

X5 Quickstart Guide





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TABLE OF CONTENTS

1	Introduction.....	5
1.1	Requirements	5
1.2	Key Shortcuts in X5 Handheld.....	5
2	Security Features	6
3	Examples of System Configuration.....	7
3.1	Client/Server Configuration (JMobile Client on Handheld).....	7
3.2	JMobile Runtime on Handheld.....	8
4	How to Set-up a Minimal X5 System for Demonstration Purposes	9
4.1	Wiring the Base Station.....	10
4.2	Configuring X5 Base Station.....	11
4.3	Configuring X5 Wireless Handheld	13
5	Device Publisher.....	16
5.1	Forwarding Device Publisher Information to PLC/Controller	17
5.2	How to Receive Data from Device Publisher	18
6	More on Using X5.....	19
6.1	Pressing Multiple Keys in X5 Handheld	19
6.2	Purpose of Auxiliary Input	19
6.3	Use VNC Client for Easier Access to BS and Handheld.....	19
6.4	Connect Base Station to a Controller/PLC.....	20
6.5	Manually Flash Pairing Lamp	20
6.6	List Sorting Options in Pairing App	20
6.7	Using NFC as Pairing Selection Accelerator	21
6.8	Importing/Exporting Base Station Lists.....	22
6.8.1	Export Base Station List	22
6.8.2	Import Base Station List.....	23
6.9	System Variables	23
6.10	Haptic Response.....	23

1 Introduction

This document is a collection of the basic information required to set-up a fully operational X5 sample system.



INFORMATION

- This document is not a replacement for X5 User Manual and JMobile User Manual.

1.1 Requirements

X5 is based on Linux BSP UN75 version 1.3.xxx.

Products based on BSP 1.3.xxx requires JMobile version 4.5.0.xxx or higher for their programming activity.



INFORMATION

- X5 products cannot be programmed with JMobile version 4.0 or earlier.

1.2 Key Shortcuts in X5 Handheld

Keypad shortcuts have been defined for switching on/off the X5 handheld as well as for starting the pairing application.



INFORMATION

- You will need to press two keys at the same time on the device keypad to make these combinations.

Switch on/Switch off handheld	F2 and F5 Hold keys pressed for about 2 seconds
Start safety pairing application	K1 and K4



INFORMATION

- Keypad shortcuts are hardcoded and cannot be modified.
- There are no alternative methods for performing these two operations.



2 Security Features

The platform UN75 version 1.3.xxx is based on Linux and comes with new built-in security features.

When starting a brand-new device, you must log-in before you can access System Settings.

Products are configured at manufacturing time with two users: "admin" and "user"

Each user has own password to authenticate the access.

At first power-up, the system will require users to replace the default password with a new one.

Default passwords are:

User	Password
admin	admin
user	user

The message you will see is:

Authentication/Users

Default password detected – please choose a more secure one. NOTE: system will reboot upon completion.

Minimum password requirements are specified on screen.

When entering passwords for the **first time** you will not be required to insert the old (default) password.

Keep note of the passwords you have defined. If you forget them, you must restore X5 to factory default, wiping out the whole configuration.

Please note that without authenticating as a valid user you cannot even access System Settings or Start-up page in your X5 devices.

Access the system as "admin" whenever you need to change any property in System Settings.

You can change again BSP passwords at later time; use the option "Authentication" in System Settings for this. Remind that you will be required to enter the old password to be able to change to a new one.

Remind that there are cases where the system may ask users logging-in with credentials different from these system credentials.

For instance, the connection JMobile Server <-> JMobile Client has its own credentials, defined using JMobile Studio. See figure as a reminder for these different user management options.



3 Examples of System Configuration

X5 supports two main system configurations. Each configuration has strength and weaknesses.

3.1 Client/Server Configuration (JMobile Client on Handheld)

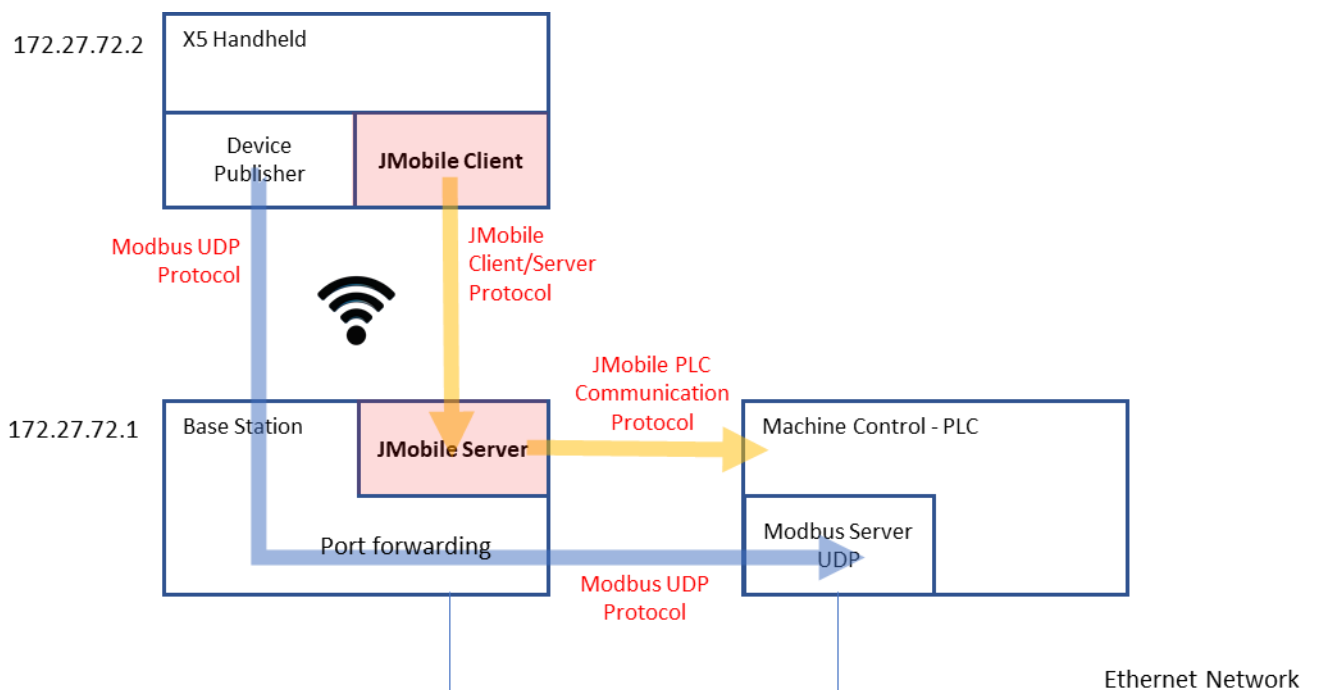
JMobile runtime is running on Base Station. X5 Handheld runs JMobile client and connects to Base Station through the Wi-Fi network.

Strengths:

- in case of configurations with multiple base stations and a single handheld, the handheld is automatically loading the HMI program when connecting to the Base Station. There is no need of advance planning
- JMobile application running on Base Station can continue operation and data acquisition also when the handheld is not connected. For instance, data acquisition/trend programmed in the JMobile application can be always active, disregard of the status of the handheld
- complex PLC communication protocols are not using wireless band

Weaknesses:

- depending on size of JMobile project, Client/Server connection may take some time.



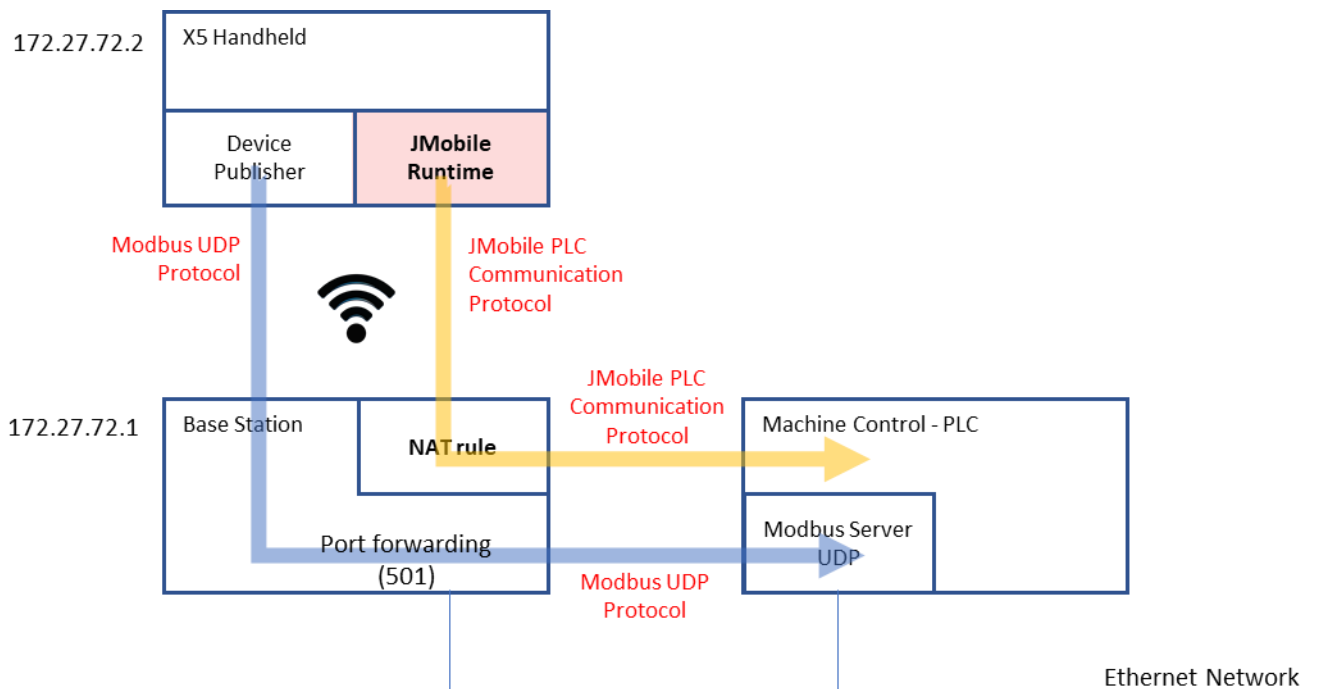
3.2 JMobile Runtime on Handheld

Strengths:

- Fast starting of JMobile application on handheld

Weaknesses:

- extra band load on wireless network due to the PLC communication protocol. Performance to be evaluated case by case.
- PLC protocol requires routing through Base Station. Performance to be evaluated case by case.
- in case of configurations with multiple base stations and a single handheld, the handheld must be programmed with an HMI program suitable for use with all machines.



4 How to Set-up a Minimal X5 System for Demonstration Purposes

Objective of this chapter is setting-up a simple, fully operational, configuration for demonstration purpose.

Despite its simplicity, it helps showing important features in X5, such as pairing status, safety devices' status.

Additionally, it gives a good view of Device Publisher functionality and speed of update.

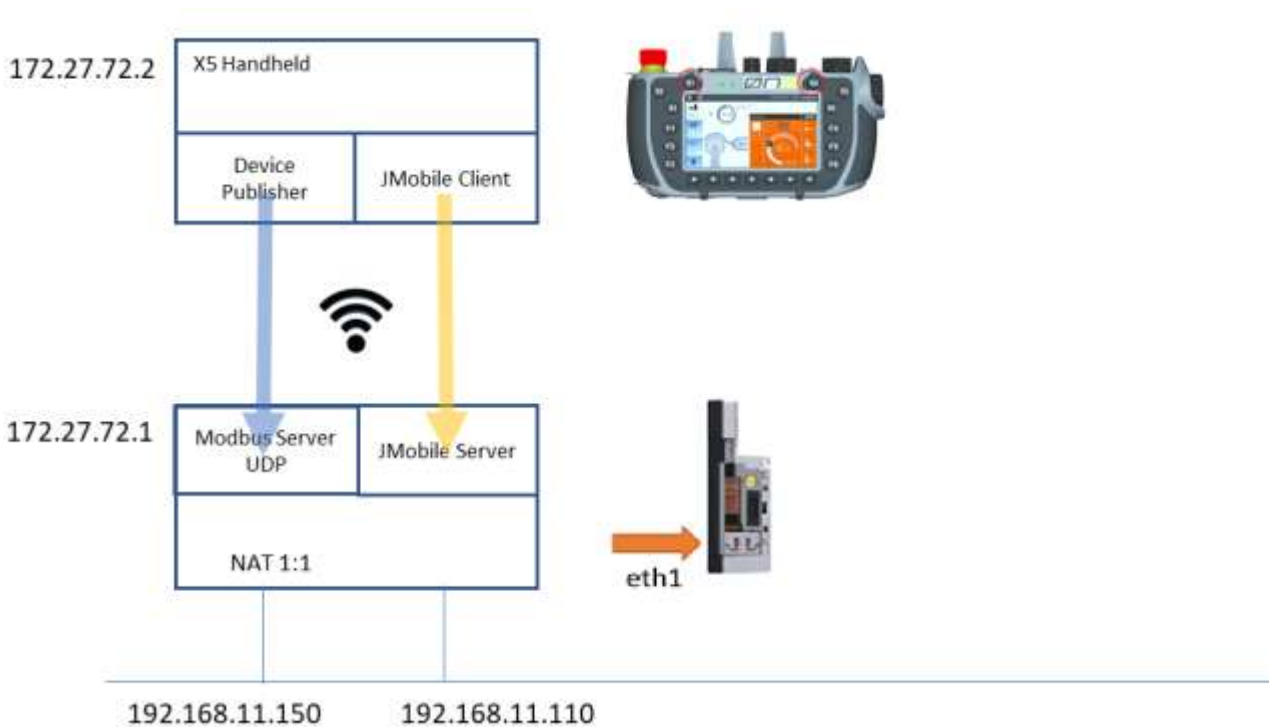
The JMobile project file to be created for this configuration works in client/server mode. This is a good method to present additional value for X5.

This simple configuration can be easily extended to allow connection to an external PLC.

i INFORMATION

- When using brand-new X5 products, received directly off the shelf, you will have to go through a multi-step, although simple, configuration procedure.
- First you will have to complete configuration of the Base Station. After that you can proceed with the configuration of the handheld.

The simple system setup proposed in this chapter is shown in figure.

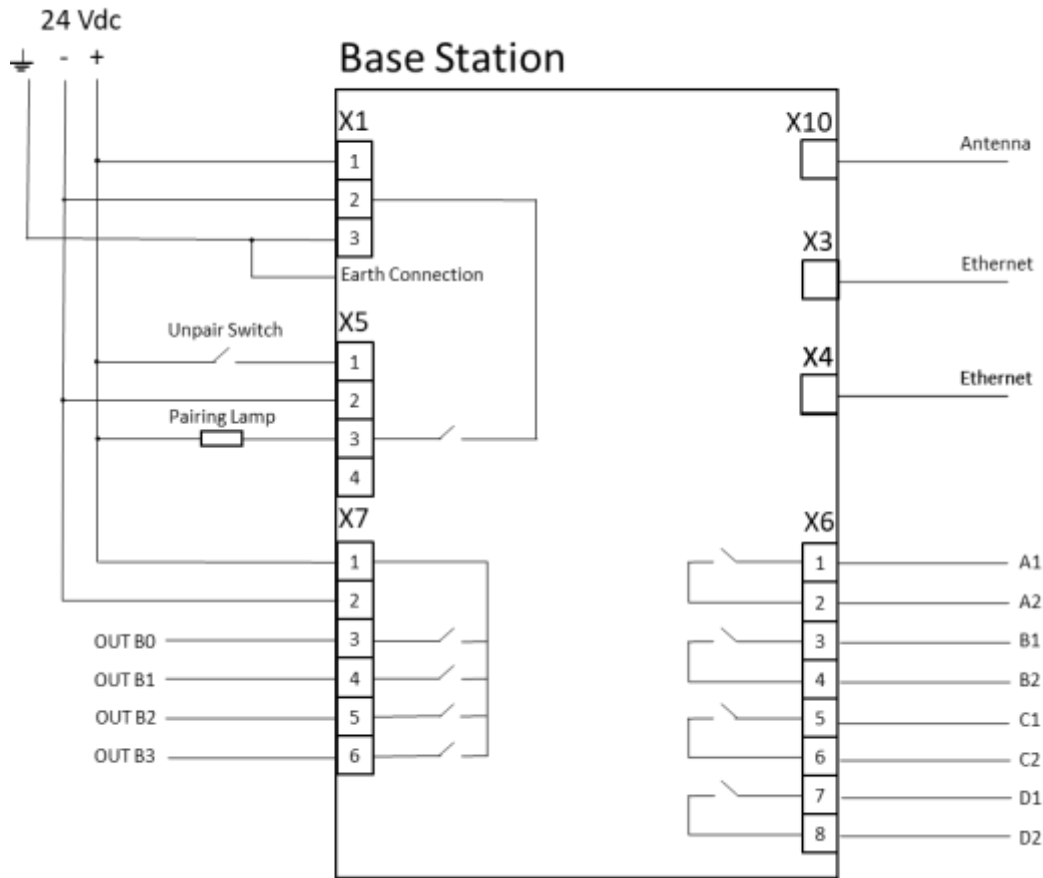


Ethernet network IP addressing may obviously change depending on available network metric. Values shown are only examples.

Addresses of Wi-Fi network are fixed and cannot be changed.

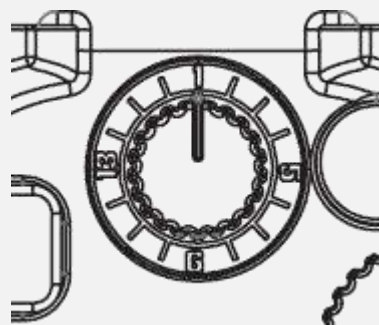
4.1 Wiring the Base Station

To operate X5 Base Station some wiring is required. Refer to product Installation Guides and User Manual for details.



i INFORMATION

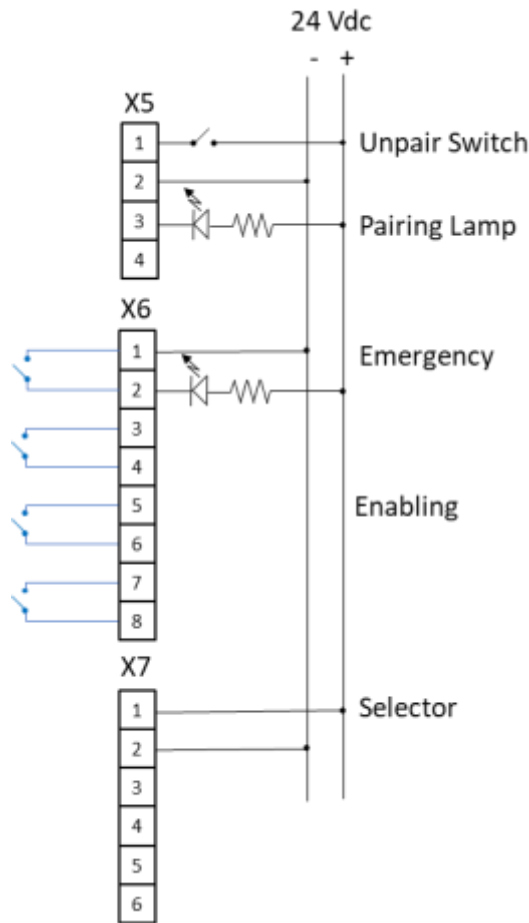
- Pairing lamp is required to complete the pairing process.
- 24 Vdc power must be applied to connector X7 in addition to powering the Base Station itself at connector X1. This is required also when Selector outputs are not used. Failing to apply this connection will result in pairing error when Selector is moved to any position different from "1".



Pairing app will report error code "Lost pair (Base error)". Any further attempt to start pairing procedure will result in the error "Base Station rejected pairing request". Base Station must be reset with a power cycle to restore operation.



Minimum wiring required for operation is shown in figure.
 Connect to the X5 connector a 24 Vdc light (0.5 A max) or a LED with a 2K7 resistor in series.



4.2 Configuring X5 Base Station

You must complete the configuration of Base Station first. You will use Base Station as the access point for the safety network.

- 1 Switch on Base Station (BS).
 Allow about one minute to complete boot phase.

 Find IP address assignment of Base Station Ethernet ports.
 This is a process common to all Exor eXware7xx devices. The port Eth0 is by default set to DHCP so the Base Station will obtain an IP address from your network. The port Eth1 has a default IP address of 192.168.0.1 with a subnet of 255.255.255.0, You can use this port if you connect point to point to a computer with an IP address in that same network.
 Connect eth1 to network.
 You may also use the service in JMobile Studio ManageTarget
Run> Manage Target> Board
 To find out the address of the device.
 The device may have been assigned an Auto-IP address or may have received an address from a DHCP server.

- 2 Connect to device System Settings using a computer running a browser.
https://ipaddress/machine_config
 System is security protected by default.
 If you are using a device for the first time you will be asked to change default passwords.
 Read chapter [Security Features](#) in this manual for further information.
 Base Station will reboot after changing passwords.
- 3 Settings/Localization:
 Select
 Country Code = Italy (or the country where you are)
 You may enter the first characters of the desired country to quickly locate the code.
- 4 Settings/Network:
 Assign fixed IP Address, Netmask and Gateway to eth1
 Enable Wi-Fi and "Safety WiFi Network"
 Select Wi-Fi channel.

Network Interfaces

Name	Label	MAC	DHCP	Address	Netmask	Gateway
eth0	WAN	00:30:d8:09:95:c9	Enabled	10.1.34.134	255.255.255.0	10.1.34.253
eth1	LAN1	00:30:d8:09:95:ca	Disabled	192.168.11.110	255.255.255.0	192.168.11.1
eth1 nat1to1.0	ALIAS			192.168.11.150		
wlan0	WIFI	24:7d:4d:6f:78:55	Disabled	172.27.72.1	255.255.255.0	

Wireless Networking

Regulatory Domain: IT

Interface Name: wlan0


Enabled: Yes

Safety WiFi Network: Yes

Channel: 38 (5190 MHz) - INDOOR ONLY

State: COMPLETED ✓

Connected Stations: 1

5	<p>Settings/Services Define a NAT rule to prepare direct access to the X5 handheld Open Router/NAT/Port forwarding</p>  <p>Device IP (that is the address of the X5 handheld in the Wi-Fi network) is fixed. Source IP is the address assigned to BS in the network where it is attached. Note that this corresponds to assigning a fixed IP address to X5 wireless handheld.</p> <p>Warning: make sure the value entered for “Source IP” is not the same as real IP address assigned to the physical Ethernet port specified as “Source Interface”.</p>
6	<p>Settings/Services Enable SSH Server with autostart Enable VNC Server with autostart</p>
7	<p>Load a simple project file to BS using JM Studio. The sample project should include: System Variables protocol configured for Xbase device Modbus TCP Server protocol configured in UDP mode (“use UDP/IP”) Tags definition as needed For demonstration purpose we suggest you avoid activating user management in JM project</p>
8	<p>Connect a VNC client to BS to check operation of JMobile runtime with the project file you have just loaded.</p>

4.3 Configuring X5 Wireless Handheld



INFORMATION

- You must have completed BS configuration as described in previous chapter before you can proceed with handheld configuration.

1	<p>Power on X5 handheld. Wait for boot phase to complete.</p>
---	-------------------------------------------------------------------



	<p>At first power-up you may be asked to “Country Code must be set to unlock the system”. Selecting the country of operation is required to comply with regulatory requirements for radio transmission.</p> <p>When asked to start the pairing procedure press button “Exit” and return to startup menu.</p>
2	<p>Using JM Studio prepare a JMobile update package containing “JMobile Client” and save it to a USB flash drive.</p> <p>Install this package to the handheld using the USB flash drive.</p> <p>Add the JMobile Client software to the device start-up list.</p>
3	<p>If not already present in the list, install “Device Publisher” software application using a USB flash drive.</p> <p>Add the software to the device start-up list.</p>
4	<p>Start System Settings.</p> <p>Use touchscreen for operation.</p> <p>System is security protected by default. If you are using a device for the first time you will be asked to change default passwords. Read chapter Security Features in this manual for further information.</p>
4	<p>Settings/Localization</p> <p>Make sure Country Code has been entered correctly for compliance with radio communications regulatory requirements.</p> <p>Country Code = Italy (or the country where you are)</p>
5	<p>Settings/Network:</p> <p>Enable Safety Wi-Fi</p>
6	<p>Settings/Device Publisher</p> <p>Enable Device Publisher.</p> <p>Accept default properties.</p>
7	<p>Settings/Services</p> <p>Enable SSH Server with autostart</p> <p>Enable VNC Server with autostart</p>
8	<p>Open the Pairing application pressing keys K1 and K4.</p>
	<p>The first time you open the Pairing application, the list of devices will appear empty. Create a new entry in the list with the UID of a new device pressing the button “+” to start the process.</p> <p>You will use the UID number printed on the BS module to identify the BS you want to connect. The UID (Unique Identification) number can also be found in the System/Info page of System Settings in Base Station.</p>
9	<p>Select from the UID list the device you want to pair with.</p> <p>Press button “Connect” to start. Wait for Wi-Fi connection to complete.</p>
10	<p>Start the pairing procedure and follow the sequence described in X5 Installation Guide.</p> <p>To carry out this process you must have a lamp connected to the pairing lamp output of the BS (connector X5, pin 3).</p> <p>At the successful completion of the pairing procedure, the Emergency Stop button will turn red. Now the safety channel is active. If you press the Enabling button or the Emergency Stop</p>



	button you will hear relays clicking in Base Station to replicate the status of safety devices in the handheld.
11	Use a computer running a browser to connect to X5 Wireless device System Settings. The IP address is the one you have previously defined with the NAT rule in BS settings https://ipaddress/machine_config (see previous chapter) Remind that access to System Settings is security protected by default. If you are using a device for the first time you will be asked to change default passwords. Read chapter Security Features in this manual for further information
12	Complete the setup of JMobile Client entering the settings: Server Address: http://172.27.72.1 (this is the address of Base Station in Wi-Fi network) Auto connect at startup: checked Fit to screen size: checked
13	Now on X5 handheld screen you will see the project file that is running in Base Station. Normal interactivity with the HMI application is possible.
14	Connect a VNC client to the address of the handheld as defined in previous chapter. That will allow you to have simple monitoring/diagnostic access to the content of the screen in X5 handheld.



5 Device Publisher

Device Publisher (DevPub) is a software application designed to provide fast transfer of device data from handheld to the PLC/controller connected to the Base Station.

This is an important requirement for applications where X5 is used for direct interaction with machine.

Device Publisher uses Modbus TCP protocol in UDP mode and operates as client.

Data transfer uses Modbus Function Code 16, Write multiple registers.

Modbus addressing and register allocation are fixed.

Device Publisher cyclically sends data packets with a cycle time of about 10 ms.

Register assignment:

Holding Register	Name	Data Type	Range	Description / Notes
400001	version	unsignedShort	1	The version number of this register schema
400002	counter	unsignedShort	-	Current packet count (diagnostic information)
400003	elapsed	uint64	-	Number of elapsed milliseconds since service was started (Linux epoch timestamp)
400007	keys map	uint64	-	Binary map of keypad state
400011	wheel	unsignedShort	0..32767	Wheel counter
400012	pot 0	unsignedShort	0..255	Potentiometer
400013	pot 1	unsignedShort	0..255	Potentiometer
400014.0	battery	unsignedByte	0..100	Battery charge level
400014.1	wifi signal	unsignedByte	0..100	Wi-Fi signal level

Byte order is big endian. Bit assignment for "keys map" 400007:

Key	Key ID	Bit Mask	HEX
F1	KEY_F1	00000000000000000000000000000001	00000001
F2	KEY_F2	00000000000000000000000000000010	00000002
F3	KEY_F3	00000000000000000000000000000100	00000004
F4	KEY_F4	00000000000000000000000000001000	00000008
F5	KEY_F5	00000000000000000000000000010000	00000010
F6	KEY_F6	00000000000000000000000000100000	00000020
K1	KEY_F7	00000000000000000000000001000000	00000040
K2	KEY_F8	00000000000000000000000001000000	00000080
K3	KEY_F9	00000000000000000000000001000000	00000100
K4	KEY_F10	00000000000000000000000001000000	00000200
K5	KEY_F11	00000000000000000000000001000000	00000400
K6	KEY_F12	00000000000000000000000001000000	00000800
dot1	KEY_F13	00000000000000000000000001000000	00001000
dot2	KEY_F14	00000000000000000000000001000000	00002000
dot3	KEY_F15	00000000000000000000000001000000	00004000
dot4	KEY_F16	00000000000000000000000001000000	00008000
dot5	KEY_F17	00000000000000000000000001000000	00010000
dot6	KEY_F18	00000000000000000000000001000000	00020000
dot7	KEY_F19	00000000000000000000000001000000	00040000

5.1 Forwarding Device Publisher Information to PLC/Controller

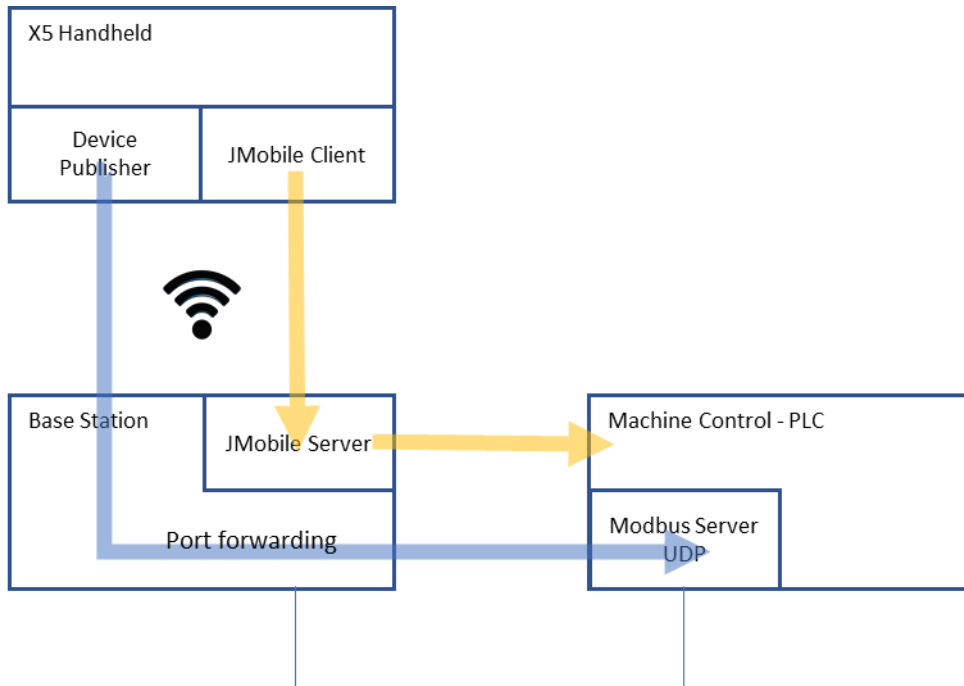
You can automatically redirect the information produced by Device Publisher to the Controller/PLC connected to the Base Station.

This will ensure the most efficient transfer of time-critical information directly from the handheld to the Controller/PLC.

Please note that to do so the Controller/PLC must have a Modbus TCP server configured for operating in UDP mode.

Addressing of Device Publisher information is given above.

Figure shows the diagram of the system you will be setting.



- | 1 | Connect to Base Station using a browser and open System Settings. Remind that you will be asked to enter credentials. | | | | | | | | | | | | |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------|------------------|-------------|-----------|-------------|-------------------------------------|---------|-------|-----|-------------|-----|
| 2 | <p>Settings/Services
Open Router/NAT/Port forwarding
Define a Port forwarding rule associated the port used by the Modbus protocol of the Device Publisher</p> <div style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;"> <p>Port Forwarding Rules</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Enabled</th> <th>Name</th> <th>Source Interface</th> <th>Source Port</th> <th>Device IP</th> <th>Device Port</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Dev-Pub</td> <td>wlan0</td> <td style="text-align: center;">502</td> <td style="text-align: center;">10.1.34.131</td> <td style="text-align: center;">502</td> </tr> </tbody> </table> </div> <p>Note that the "Device IP" address will have to be replaced with the actual IP address of the controller you have connected to the Base Station</p> | Enabled | Name | Source Interface | Source Port | Device IP | Device Port | <input checked="" type="checkbox"/> | Dev-Pub | wlan0 | 502 | 10.1.34.131 | 502 |
| Enabled | Name | Source Interface | Source Port | Device IP | Device Port | | | | | | | | |
| <input checked="" type="checkbox"/> | Dev-Pub | wlan0 | 502 | 10.1.34.131 | 502 | | | | | | | | |
| 3 | Note that Modbus in UDP mode is only sending out datagrams and does not expect response from the server. The protocol in Device Publisher does not establish communication sessions and does not provide error information, even in case the server is not present. | | | | | | | | | | | | |



5.2 How to Receive Data from Device Publisher

Device Publisher uses Modbus TCP protocol in UDP mode to send X5 device information. Port number 502, standard assignment to Modbus TCP and UDP, is used as default. The software application uses only one data packet to send information using Modbus Function Code 16, Write Multiple Registers. Dimensions of the Modbus packet are fixed. Data section is 28 bytes. Modbus in UDP mode does not expect a response from the server receiving the data.

The format of the UDP packet in Device Publisher is shown in figure (produced with WireShark).

```

> Frame 29979: 83 bytes on wire (664 bits), 83 bytes captured (664 bits) on
▼ Ethernet II, Src: Netgear_68:b3:df (8c:3b:ad:68:b3:df), Dst: Dell_b1:54:8
  ▼ Destination: Dell_b1:54:8c (c8:f7:50:b1:54:8c)
    Address: Dell_b1:54:8c (c8:f7:50:b1:54:8c)
    .... 0. .... = LG bit: Globally unique address (fa
    .... 0 .... = IG bit: Individual address (unicast
  > Source: Netgear_68:b3:df (8c:3b:ad:68:b3:df)
    Type: IPv4 (0x0800)
  > Internet Protocol Version 4, Src: 10.1.34.28, Dst: 10.1.32.153
  > User Datagram Protocol, Src Port: 39892, Dst Port: 502
  > Modbus/UDP
  ▼ Modbus
    .001 0000 = Function Code: Write Multiple Registers (16)
    Reference Number: 0
    Word Count: 14
    Byte Count: 28
  > Register 0 (UINT16): 1
  > Register 1 (UINT16): 36089
  > Register 2 (UINT16): 2298
  > Register 3 (UINT16): 6547
  > Register 4 (UINT16): 374
  > Register 5 (UINT16): 0
  > Register 6 (UINT16): 0
  > Register 7 (UINT16): 0
  > Register 8 (UINT16): 0
  > Register 9 (UINT16): 0
  > Register 10 (UINT16): 32767
  > Register 11 (UINT16): 0
  > Register 12 (UINT16): 32
  ▼ Register 13 (UINT16): 23140

```

```

0000 c8 f7 50 b1 54 8c 8c 3b ad 68 b3 df 08 00 45 00 .P.T.;.h....E.
0010 00 45 47 f7 40 00 3e 11 9d fa 0a 01 22 1c 0a 01 EG.@.>....."
0020 20 99 9b d4 01 f6 00 31 6d 3e 00 00 00 00 23 .....1 m>...#
0030 00 10 00 00 00 0e 1c 00 01 8c f9 08 fa 19 93 01 .....
0040 76 00 00 00 00 00 00 00 00 00 00 7f ff 00 00 00 v.....
0050 20 5a 64 .....Zd

```

The payload of Device Publisher starts at byte with offset 49; see it highlighted in yellow in figure.

The byte sequence of the payload is:

Modbus Function Code	10
Start/End Address	00 00 00 0e
Byte Length	1c
Version	00 01
Counter	8c f9
Elapsed	08 fa 19 93 01 76 00 00
Key map	00 00 00 00 00 00 00 00
Wheel	7f ff
Pot 0	00 00
Pot 1	00 20
Wi-Fi level	5a
Battery charge level	64

X5 data area is highlighted in yellow. Values shown are examples.



6 More on Using X5

6.1 Pressing Multiple Keys in X5 Handheld

Keypad handler in X5 handheld supports a maximum of 2 keys pressed at the same time. If you press more than 2 keys at the same time, the handler will return a no-key-pressed status.

6.2 Purpose of Auxiliary Input

Base Station "Auxiliary Input" (connector X5) is an option to be used in emergency cases. "Force unpair" means that the system is forced in a "IDLE" unpaired state where emergency contacts are closed (and the machine can operate normally). Before describing the case, remind what is the meaning of "unpaired": this is something that operators are normally supposed to do every time they need to operate the machine without the handheld. All they must do is to choose the option "Unpair" from the pairing app and this will allow BS to continue operation with Emergency stop contacts closed. This status is made permanent through power cycles of BS.

One typical example of how this input can be used:

- system is in operation with X5 handheld paired to the BS. The operator can eventually operate the machine from the handheld
- the handheld becomes non-operating (for any reason: battery fully discharged, Wi-Fi out of range, device inadvertently switched-off, device failure, ...)
- BS is switching to SAFE state, opening the emergency contacts. Machine stops operation
- if proper operation of the handheld cannot be restored quickly, then activate the "Force unpair" input, the handheld device will be unpaired and emergency contacts will close again allowing operation of the machine.
- "Force unpair" input can be deactivated at this point.

This "unpaired" status is non-volatile and will be maintained also when cycling power of BS.

6.3 Use VNC Client for Easier Access to BS and Handheld

The use of a VNC client running on your computer is suggested to improve your testing experience with X5.

Using VNC you will have the possibility to access screen information in Base Station. Additionally, it will make more convenient for you to access screen information in the X5 handheld.

To use VNC you must enable the VNC service in System Settings/Services.

Make sure you enable VNC service both in BS and in handheld.

To access information in the handheld you must have set the appropriate NAT rule in BS.

Any VNC client compatible with the standard will work.

RealVNC has been tested and proved to work fine.

6.4 Connect Base Station to a Controller/PLC

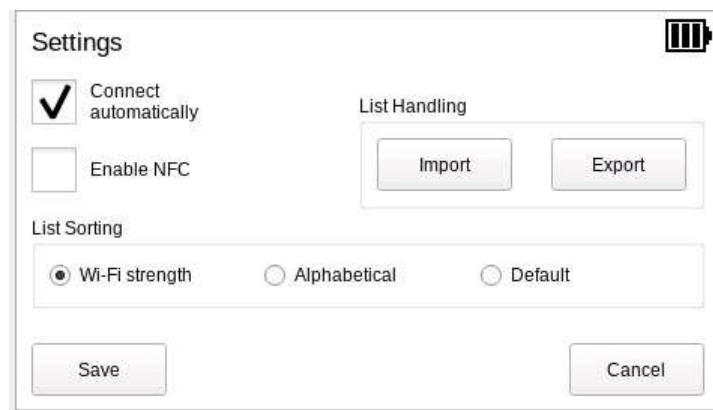
1	Using the sample JMobile project file created for the Quickstart step, add one additional communication protocol dedicated to controller communication and create required tags.
2	Add to project pages widgets referencing controller tags.
3	Monitor communication activity using X5 handheld running JMobile Client. Additionally, if you connect with a VNC client, you can directly check operation of the Base Station.

6.5 Manually Flash Pairing Lamp

In configurations including multiple systems controlled by X5, it may be useful for operators to easily have an indication of what BS station is currently paired with a certain handheld. This is the purpose of the “Flash” function available on the screen of the Pairing app. Pressing the Flash button results in the pairing lamp flashing with a cycle of about 3 Hz for a duration of 4 seconds.

6.6 List Sorting Options in Pairing App

X5 Pairing App shows a user-defined list of X5 devices, each with a unique UID number. There may be cases where the number of devices increases at a level that navigating the list with the handheld may be time-consuming and error prone.



The List Sorting option make the selection process easier and faster. You can choose from 3 sorting methods.

Wi-Fi strength	UID entries are sorted based on the strength of their Wi-Fi signal. Devices with stronger signal will be displayed on top. This option works great in the case you have several physically dispersed devices. As it is more likely that the user will need to pair with one in his/her vicinity, those devices will show a higher level of radio signal strength. X5 handheld will perform a scan of all available Wi-Fi channels for the presence of X5 BS devices and measure the strength of the radio signal for each of them. When changes in the device configuration are going on, please allow about 5 seconds for the list to settle.
Alphabetical	UID entries are sorted alphabetically based on content of their "Description". Description is a user-defined string that can be used to refer to a device uniquely and easily.
Default	UID entries are presented in the order they have been defined by the user. Note that when you "Add" a new entry, it is always appended at the end of the list.

6.7 Using NFC as Pairing Selection Accelerator

X5 can use NFC tags to accelerate the Pairing process.

i INFORMATION

- Requires BSP version 1.3.443 or higher.

X5 handhelds include an NFC device compatible with ISO/IEC 14443A. Use of NFC must be enabled in the Pairing App Settings page.

You can easily associate a unique NFC code to each entry in the UID list when adding a new Base Station or editing properties of an existing Base Station. "NFC Code" is the unique identifier (UID) of the NFC tag used in the identification process.

You can enter the NFC Code manually or, in alternative, you can scan the NFC tag while the Base Station property window is open. If the scan is successful, the NFC Code property will be filled with the tag UID string.



NFC can be used to achieve immediate selection of a Base Station for pairing. When the Pairing app is showing the Base Station list, just scan an NFC tag and, if the UID of the tag is matching one of those programmed in the properties of one of the Base Stations in the list, then the app will offer to proceed immediately to the connection step.



After connection has been completed, pairing procedure will proceed in the usual way.

6.8 Importing/Exporting Base Station Lists

Base Station List import/export function has the purpose of:

- simplify the creation of long BS lists for use with the pairing app
- backing-up or archiving the content of BS lists
- copying BS lists from one X5 wireless handheld to another.

Managing BS lists require a USB Flash drive attached to one of the USB ports in the X5 Wireless handheld.

Import and Export command buttons are available in the Pairing App settings page.



INFORMATION

- Requires BSP version 1.3.443 or higher.

6.8.1 Export Base Station List

1	Insert one USB Flash drive in one of the ports of the X5 handheld.
2	Go to Pairing App settings and press the button "Export".
3	The content of the Base Station list will be copied to the file "Export_List.txt" in the root folder of the USB Flash drive. If the file does not exist, it is created. If a file with this name is already present in the root folder, it is overwritten, previous content is lost.

Exported file is a comma-separated text file. There is one line for each Base Station present in the list.

Format of each line is the following:

"Base Station UID", "Description", "Encrypted password", "NFC UID", "Encrypted"

Length of BS UID is 12 characters.

Maximum length of Description and NFC UIS is 33 characters.

The format of the file is such that it is ready for import.



6.8.2 Import Base Station List

1	Copy a file "Import_List.txt" to the root folder of a USB Flash drive. Make sure format of the file is as described in previous chapter.
2	Insert the USB Flash drive in one of the ports of the X5 handheld.
3	Go to Pairing App settings and press the button "Import".
4	The content of the file will be copied to the Base Station list. If the file is not found, an error message will be displayed. Content of previous BS list will be overwritten and lost.

6.9 System Variables

See JMobile User Manual for details.



INFORMATION

- Requires BSP version 1.3.443 or higher and JMobile 4.1.0.452 or higher.

Name	Base Station	Handheld	Description
Temperature	y	y	Internal temperature sensor. Value is in tenth of degree Celsius.
Battery raw value		y	Raw voltage value measured at the battery. Value is in hundredths of a Volt.
Vibration		y	0 = disable vibration 1 = enable vibration
Vibration timeout		y	Duration of vibration cycle in tenths of a second. Range 0-600. If value is 0, the vibration stops only by writing 0 to the Vibration variable.
UID	y		Returns Base Station UID string.
Country code	y	y	Returns Country Code defined in System Settings
Safety pairing lamp	Y		Returns status of Pairing Lamp output
Safety input	Y		Returns value of Safety Input (Force Unpair)
Safety state	y	y	Returns value of current Safety State. 0 = IDLE 1 = RUN 2 = SAFE 3 = SAFE-P See X5 User Manual for details.
Safety version	y	y	Returns version of Safety Module.

6.10 Haptic Response

X5 handheld includes a haptic response device.



It can be highly effective in giving information to users holding the device without disturbing his flow of activity.
The haptic response is in the form of a vibration transferred from the device to the hands of the user. Haptic response can be programmed using dedicated System Variables.