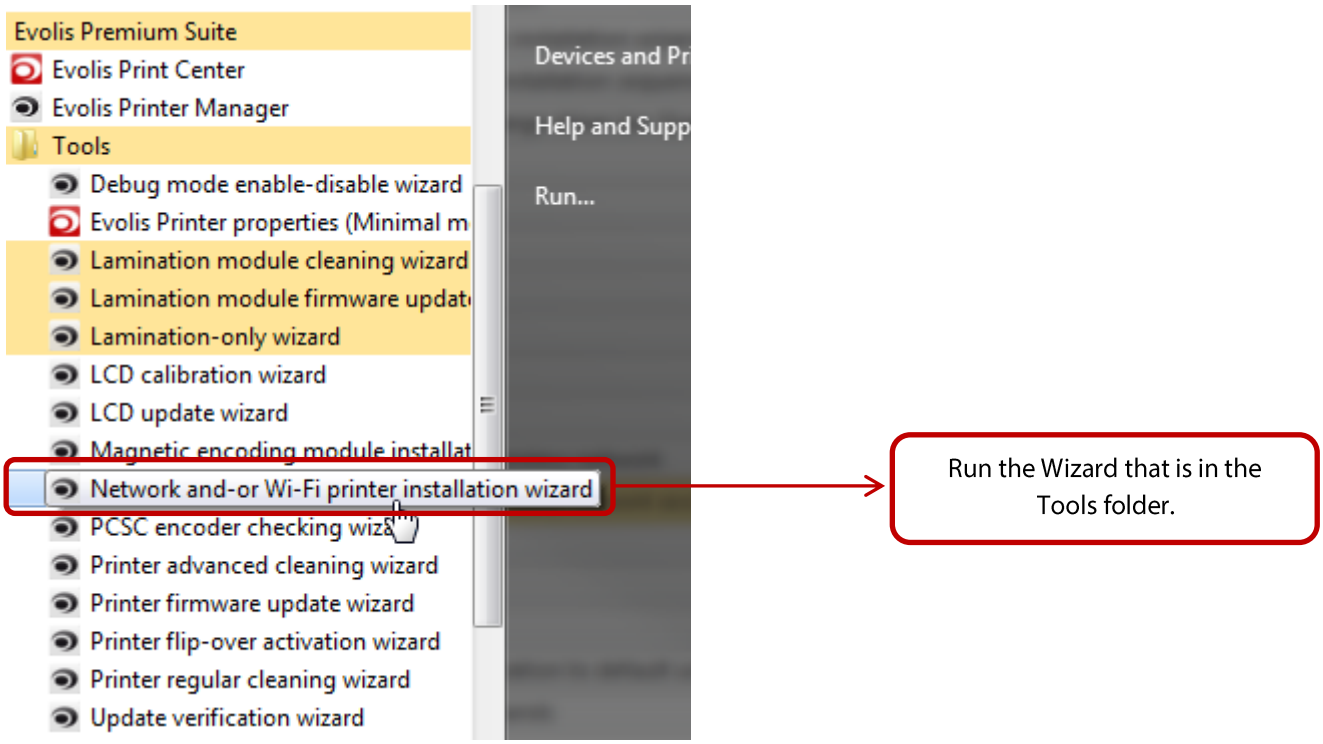
```
C:\Program Files\Evolis Card Printer\Evolis Premium Suite\Tools\Evocom –p"Evolis Primacy" Pwifi;MDE;2
OK
```

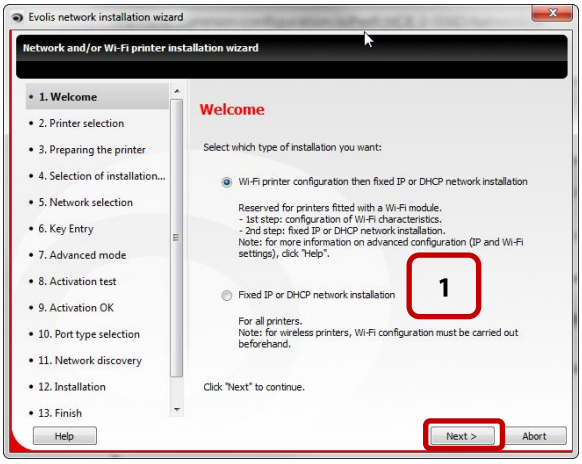
3. Collect information related to the wireless network

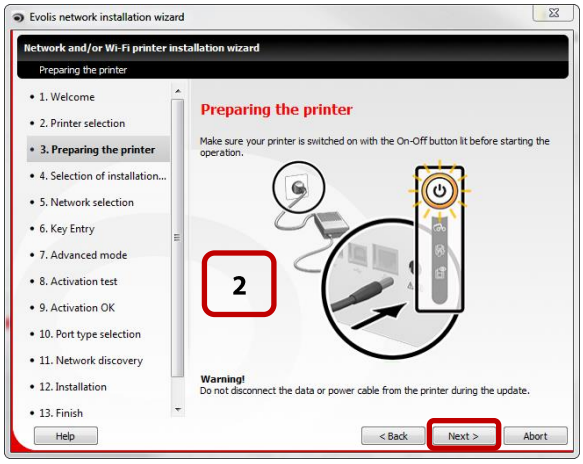
Router wireless setup varies from manufacturer to manufacturer. You should follow the instructions that came with your router to pair your printer with your router.
To connect your printer to the wireless network, you need the following information:

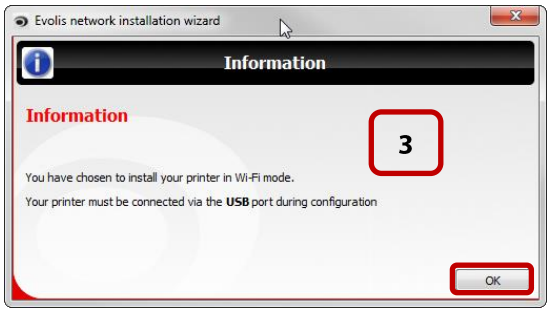
- **SSID or Network name**
- **Security Type or Encryption (WEP; WPA, WPA2 personal, WPA2 enterprise)**
- **Password, Network key or Passphrase**
- **Method to pair printer with the network equipment (WPS, router configuration, pairing button…)**

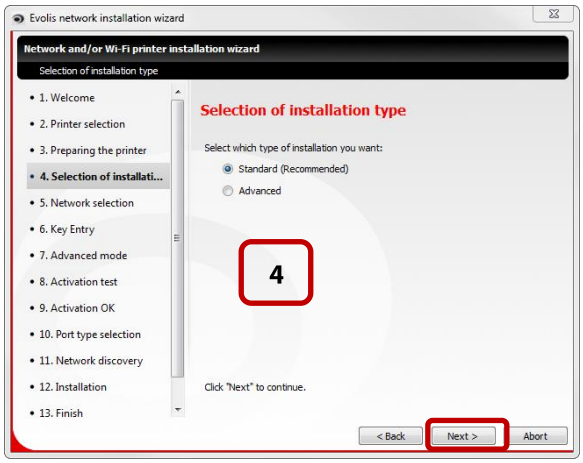
4. Installation with the Evolis Premium Suite network assistant

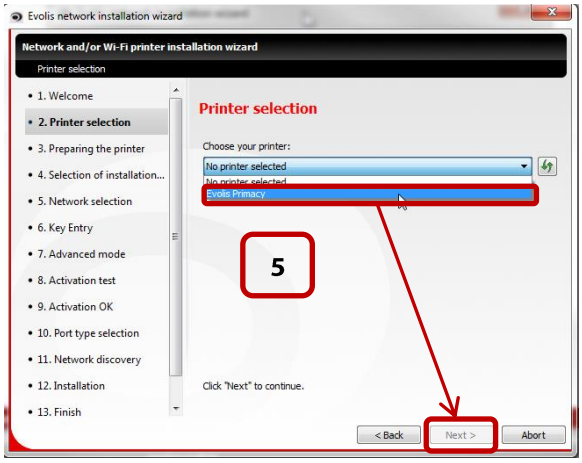


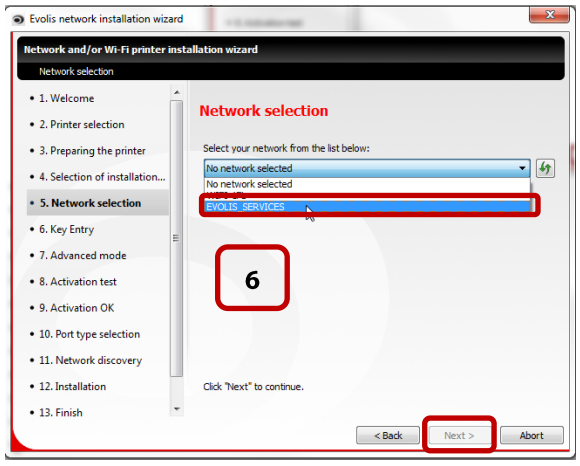

Evolis network installation wizard
Network and/or Wi-Fi printer installation wizard
1. Welcome
2. Printer selection
3. Preparing the printer
4. Selection of installation...
5. Network selection
6. Key Entry
7. Advanced mode
8. Activation test
9. Activation OK
10. Port type selection
11. Network discovery
12. Installation
13. Finish
Welcome
Select which type of installation you want:
Wi-Fi printer configuration then fixed IP or DHCP network installation
Reserved for printers fitted with a Wi-Fi module.
- 1st step: configuration of Wi-Fi characteristics.
- 2nd step: fixed IP or DHCP network installation.
Note: for more information on advanced configuration (IP and Wi-Fi settings), click "Help".
Fixed IP or DHCP network installation
For all printers.
Note: for wireless printers, Wi-Fi configuration must be carried out beforehand.
1
Click "Next" to continue.
Help
Next >
Abort

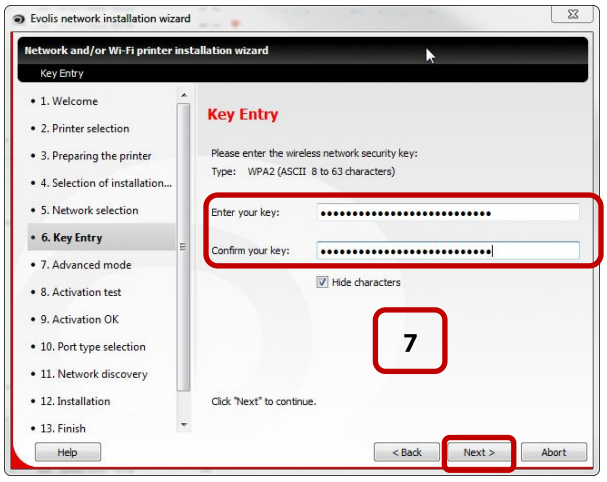

Evolis network installation wizard
Network and/or Wi-Fi printer installation wizard
Preparing the printer
Preparing the printer
Make sure your printer is switched on with the On-Off button lit before starting the operation.
2
Warning!
Do not disconnect the data or power cable from the printer during the update.
Help
< Back
Next >
Abort

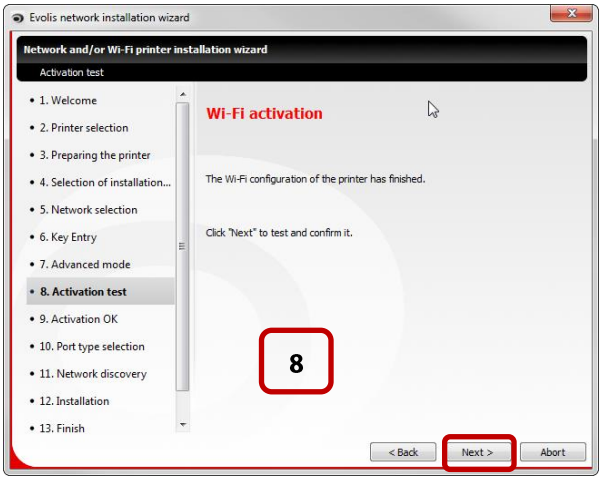

Evolis network installation wizard
Information
Information
3
You have chosen to install your printer in Wi-Fi mode.
Your printer must be connected via the USB port during configuration
OK

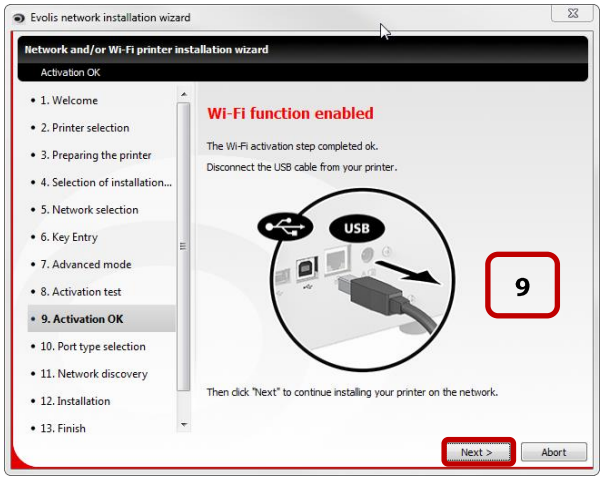

Evolis network installation wizard
Network and/or Wi-Fi printer installation wizard
Selection of installation type
Selection of installation type
Select which type of installation you want:
Standard (Recommended)
Advanced
4
Click "Next" to continue.
< Back
Next >
Abort

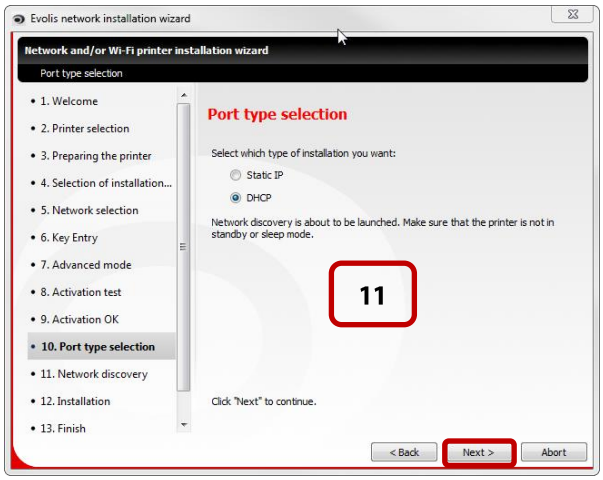

Evolis network installation wizard
Network and/or Wi-Fi printer installation wizard
Printer selection
Printer selection
Choose your printer:
No printer selected
Evolis Primacy
5
Click "Next" to continue.
< Back
Next >
Abort

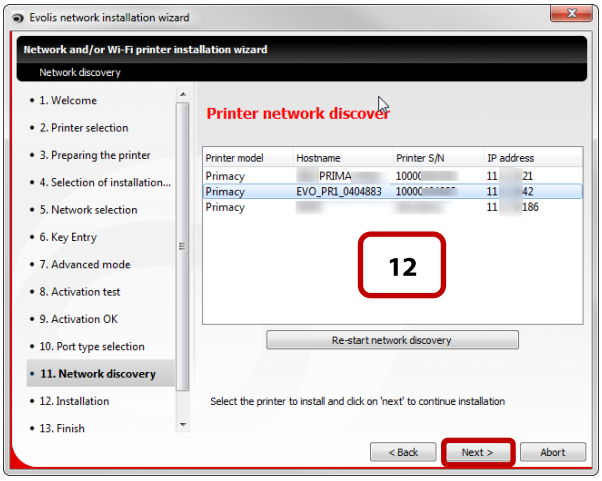

Evolis network installation wizard
Network and/or Wi-Fi printer installation wizard
Network selection
Network selection
Select your network from the list below:
No network selected
EVOLIS_SERVICES
6
Click "Next" to continue.
< Back
Next >
Abort

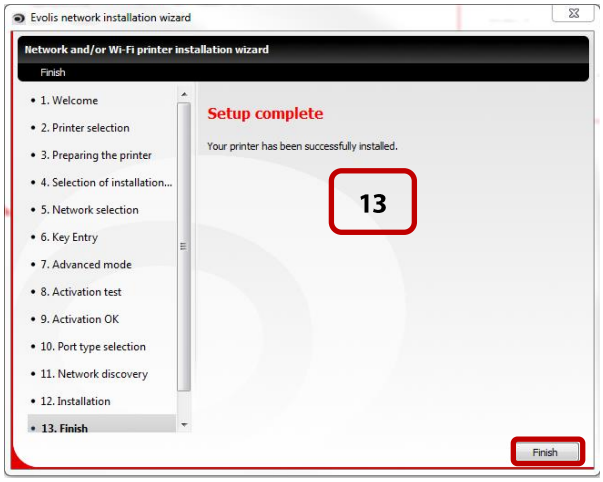

Evolis network installation wizard
Network and/or Wi-Fi printer installation wizard
Key Entry
Key Entry
Please enter the wireless network security key:
Type: WPA2 (ASCII 8 to 63 characters)
Enter your key:
Confirm your key:
Hide characters
7
Click "Next" to continue.
Help
< Back
Next >
Abort


Evolis network installation wizard
Network and/or Wi-Fi printer installation wizard
Activation test
Wi-Fi activation
The Wi-Fi configuration of the printer has finished.
Click "Next" to test and confirm it.
8
< Back
Next >
Abort

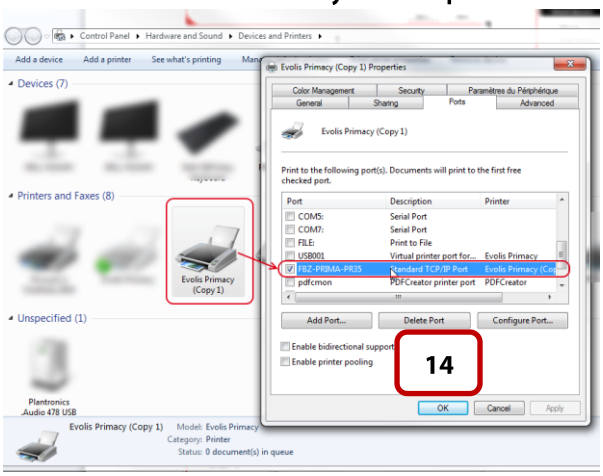








You can check the newly installed printer



5. Wi-fi setup via command line

Connect first your printer using the USB cable, to send commands to the printer, refer to this section.
Collect network information, please refer to this section.

Below a matrix of the sequence commands to set all the available Wi-Fi parameter:

Step	Command	Short description	Possible Values
1	Cwifi;RP20	List available Wi-fi network	Returns maximum 16 networks name to collect the name / SSID of the network.
2	Pip;192.168.1.25	Set the IP address to "192.168.1.25" value	IP address dhcp
3	Rip	Read The IP address set or DHCP	Auto or IP address
4	Pwifi;MDE;2	Disable the Wi-fi (0), Ad hoc (1), or connect to SSID network (2)	0 : Wi-fi Disable 1 : Adhoc Mode 2 : SSID network
5	Rwifi;MDE	Read the Wi-fi mode	0 : Wi-fi Disable 1 : Adhoc Mode 2 : SSID network
6	Pwifi;WLCH;13	Set the Wi-fi channel	1 to 13 (check your network's equipment channel fisrt)
7	Rwifi;WLCH	Read the Wi-fi channel	1 to 13
8	Pwifi;WSIO;Name_Of_SSID	Set the wireless LAN name (SSID)	Name of the Wi-fi network
9	Rwifi;WSI0		
10	Pwifi;WSTO;4	Set the type of Wi-fi security	The Wireless LAN security type for each individual SSID in the array. 0: No security 1: WEP 64 2: WEP 128 3: WPA-PSK with TKIP encryption 4: WPA2-PSK with TKIP or AES encryption 105: EAP-TLS or PEAPMSCHAPv2. RADIUS 106:WPA-TKIP Enterprise with Certification Verification will be skipped WPA2-AES Enterprise with EAP-TLS or PEAPMSCHAPv2. RADIUS Certification Verification will be skipped
10	Pwi-fi;WPP0; Keyphrase (i.e.WPAPassphrase123456789)	Set the password of your network	contains 8 to 63 characters for WPA
11	Rwifi;all	Check the values set previously	
12	Snetw	Validate settings	

8. Troubleshooting

1. Ensure that the settings has been validated

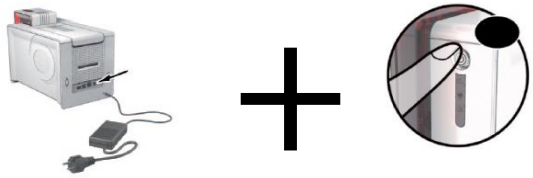
Each time you modify a network setting for your Evolis printer, you must validate settings:
- You may use the "Srs" (System Reset) command to proceed for a remote printer
- Unplug and plug again the power cable
- Send a Snetw command

2. Reset your Ethernet / WI-FI configuration to default using the power button (Zenius, Primacy, Elypso, KC200, KM5000 and KM2000):

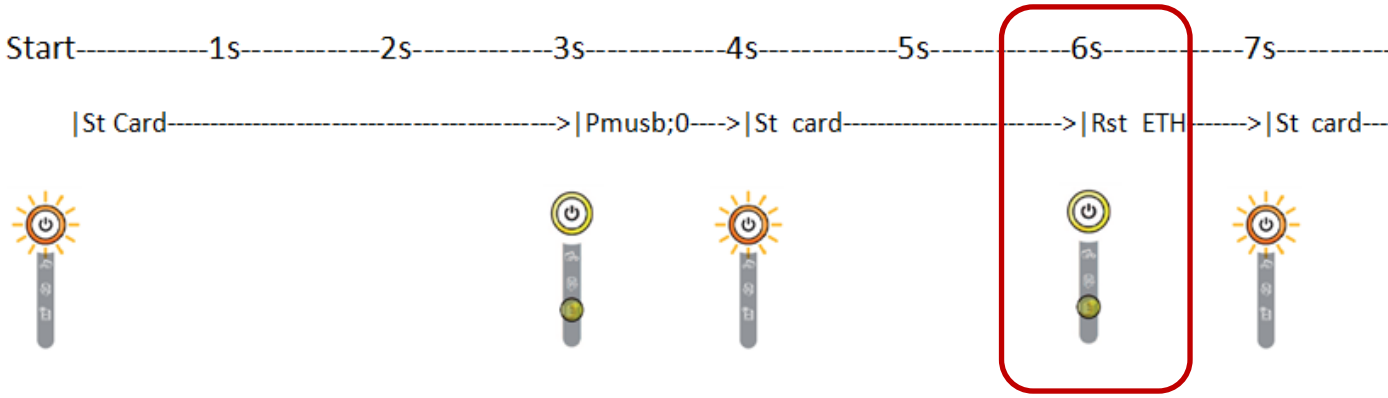
If you keep pressed the power button when you start your printer, you can run three different sequences:

- Make a "St Card".
- Start in a "USB Generic Mode".
- Reset Ethernet or WI-FI configuration.

Schematic below, press the pushbutton and power on your printer



- Below you have the different case if you release the pushbutton during the start sequence, to reset the Network interfaces (Ethernet, WI-FI), press button 6 seconds :



If you release the pushbutton at the timing above, you launch the "RESET ETH". This mode reset the printer Ethernet configuration. Process of the sequence:

- Disable WI-FI module, if it is present.
- Set the Ethernet configuration in DHCP mode.

3. Reset network settings using commands

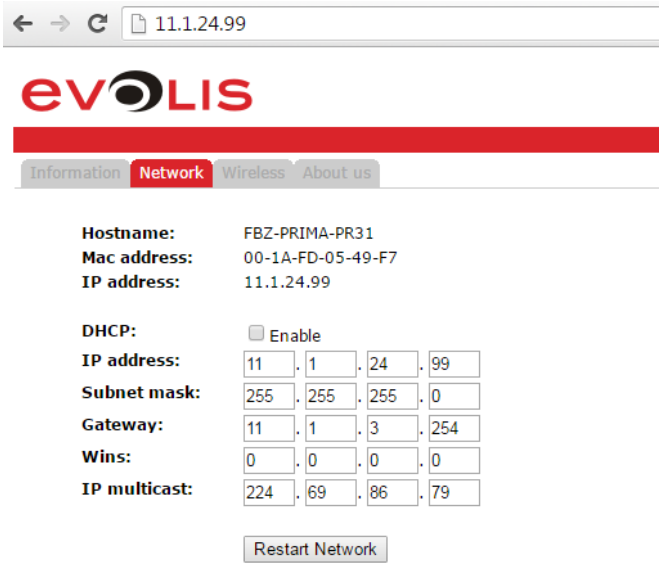
In Command field, type sequentially:
--**Pip;dhcp**
--**Snetw**.

--Check your configuration by typing **Rip;1**. The result should be : **192.168.2.13 Auto or 0.0.0.0 Auto if you have manual configuration.**

4. Check connectivity with your printer

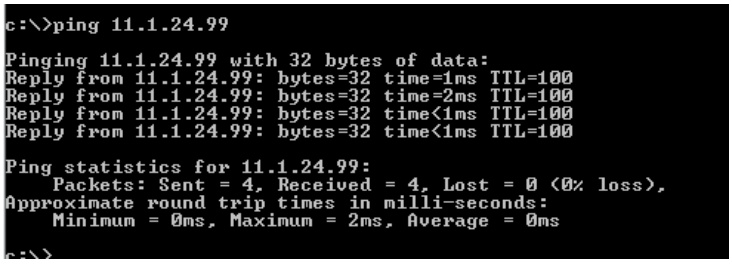
- Web interface

A simple way to ensure that your Evolis network printer is up and running is to type the IP address in the address bar of a web browser, example below:



- Ping command

Send a ping command to concerned printer via a command line, example below:



- Hardware checking

Check that the light on the network interface of the printer is blinking, check your Ethernet cable, check network equipment (change port on your switch or router, test with another equipment).

5. Check your computer's configuration

9. Most common Escape commands

Command	Short description	Comments
Pip;192.168.1.25	Set the IP address to "192.168.1.25" value	
Rip	Read The IP address set	
Penm;255.255.255.0	Set the network mask to "255.255.255.0"	
Renm	Read the network mask value set	
Pegw;192.168.1.254	Set the default gateway	
Regw	Read the gateway value set	

10. Appendix

6. What is a multicast address?

Evolis uses IGMP frame to send query to all printers connected to the network.
To use the discovery services offered by the Evolis Premium Suite, it is important that the network gateways support IGMP frames. To route Multicast traffic between two LANs, the gateway requires PIM Dense or PIM Sparse mode.
Example for Windows Server 2003: http://www.labo-microsoft.org/articles/win/rad2003/7
The default Evolis Multicast address is 224.69.86.79.
To know the multicast address of your Evolis printer, use the ***"Rmip"*** command

7. How is set the hostname for Primacy or Zenius printer

The printer name (hostname) is automatically set as EVO_NNN_XXXXXXX, where:

EVO is the root for Evolis products
NNN varies with the printer model:
PR1 for Primacy
ZE1 for Zenius
XXXXXXX is obtained from the printer's serial number, e.g. EVO_PR1_0001234 for serial number Z71**0001234** Evolis limits the hostname to 15 characters according to the Windows Netbios limitations: http://support.microsoft.com/kb/909264/en-us
To know the hostname of your Evolis printer, use the "***Rehn"*** command

8. Mac address on Evolis Printer

Generated from the printer's serial number with the Evolis **00-1A-FD** header (Evolis "OUI" - Organisationally Unique Identifier).

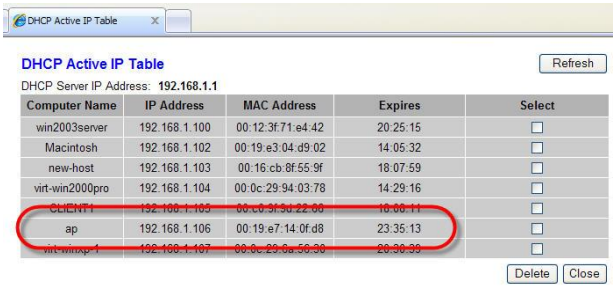
For example, for the serial number P07100001234, the MAC address is 00-01-FD-00-04-D2.

00-04-D2 is the hexadecimal transcription of the decimal value 001234.
MAC address is visible on a sticker underneath the printer

9. What is DHCP ?

All Evolis printers are configured DHCP (**D**ynamic **H**ost **C**onfiguration **P**rotocol) out of the box, this means if your network has an equipment that delivers DHCP lease automatically, then you may not need more configuration.
To retrieve the IP address that is set by your network equipment (mostly router or Server), then connect to its interface and look for the Evolis Equipment. The network equipment installation is not held by the Evolis support team but the IT department that is in charge of your infrastructure (optionally a third party company).

DHCP table example:



This information is mandatory to be able to make your Evolis printer to work correctly on your network.

10. Retrieve compliant configuration from a computer

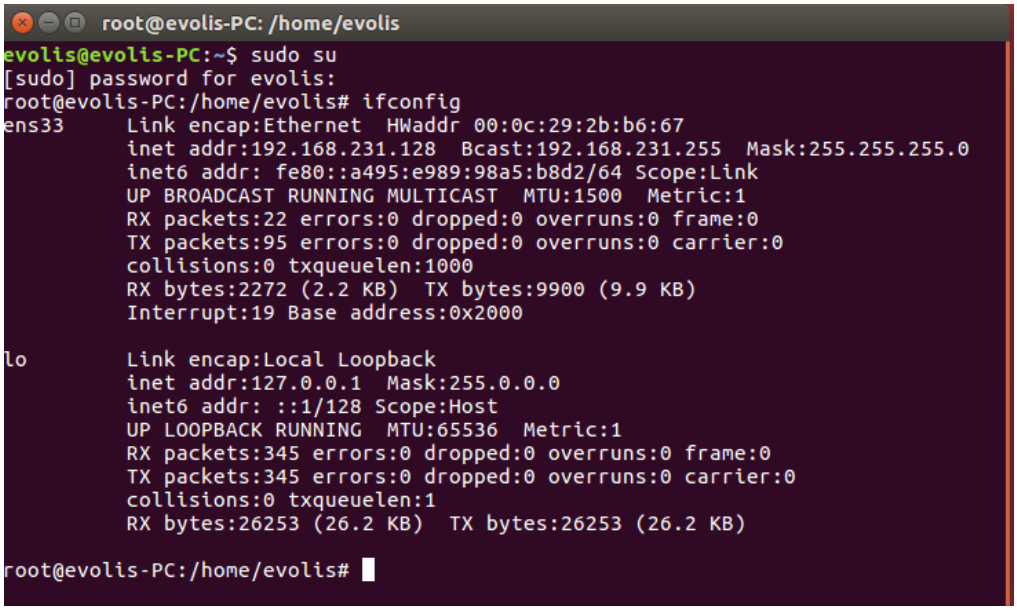
Most of the time, it is possible to retrieve a compliant configuration using the network utility that is in your Operating system:

- On Microsoft Windows Operating System, use the IPCONFIG utility (optionally with /all parameter),example below (to access the MS-DOS prompt, use Windows key + R and type cmd.exe then validate by ENTER) :

```
C:\Users\UserProfile>IPCONFIG /ALL
Ethernet adapter Local Area Connection:

   Media State . . . . . . . . . . . : Media connected
   Connection-specific DNS Suffix  . : Mydomain.com
   Description . . . . . . . . . . . : Intel(R) Ethernet Connection I217-LM
   Physical Address. . . . . . . . . : ED-F4-B0-0F-71-FB
   DHCP Enabled. . . . . . . . . . . : Yes
   Autoconfiguration Enabled . . . . : Yes
IPv4 Address. . . . . . . . . . . : 192.168.106.1(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . :
   NetBIOS over Tcpip. . . . . . . . : Enabled
```

For Windows and Mac OS environment, use the ifconfig command:



Pay attention that an IP address must be unique on the network.

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