



X2 Utility Manual

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General description

X2 Utility Software Tool is developed to allow for intuitive configuration of the X2 sports timing network. It offers assistance for professional and club organizations in configuring, expanding and upgrading their X2 system installations.

Main functions

The utility incorporates the following functions:

- Network discovery of compatible X2 hardware
- Firmware upgrade assistance
- Configuration of individual components
- Component diagnostics and network status overview

Installation

Hardware requirements

The minimum hardware specifications to run the X2 Utility program are:

- 1 GHz 32-bit (x86) or 64-bit (x64) processor
- 1024 MB Memory
- 100 MB of free hard disk space
- Network adapter

Software requirements

The supported operating systems are:

- Windows Vista
- Windows 7 SP1
- Windows 8
- Windows 8.1

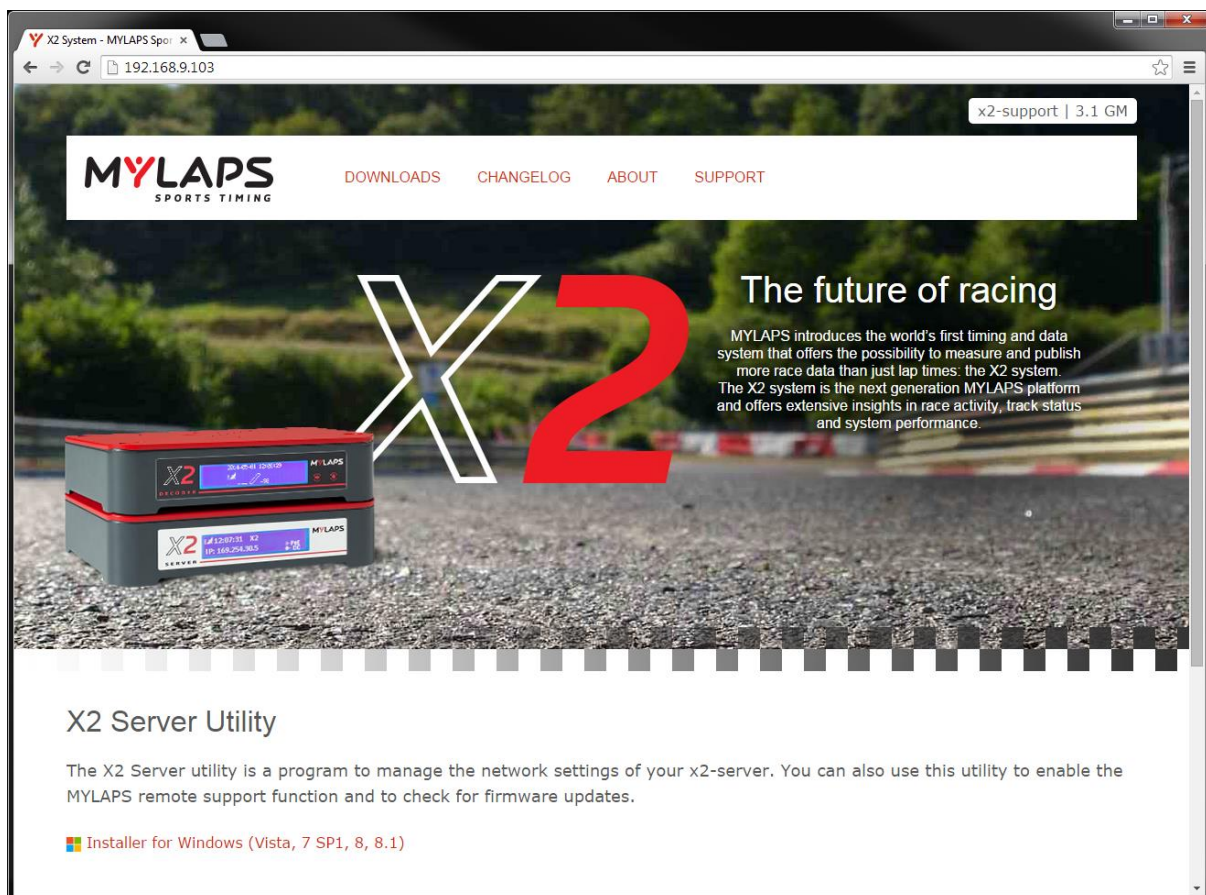
Download the software

The X2 Utility software is provided by the X2 server's built-in web server. In order to download the software you have to make sure that your X2 server;

- connects to the same network as your computer
- is powered on and fully started



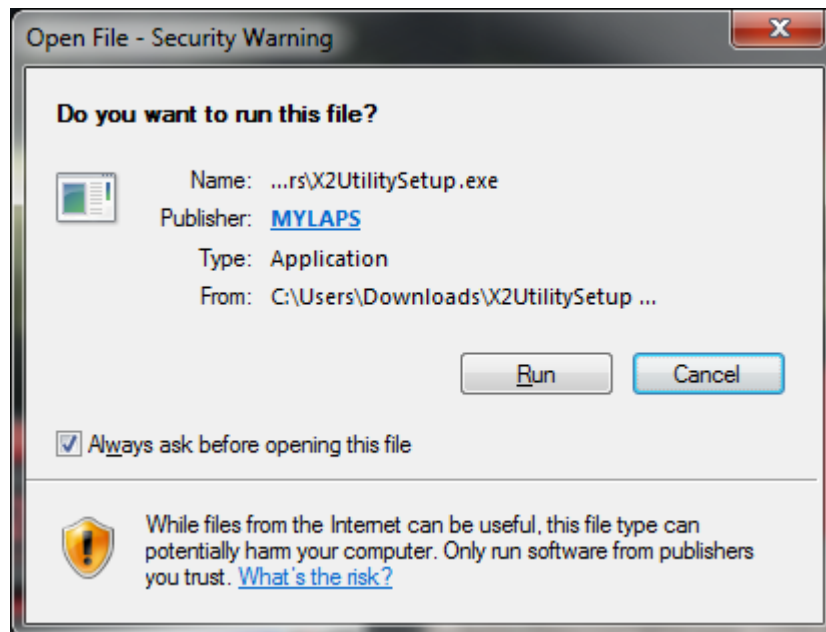
Then navigate your browser to the IP address of your X2 server. You can find this address on the server's display. A connected and working server returns a page containing a download link that is located in the bottom left corner of the screen.



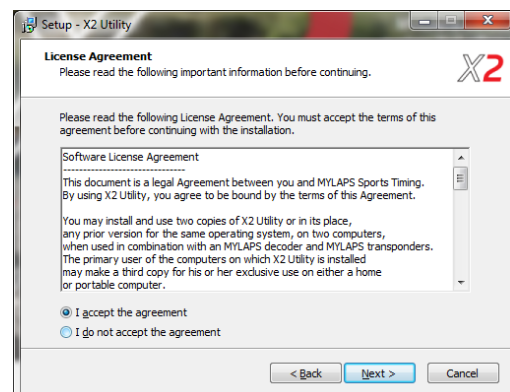
Use the link in the screen above that is named "Installer for Windows" to start the download of the X2 Utility setup program.

Installing the software

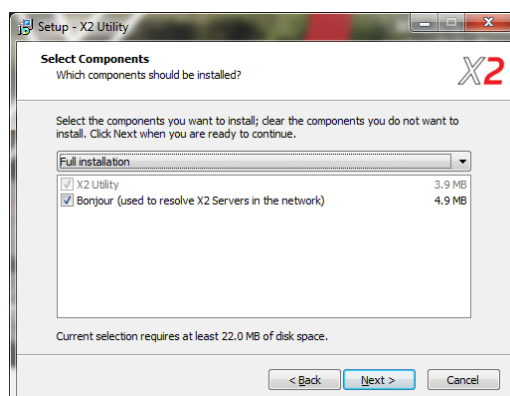
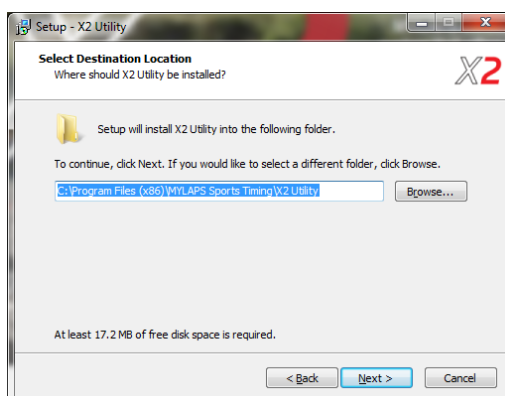
To install the X2 Utility, locate and start the downloaded setup file (X2UtilitySetup.exe) on your computer.



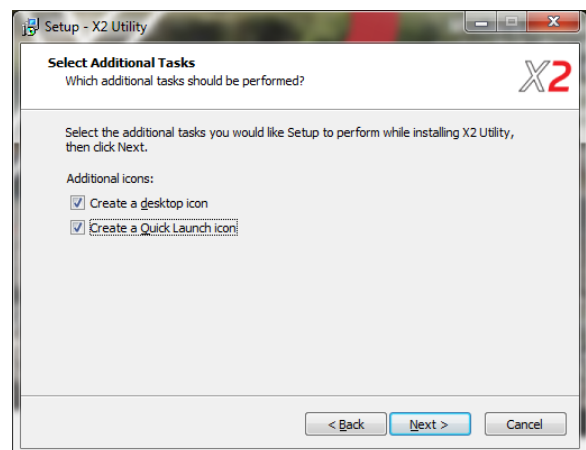
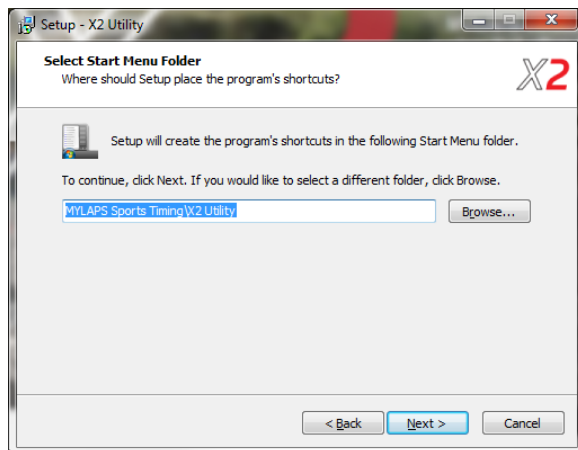
If you see the above dialog appear then choose **[Run]** to proceed.



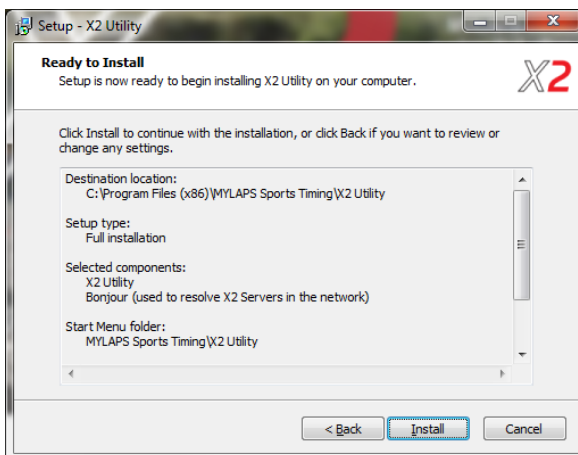
Press **[Next]** to start, followed by **[Next]** when you agree to the terms of the license agreement.



To keep the suggested installation folder press **[Next]**, and for a full installation press **[Next]**.



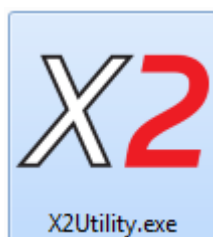
Optionally, change the start menu folder name or press **[Next]** and create extra icons press **[Next]**.



Click **[Install]** to continue and **[Finish]** to launch the X2 Utility.

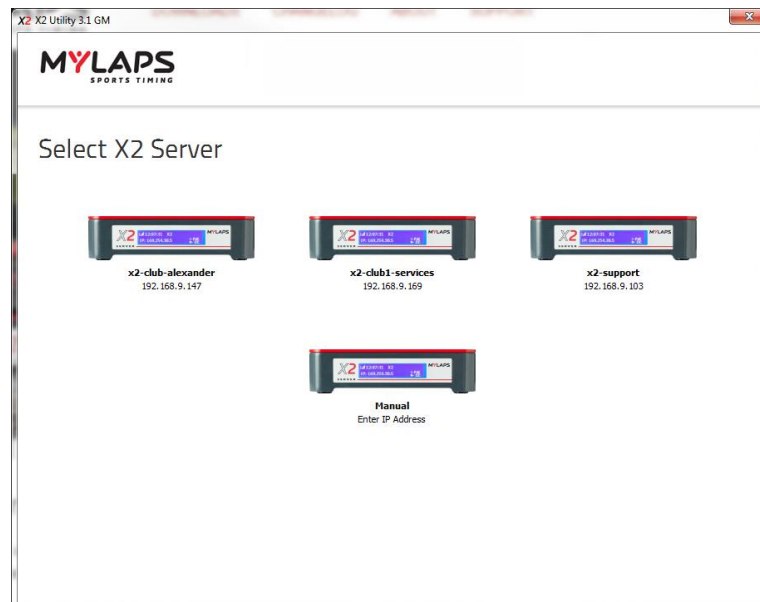
Starting the utility

Locate the executable, use the shortcut or navigate the start menu to start the program.

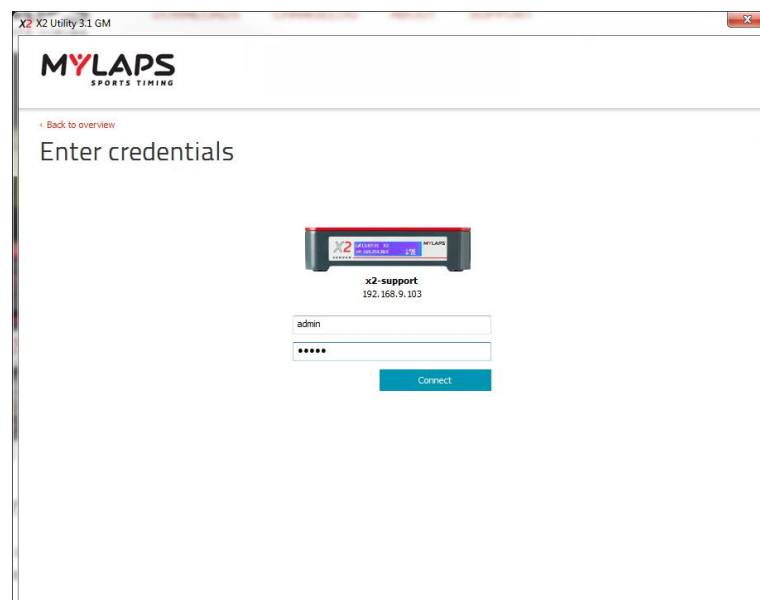


Select the X2 server

This first screen shows an overview of discovered servers on the networks that your computer is connected to. When there are no known servers you should verify that X2 server is up and running and connected to the same network as your computer. If you are still have trouble connecting to your server the network might be blocking attempts of the utility to discover the server(s). You can opt to connect to the server(s) manually instead.



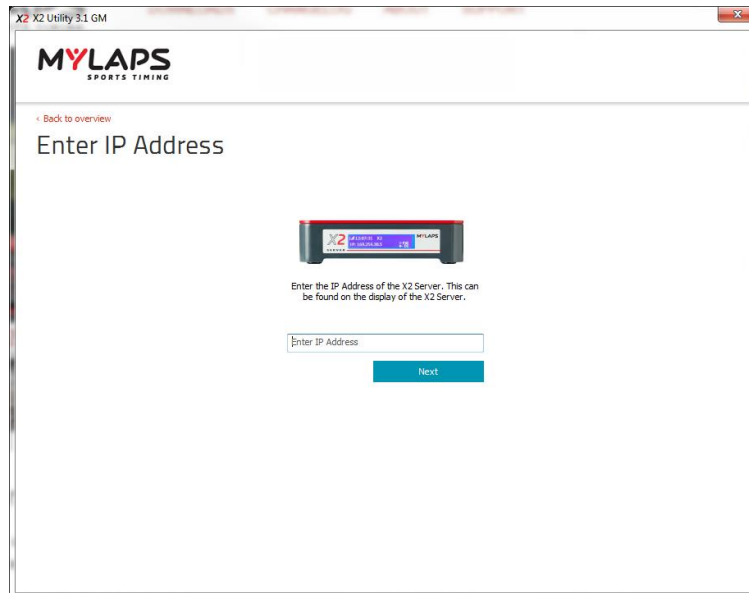
You can explore a server's configuration and its connected decoders with a single click.



Now enter the server's credentials. The factory default for the administrator role is **admin** (for the username) and **admin** (for the password).

Manual selection

When your server is not automatically discovered you can consult the **Network Troubleshooting** section of this document or you can try to connect to the X2 server manually by selecting the server with the name **Enter IP address** or **Manual**.

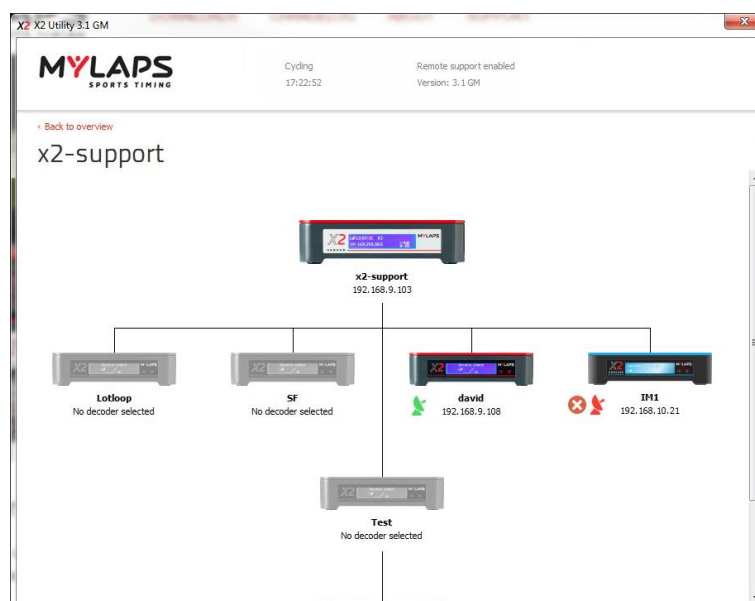


You will be asked to enter the IP-address for your server. Use the same address here that you used to download the X2 Utility software.

When a connection with your server can be established you will be asked to provide the credentials to logon. Enter the credentials for the administrator role (See the previous page for logon details)

Connected server overview

When successfully connected to the server you will be presented with an overview of all configured loops and connected decoders.



Utility & firmware update assistance

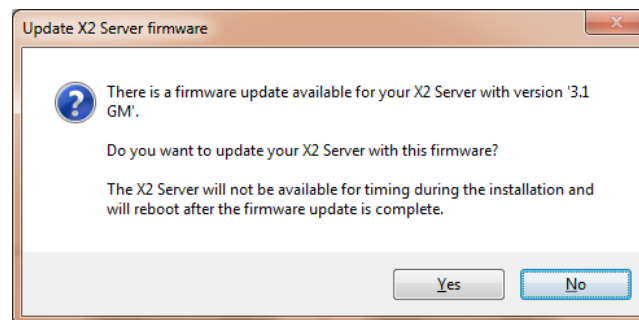
When you connect to a X2 server the utility will consecutively check for the following updates;

- Server firmware
- X2 utility software
- Decoder firmware

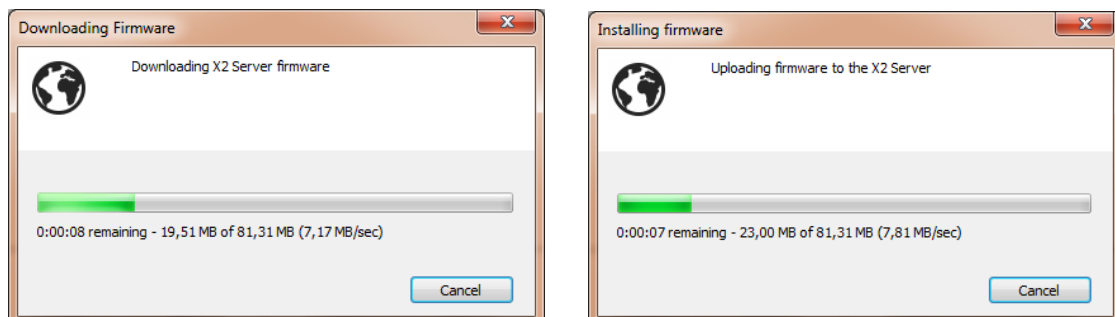
If an update for the X2 server firmware is available you will be presented with the following header message in the screen.

There is a firmware update available for your X2 Server. Click here to download and install the update.

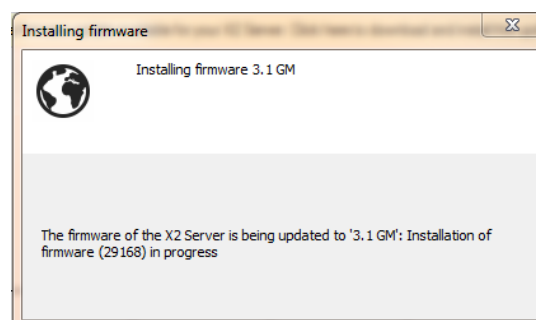
When you click on the update message you will see the following dialog.



To proceed click [Yes] and you will see

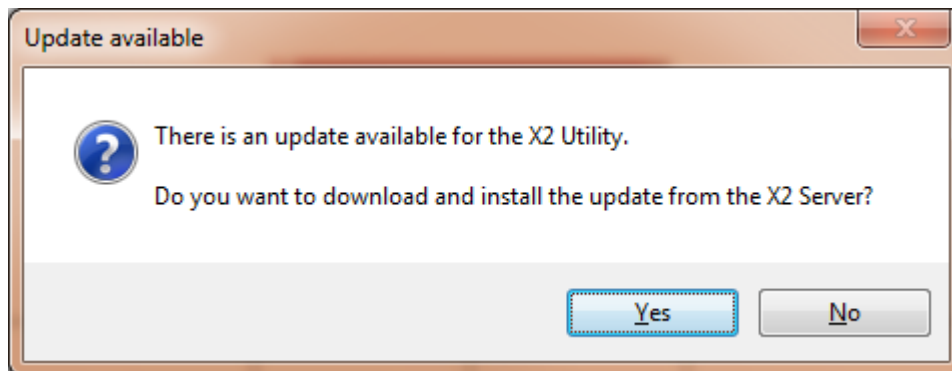


After the firmware has downloaded the installation will start.

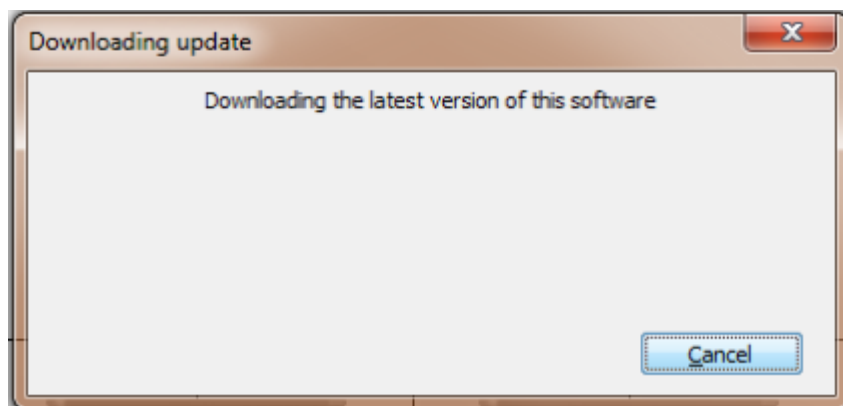


Please allow up to 5 minutes for the installation to complete and the server to restart.

When the server is successfully restarted and there is an update available for the X2 utility you will see the following dialog.

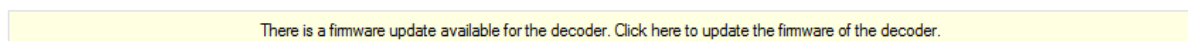


To install the new version of this software click [Yes]

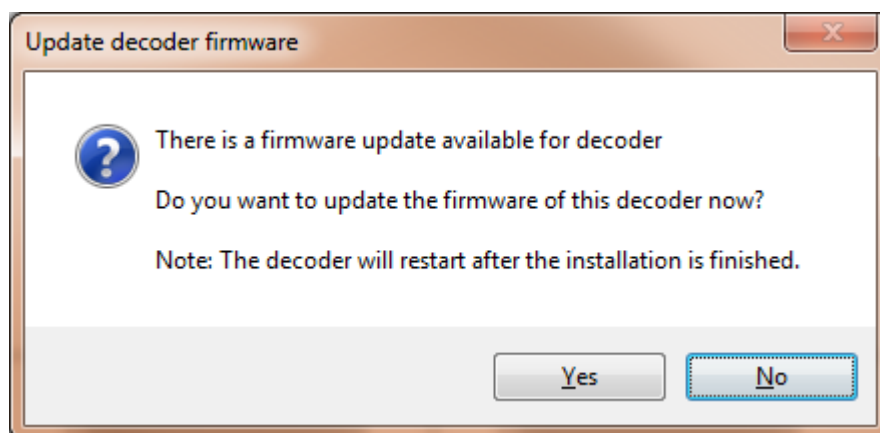


After the installation completes and the utility restarts it will check for decoder firmware updates.

If an update for the X2 decoder firmware is available you will be presented with the following header message in the screen.



When you click on this message you will see the following dialog.

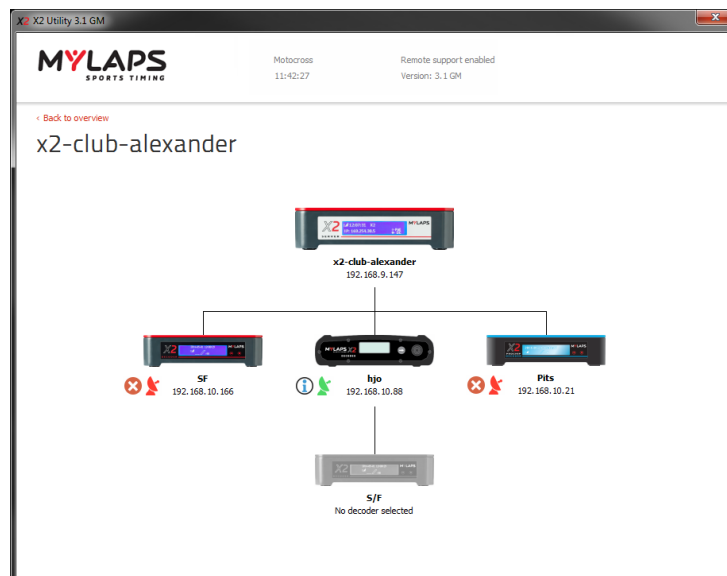


This will happen for every decoder that is to be updated.

X2 server settings

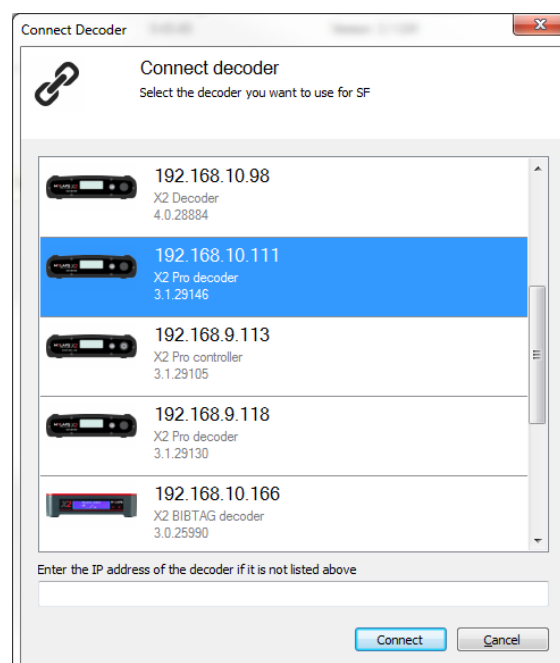
Server and decoder overview

The connected server overview shows the type of sport selected, server time, remote support status and X2 Utility version. Connected decoders show up as enabled (not greyed out). Basic component information is displayed when you hover over enabled components. Configured loops show up as disabled decoders.



Connect a decoder

Clicking on a disabled (greyed out) loop will present you with a dialog that lists all available decoders in the network.



To add a decoder to the X2 server select a listed decoder and press [Connect].

View server configuration

Clicking on the server shows the server configuration dialog where you can set Network, Synchronization, Sport, Authentication and Remote support settings.

Network

X2 Server settings

x2-support
X2 Server 3.1.29364
10.200.16.167

- Network**
IP address and name
- Synchronization**
GPS and timezone
- Timing**
The sport and mode
- Users**
Password and user account
- Remote support**
Enable or disable remote support

Network

Mode: Obtain an IP address automatically

IP address: 169 . 254 . 30 . 5

Subnet: 255 . 255 . 0 . 0

Gateway: 0 . 0 . 0 . 0

DNS: 0 . 0 . 0 . 0

Name

Name: x2-support

OK Cancel

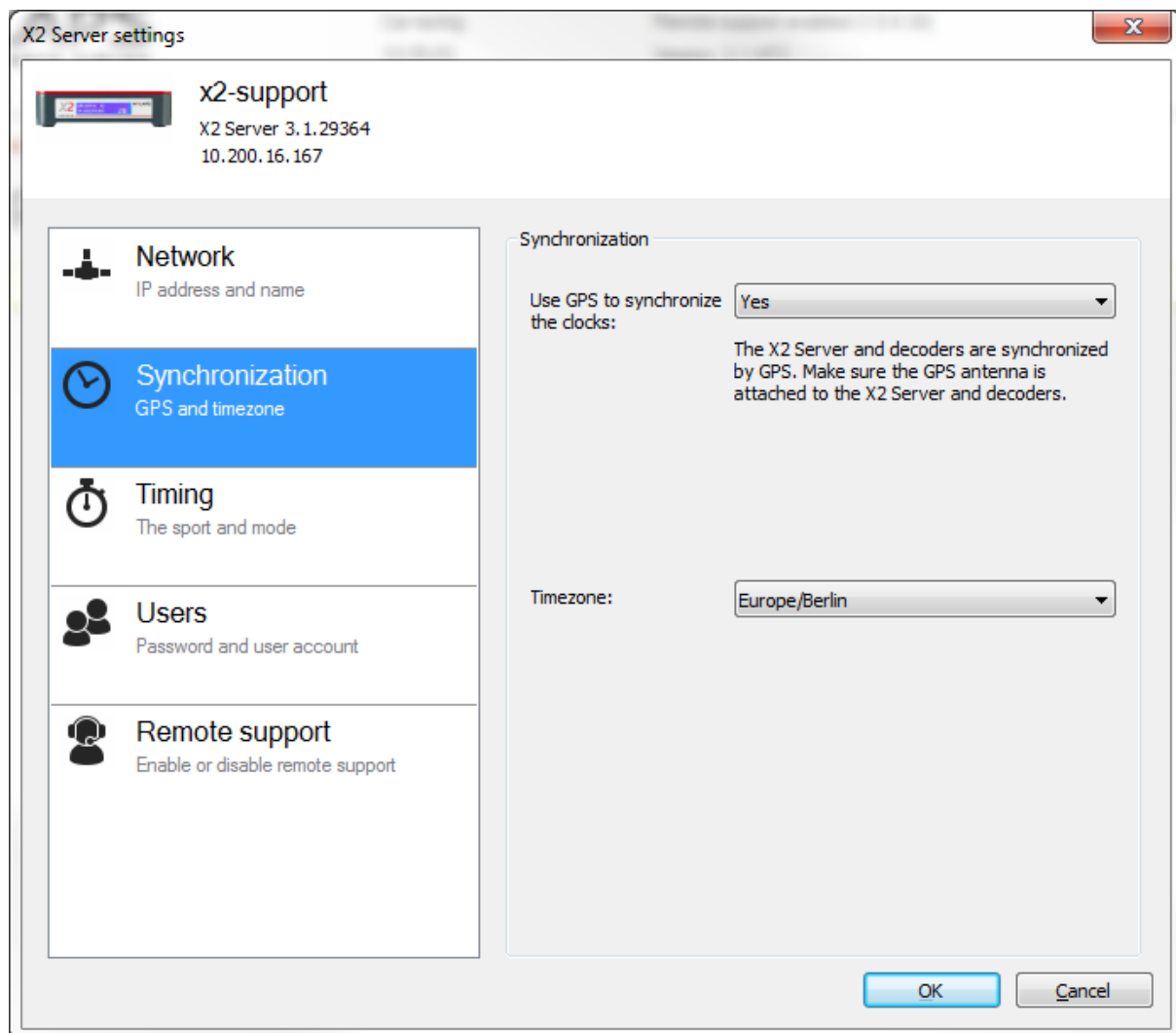
Mode

With the default setting the IP address and network settings will be obtained automatically using the network's DHCP server. If no IP address can be obtained it will be necessary to configure a static IP address, subnet and gateway and DNS server. Please consult your network provider or administrator when configuring a static IP address for your server as the IP address has to be unique to your server. Otherwise IP address conflicts might arise that can cause X2 server disconnections.

Name

Choose or alter the hostname for your server. Hostname labels may contain only the ASCII letters 'a' through 'z' (in a case-insensitive manner), the digits '0' through '9', and the hyphen ('-').

Synchronization



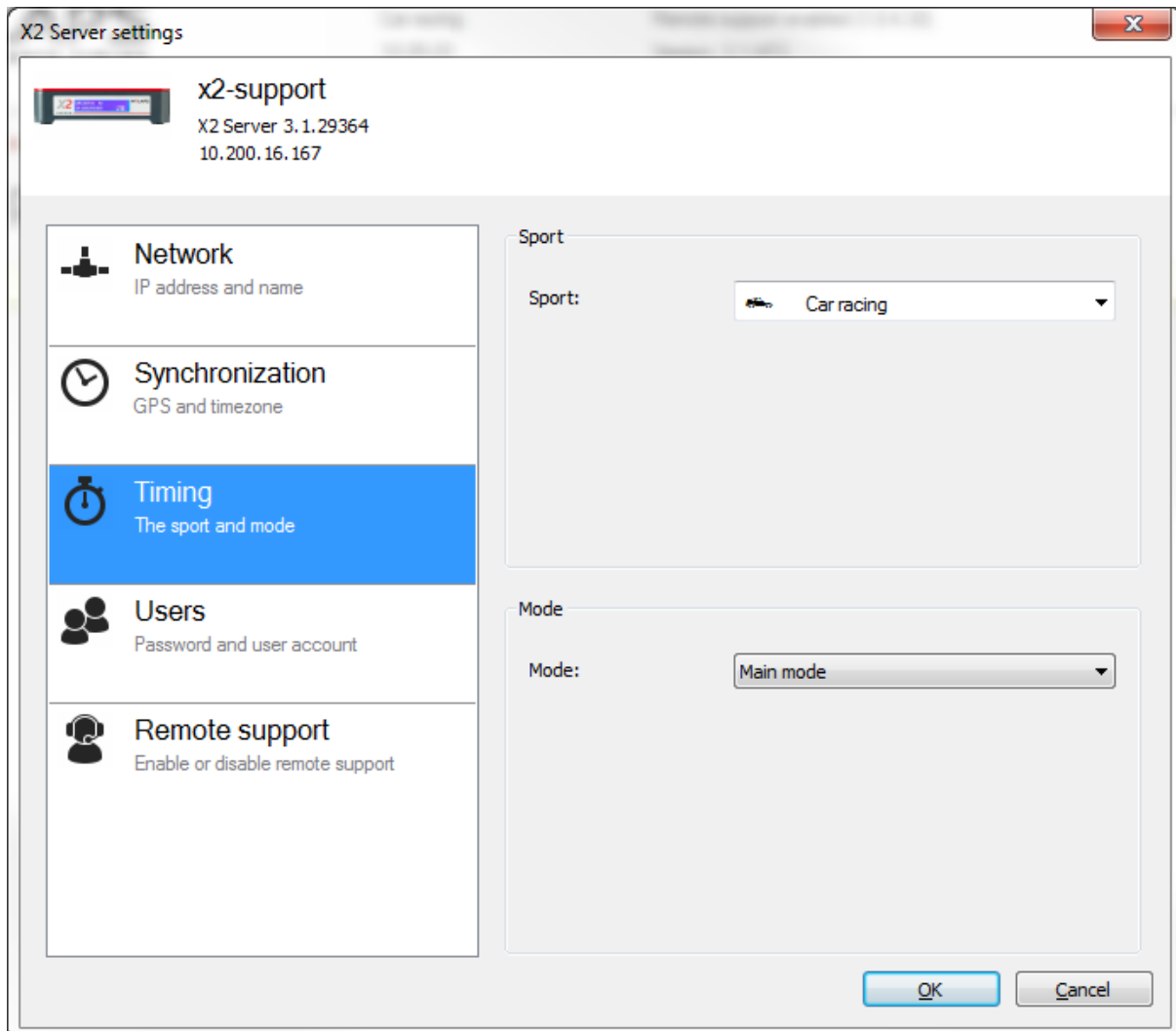
GPS

Select "Yes" if the X2 server and decoders are synchronized using GPS. If this option is selected both the server and all decoders need a connected GPS antenna.

Time zone

Select the appropriate time zone for your location.

Timing



Sport

Select the sport that is being timed. The selected sport will be transmitted to all connected decoders.

WARNING:

A configured sport can be overridden by timing software connected to the server. So when no data is recorded you should double check that the sport shown in the X2 Utility server's overview screen header is correct. Also check the sport setting in your timing software (when available).

Mode

Set the server in main or in backup mode. In main mode the server is able to write settings to the decoders and read from the decoders. In backup mode the server can only read data from the server. The backup setting will only be used when you have 2 servers that are using the same decoders. In backup mode you avoid to override settings done by the man server.

Authentication

X2 Server settings

x2-support
X2 Server 3.1.29364
10.200.16.167

- Network**
IP address and name
- Synchronization**
GPS and timezone
- Timing**
The sport and mode
- Users**
Password and user account
- Remote support**
Enable or disable remote support

Administrator

Username:

New password:

Confirm Password:

The administrator can change the settings of the X2 Server and decoders.

User

User account:

Username:

New password:

Confirm Password:

The user can't change the settings of the X2 Server and decoders.

OK **Cancel**

On this screen you can set the credentials for the X2 administrator and user accounts.

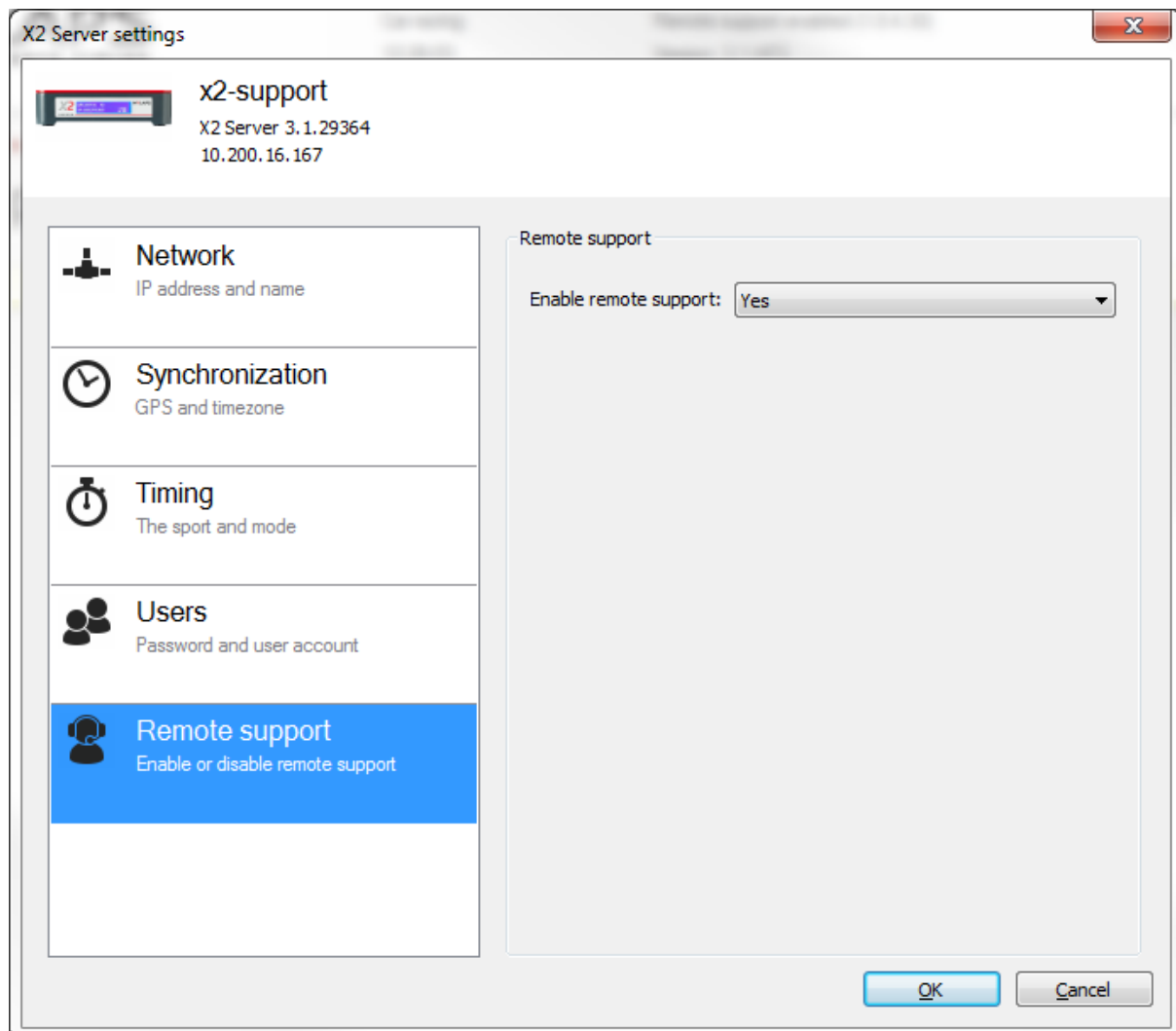
Administrator

The administrator can change the settings of the X2 server and decoders.

User

The user cannot change the appliance settings but will be able to read timing data.

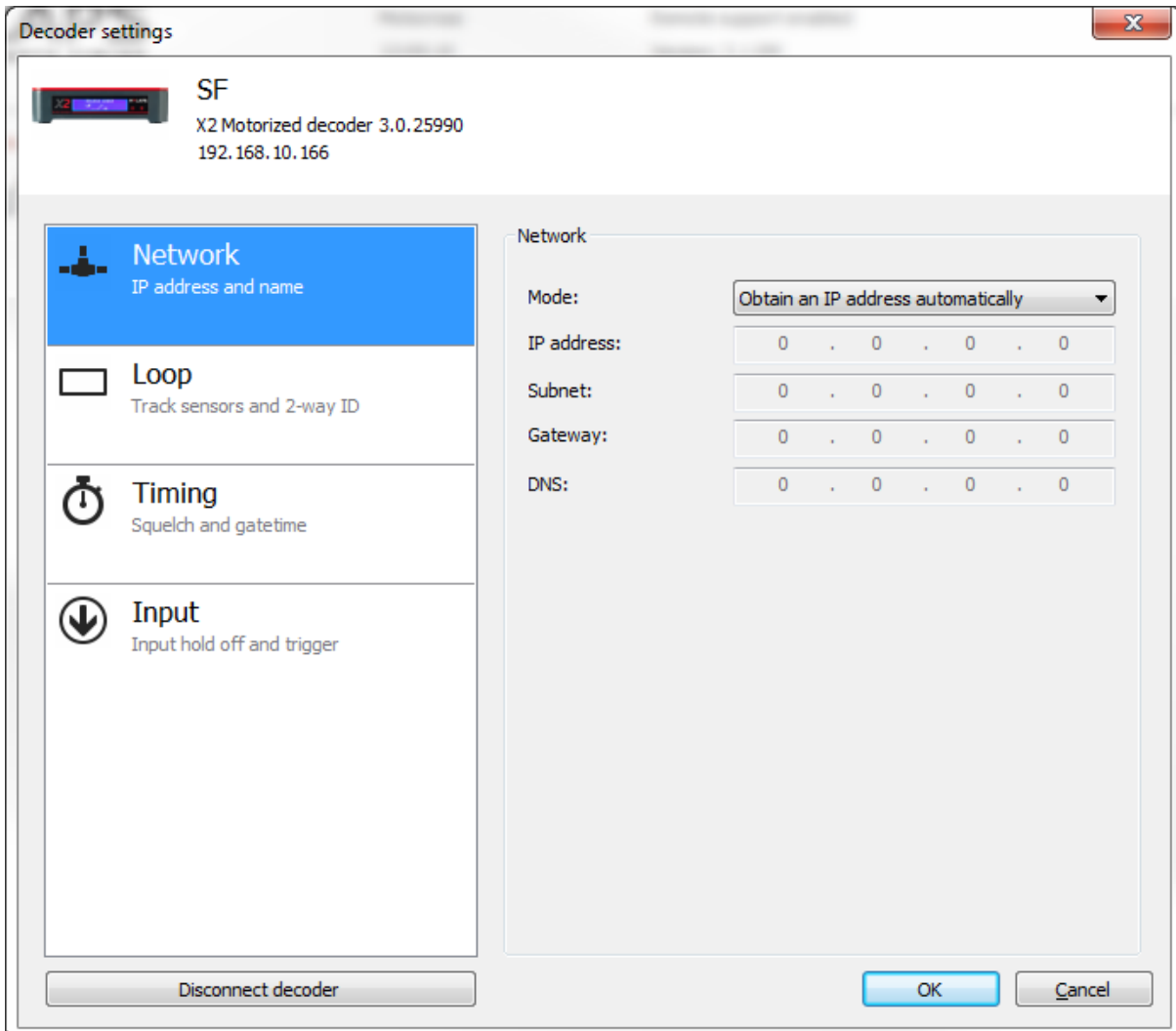
Remote Support



In the remote support screen you can enable the remote support setting for the system. When this is enabled and your network is connected to the Internet MYLAPS Support Engineers will be able to connect to your systems to run diagnostic test and/or assist you with setting up the system.

X2 decoder settings

Network



The screenshot shows the 'Decoder settings' window for an 'SF' X2 Motorized decoder (version 3.0.25990, IP 192.168.10.166). The 'Network' tab is selected, showing options for IP address and name, Loop (Track sensors and 2-way ID), Timing (Squelch and gatetime), and Input (Input hold off and trigger). The 'Network' section on the right includes a dropdown for 'Mode' set to 'Obtain an IP address automatically', and input fields for IP address, Subnet, Gateway, and DNS, all currently set to 0.0.0.0. A 'Disconnect decoder' button is at the bottom left, and 'OK' and 'Cancel' buttons are at the bottom right.

Decoder settings

SF
X2 Motorized decoder 3.0.25990
192.168.10.166

Network
IP address and name

☐ **Loop**
Track sensors and 2-way ID

Timing
Squelch and gatetime

Input
Input hold off and trigger

Network

Mode: Obtain an IP address automatically

IP address: 0 . 0 . 0 . 0

Subnet: 0 . 0 . 0 . 0

Gateway: 0 . 0 . 0 . 0

DNS: 0 . 0 . 0 . 0

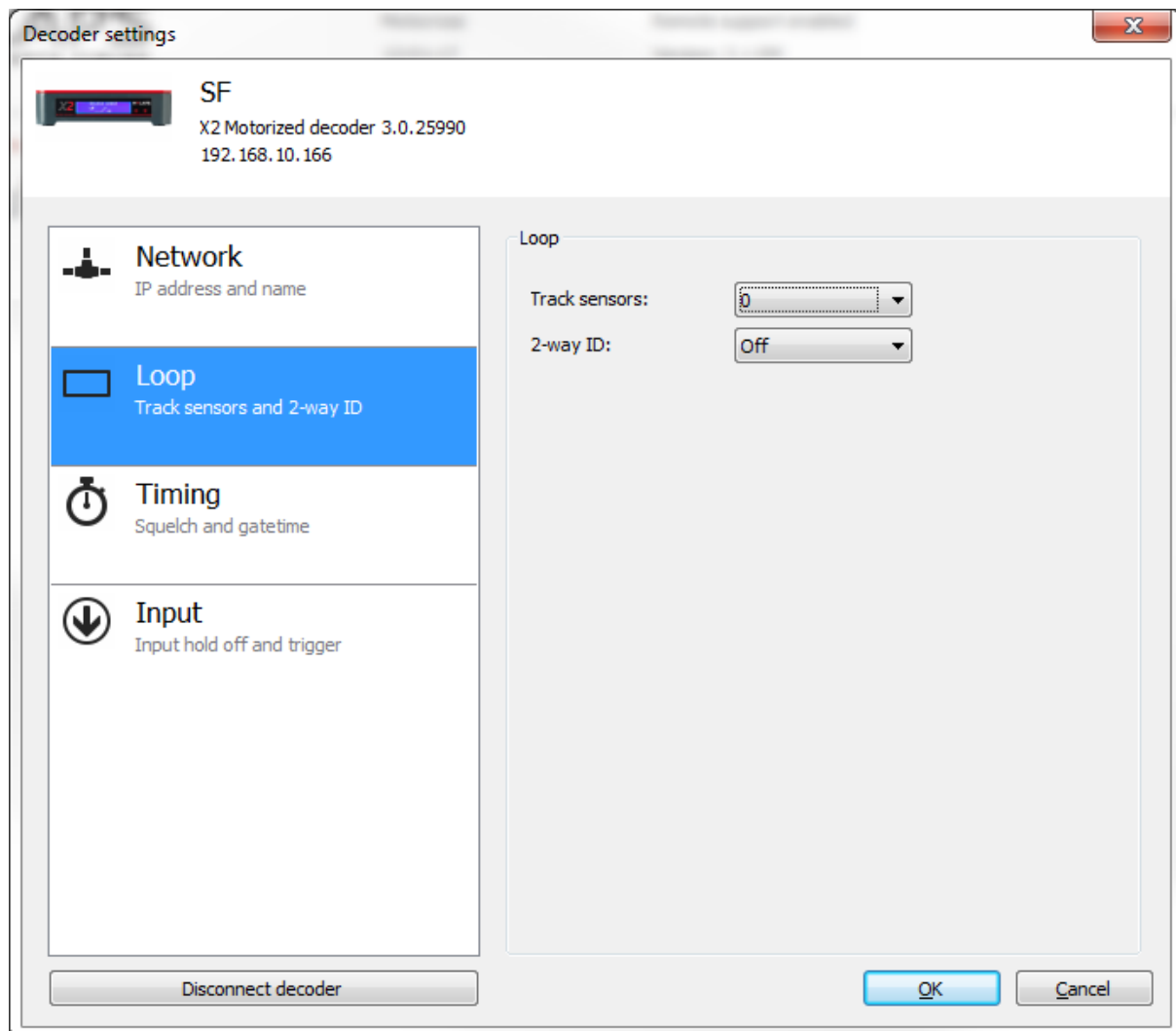
Disconnect decoder

OK Cancel

Mode

With the default setting the IP address and network settings will be obtained automatically using the network's DHCP server. If no IP address can be obtained it will be necessary to configure a static IP address, subnet and gateway and DNS server. Please consult your network provider or administrator when configuring a static IP address for your decoder as the IP address has to be unique to your decoder. Otherwise IP address conflicts might arise that can cause disconnections.

Loop



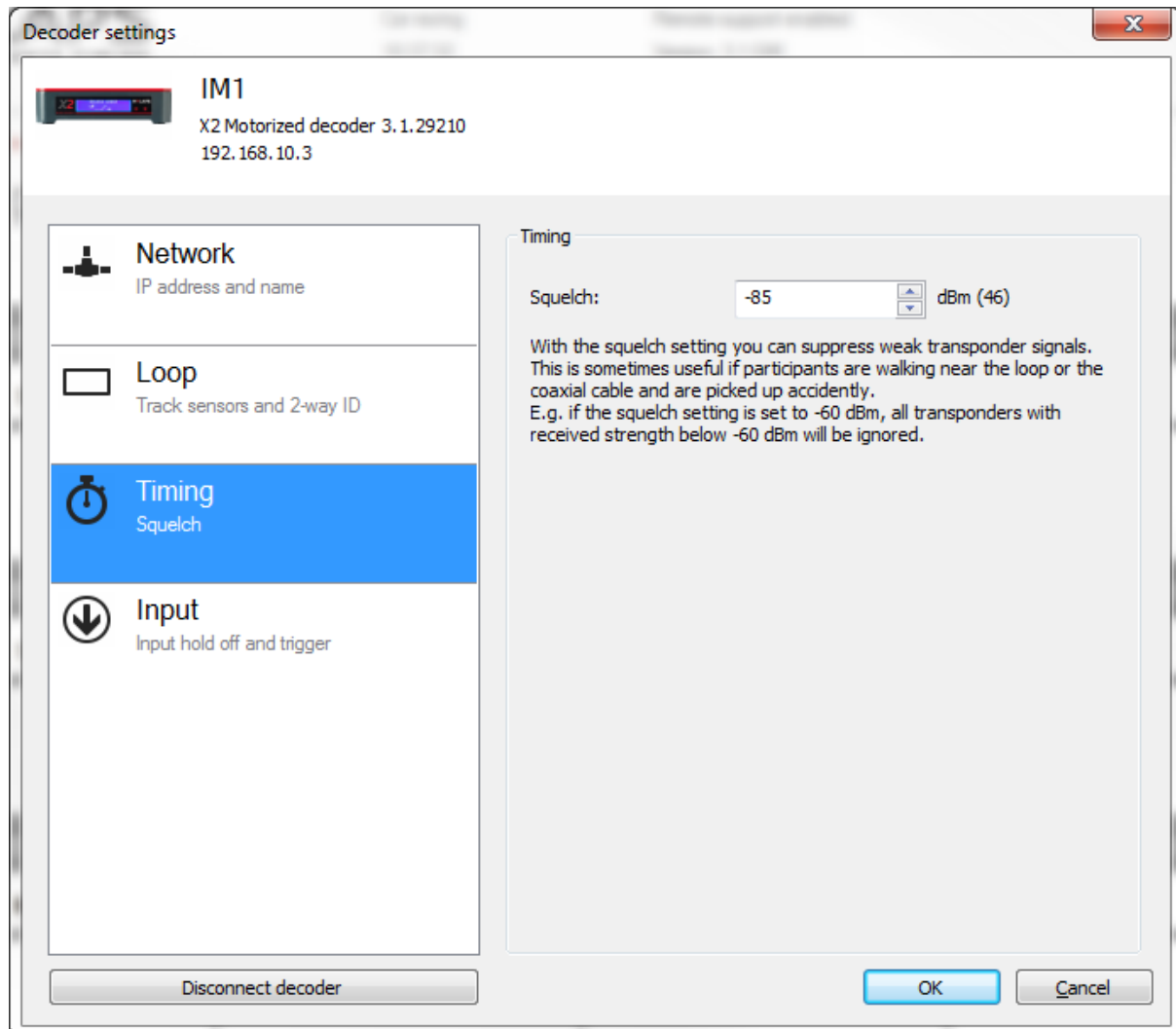
Track sensors

Select the number of installed track sensors (up to 3).

2-way identification

If used, select the ID for outgoing messages from the loop to the transponders. (1 through 64)

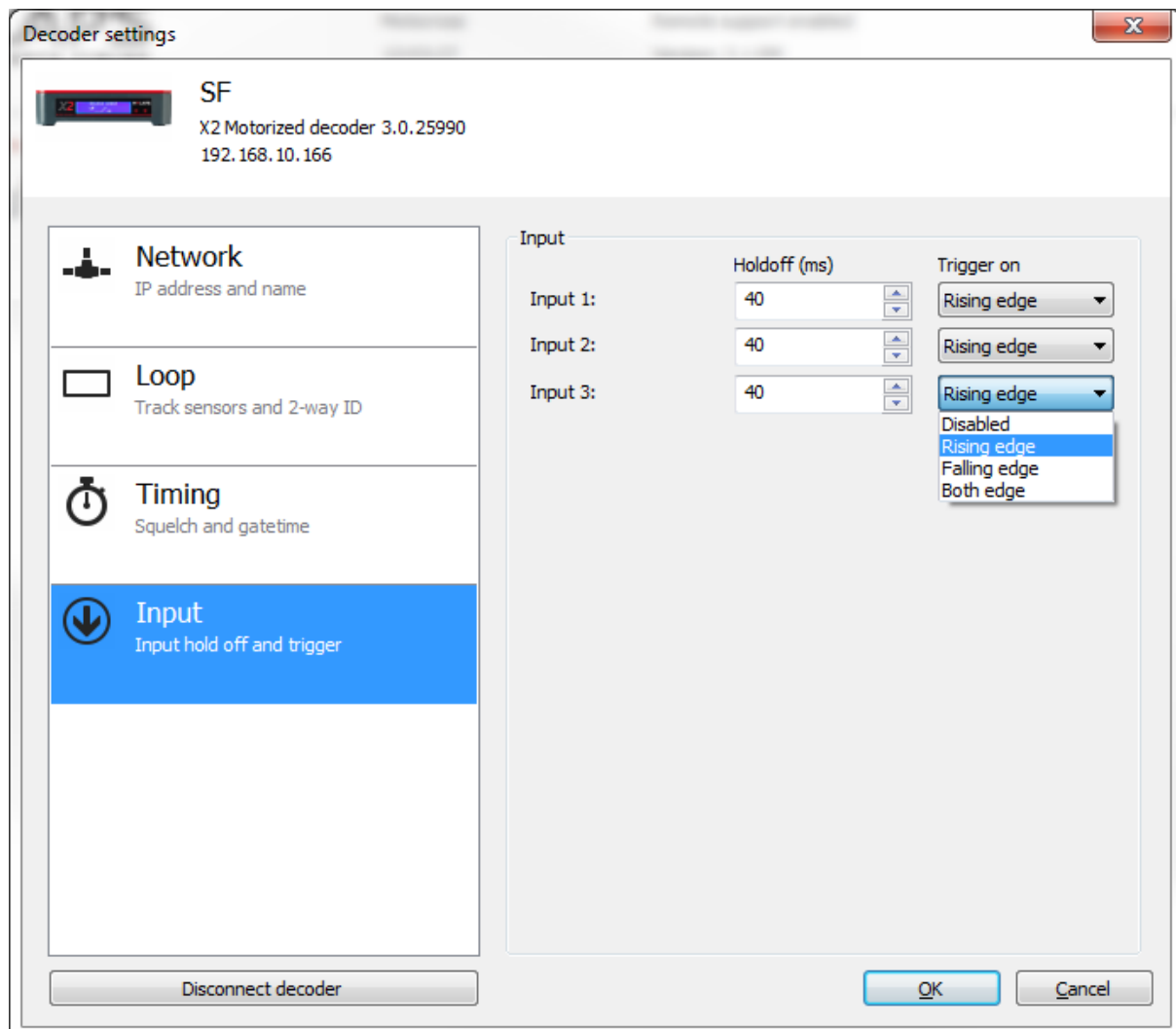
Timing



Squelch

Here you can tune the sensitivity of the loop when detecting a passing transponder. A higher number has a limiting effect on transponder detection. This is typically used when loops are installed in proximity of each other and weak transponder signals are erroneously received.

Input



The decoder has three inputs. In most cases these are used to connect photo cell equipment or triggering start events.

Hold-off

The hold-off in milliseconds tells the detector to ignore subsequent signal changes after the triggering edge is detected for the specified number of milliseconds. This is typically used to ignore switching artifacts of the connected electronic circuits.

Trigger

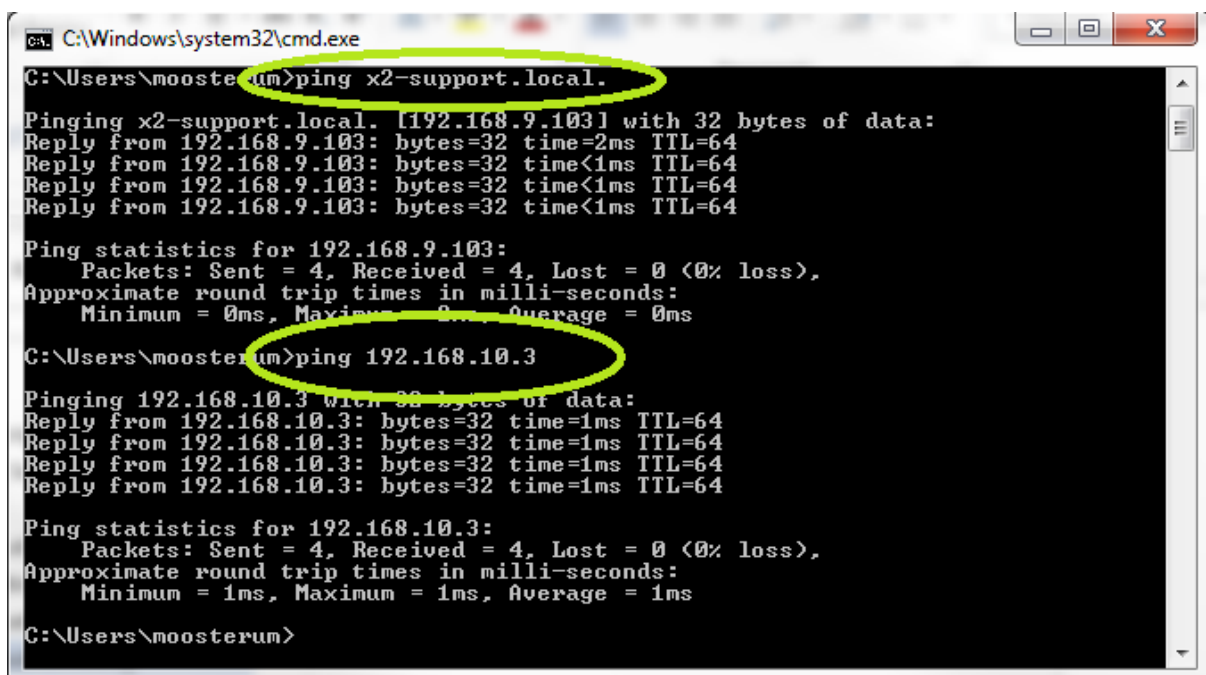
This tells the input to disable or trigger detection on the rising, falling or both edges of the input signal.

Network Troubleshooting

When the X2 Utility does not show an overview of X2 components the following checklist can be helpful to determine a problem:

1. Check that all required X2 components (servers & decoders) are powered on and the displays are in a normal, operational state.
2. Verify that all X2 components (including the computer that runs the X2 utility) are connected to the same network.
3. Verify that TCP/IP connections can be established and that the server and decoders can be pinged using the hostnames or IP-addresses.

To use the ping utility open or run the DOS command prompt. Below is an example of successful responses from a server and decoder.



```

C:\Windows\system32\cmd.exe
C:\Users\moosterum>ping x2-support.local.

Pinging x2-support.local. [192.168.9.103] with 32 bytes of data:
Reply from 192.168.9.103: bytes=32 time=2ms TTL=64
Reply from 192.168.9.103: bytes=32 time<1ms TTL=64
Reply from 192.168.9.103: bytes=32 time<1ms TTL=64
Reply from 192.168.9.103: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.9.103:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\moosterum>ping 192.168.10.3

Pinging 192.168.10.3 with 32 bytes of data:
Reply from 192.168.10.3: bytes=32 time=1ms TTL=64
Reply from 192.168.10.3: bytes=32 time=1ms TTL=64
Reply from 192.168.10.3: bytes=32 time=1ms TTL=64
Reply from 192.168.10.3: bytes=32 time=1ms TTL=64

Ping statistics for 192.168.10.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 1ms, Average = 1ms

C:\Users\moosterum>
  
```

The ideal network for X2 components and utility / timing computers is a dedicated and unfiltered Ethernet LAN (preferable using PoE switches for the X2 server). However there are cases where this is not possible because the distances between components require alternative firewalled network connections and/or the computer that runs the X2 utility has active firewall settings.

TCP/IP port usage

For the X2 servers and decoders detection an implementation of the Bonjour software is used. This software is well documented and uses UDP port numbers **1900**, **5350**, **5351** and **5353**. For more information regarding this software see [http://en.wikipedia.org/wiki/Bonjour_\(software\)](http://en.wikipedia.org/wiki/Bonjour_(software))

For communications between the server and decoders TCP port number **5411** is used.

An unfiltered dedicated LAN is recommended for the X2 network installation.