Installation of IPROBOT3

(Status: Oct.2012)

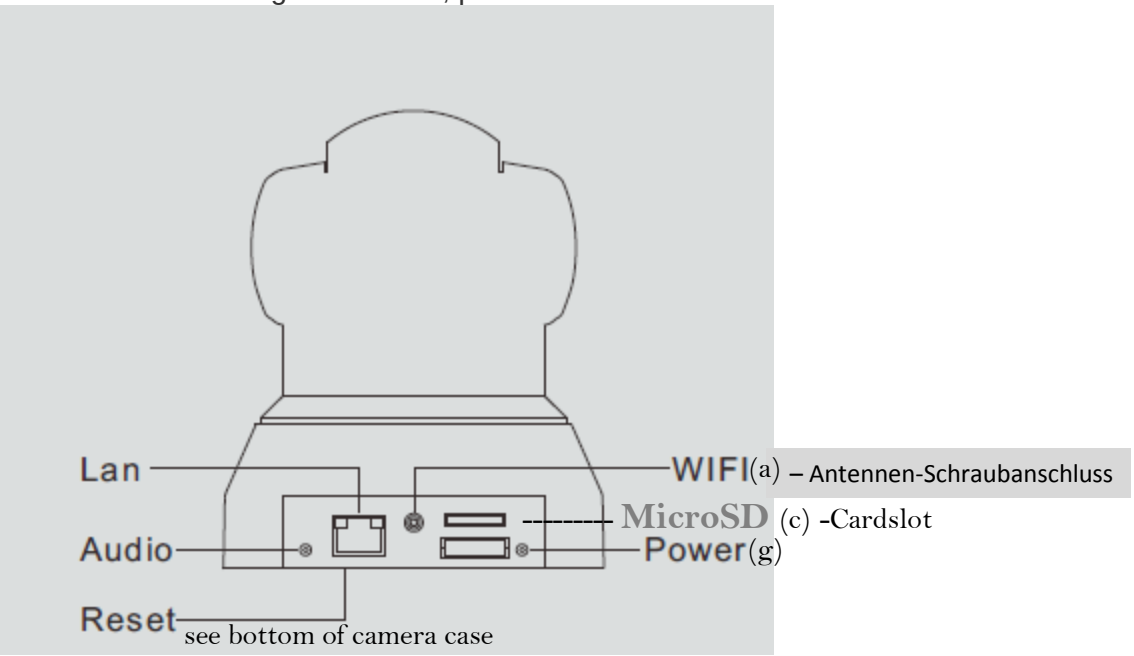
Inhalt

Disclaimer by the author:

This documentation is not a manufacturer's documentation, but putting together a progress report as user and consumer.
It is merely intended to transfer experiences made with the installation.
For the accuracy and completeness there is no liability.
All indications have to be validated by each reader independent and with own responsibility.

1. Connecting the camera

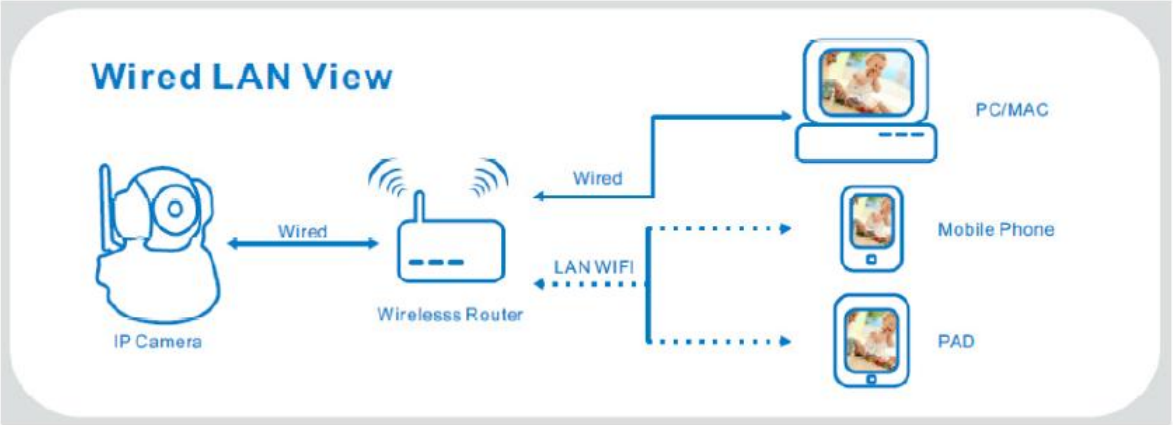
For the first time using the camera, proceed as follows:



a) Screw the antenna
(Used for WLAN / WiFi access required)
b) Remove the plastic wrap from the lens
c) Insert microSD card (only when necessary; camera works without SD card)
d) connect the LAN (network) cable between the camera and DSL router (**not to the PC!**)
e) Plug the power adapter into the power outlet
f) camera set on a flat surface
g) Insert power cord into the right rear connector port of the housing, next to the antenna and the green plug.
h) Release the camera

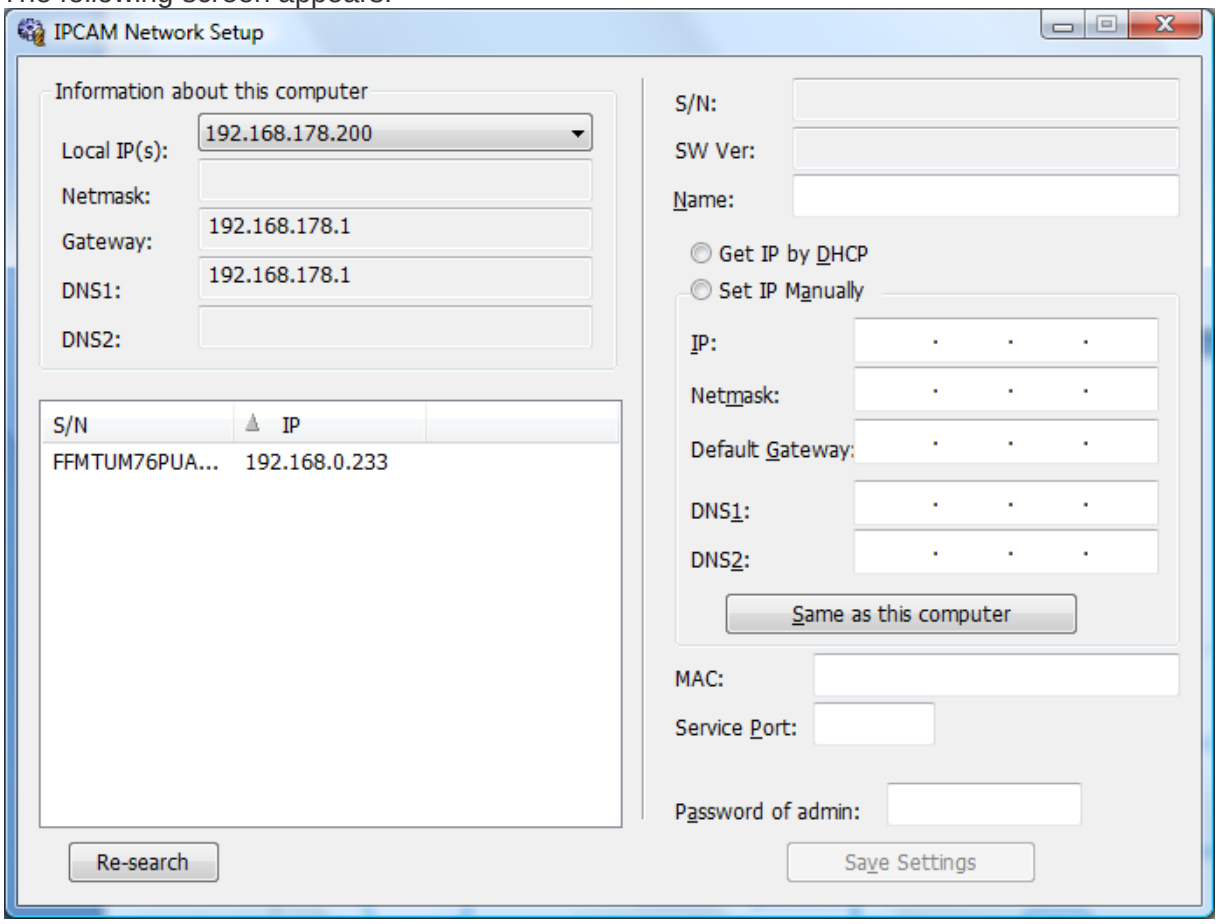
The camera will start after 3 seconds to move the camera head. She runs back and once ago and is then ready for operation. The green indicator light on the front above the lens lights.
The camera should be back after plugging the power cord into the camera port (g) on the right does not move, make sure that the power plug is not accidentally left in the Audio connector has been plugged.
The microSD card is needed only if you have no way to images or movies on To save other way. For mail messages no card is required.

2. Setting up your camera



Please do not connect the camera directly to the PC, but to the network router!
Insert the included CD into your PC and call the menu item "Camera Search".
(It is thus that on the CD the program "iprobot3 search.exe" is called.)

The following screen appears:



Your camera is displayed with the serial number (S/N), placed on the camera package below the QR code.

The following part shows the process to set up the cam in the LAN-network so that it can be addressed properly. For this it must obtain an IP address, and if necessary also a second one for to operate in the wireless network.

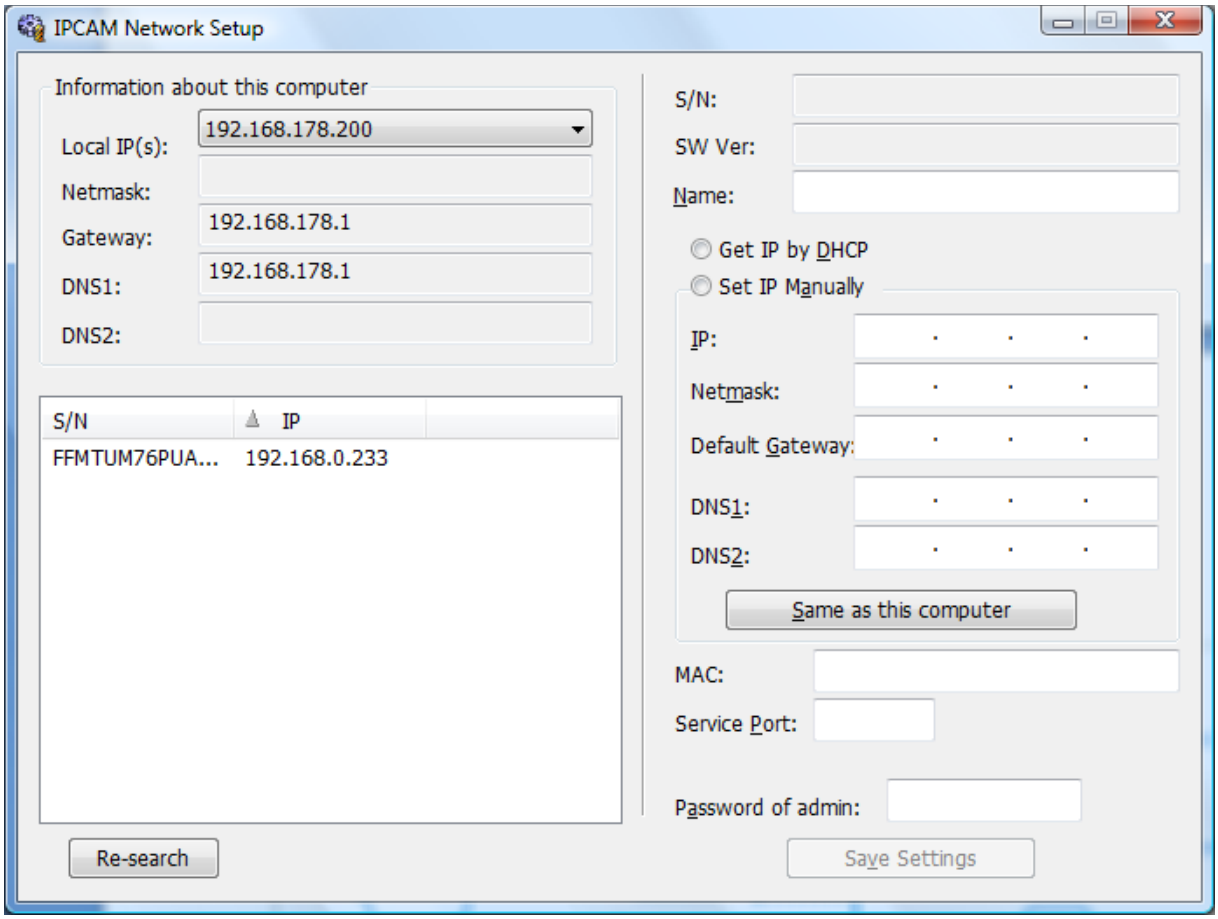
Note that the camera has 2 integrated network cards. One for wired operations and one for WiFi mode. Thus it also receives two independent network addresses each for the mode it is being operated. Only one mode can be active at a time (cable or WiFi).

For each of these two network cards the installation setup has to be done individually;
the wired installation must compulsively first.
a) Wired installation (LAN mode)
thereafter
b) Wireless operation (WiFi-/WLan-Modus)

For the first steps just taking the camera into network (LAN or WiFi) you do not need administrative rights on your PC.
But for to view the cams images and administrate settings like alarm configuration, the Internet Explorer browser is necessary and an AddInn (ActiveX program) must be installed. For this purpose administrative rights are required.

To display the cams images using Firefox, Safari or Chrome, the AddIn “QuickTime Player” from Apple is required. To install it, you need administrative rights once on each PC, on which the camera images are to be displayed.

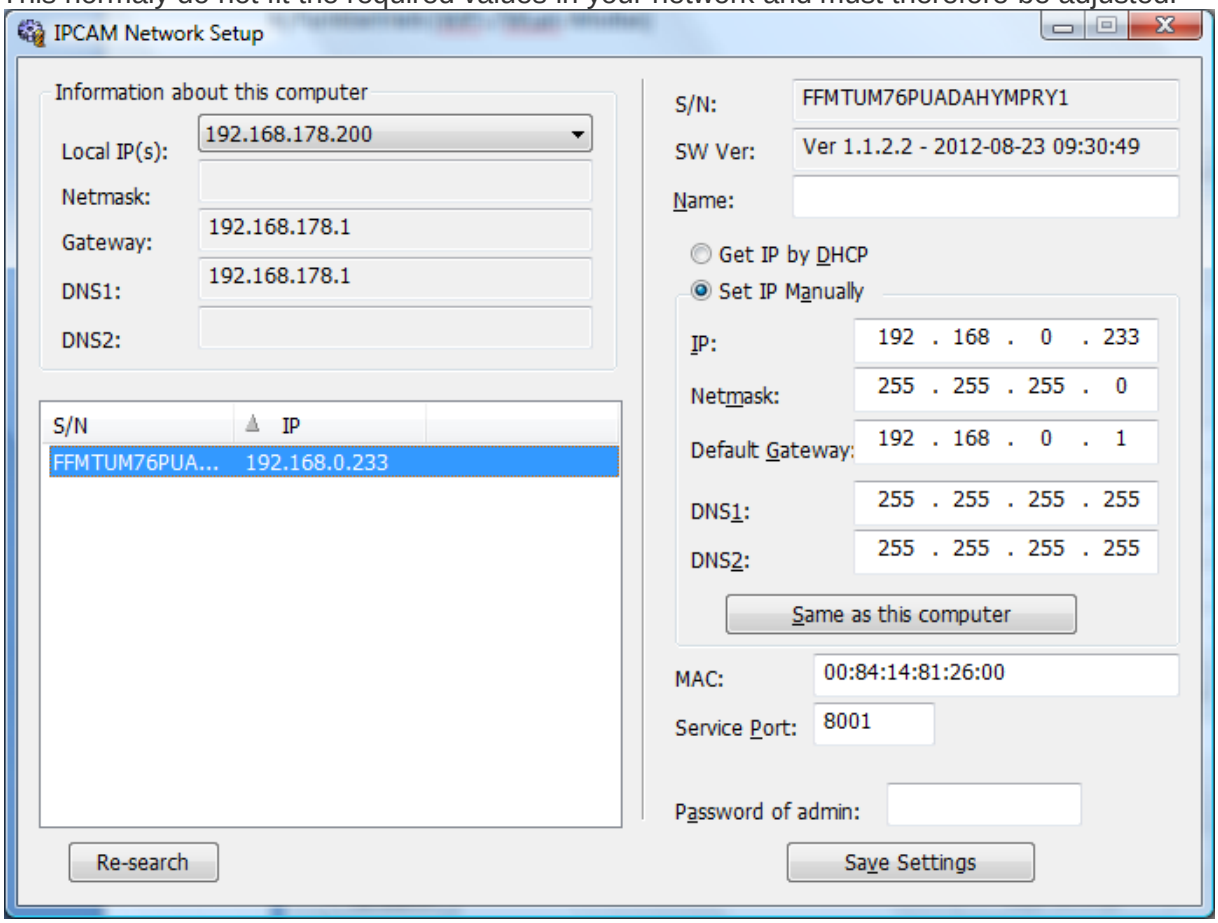
3. Installation via LAN cable



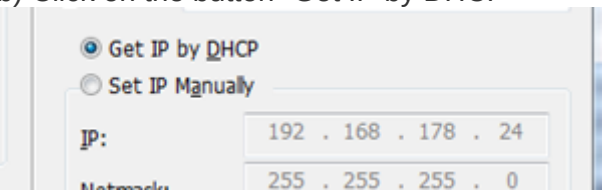
Within this document, the installation is only described for the usual installation using automatic IP address assignment represented by the router (= automatic IP by DHCP).

Beside that there is also the possibility of individual specifying fixed IP addresses. However, this requires advanced knowledge and is therefore not described here.

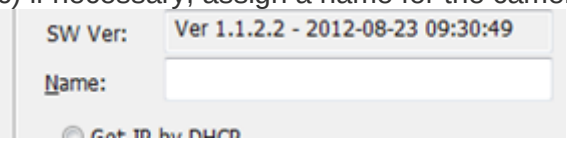
a) Click the mouse on the displayed camera
The current preset network settings of the camera will be display.
This normaly do not fit the required values in your network and must therefore be adjusted.



b) Click on the button "Get IP by DHCP"

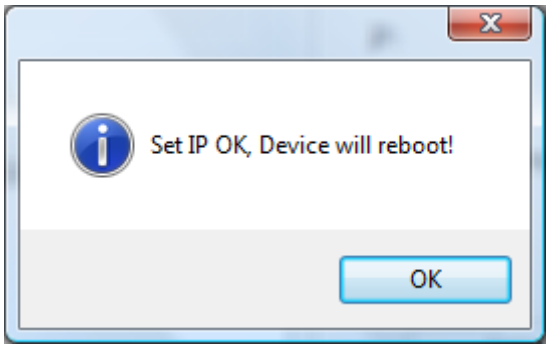


c) if necessary, assign a name for the camera in the "Name" field.



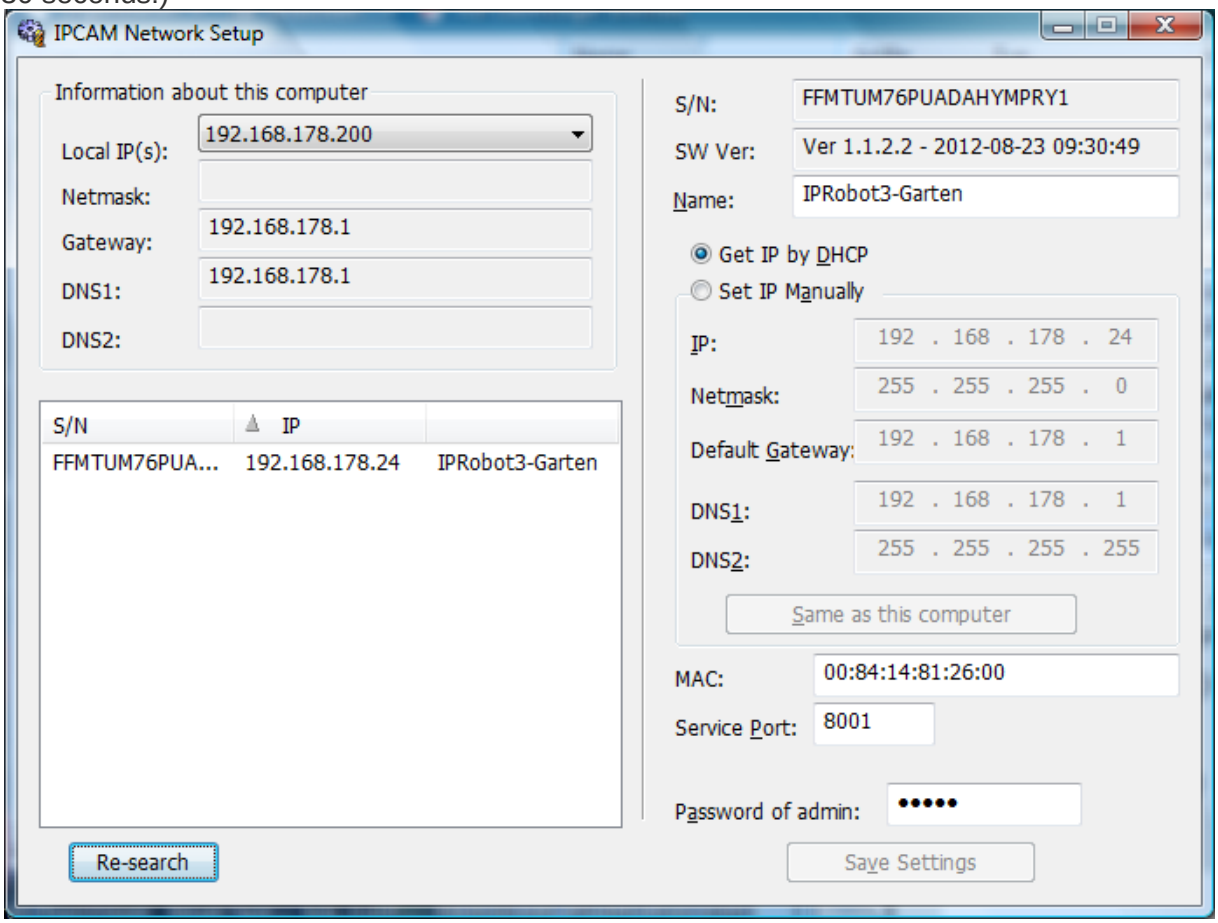
This is useful so that messages and e-mails contain this self defined cam's name in the email header.
If possible, do not use accents or letters other than English alphabet. These variables will not be displayed.

d) Enter in the field "password of admin:" admin
This is the default password at the beginning and can be changed later. But first, however, it must be kept unchanged so that your setting will be accepted.
e) Press button "Save Settings".
The following window appears:



f) Wait about 30 seconds!
The camera will now reboot (reset) and logs in into the network with the new information, and then receives a network address (IP address) assigned by the router.

g) Press button "Re-search"
The new IP address and the name you assigned to the camera you will appear (after about 30 seconds!)



DONE!

This is all what's required to install the cam within wired mode.
By double clicking on cam-entry in the list our default browser (e. g. Internet Explorer) opens the cam's start screen (= cam's login screen)

4. Installation of wireless connection (WiFi / WLAN)

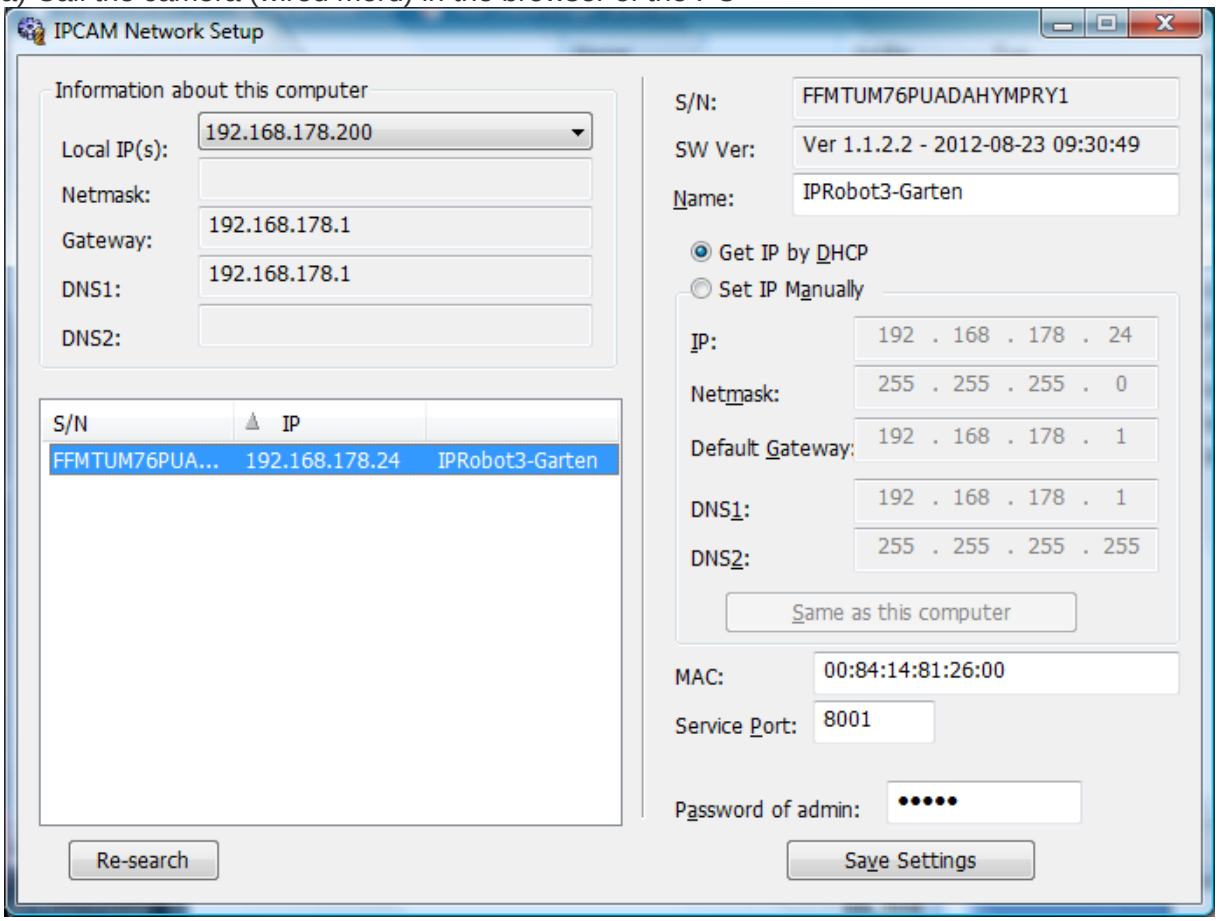
The following requirements exist to operate the camera in the WLAN/wireless mode:
a) the antenna to the back of the camera has to be screwed on.
b) Allow the router to add new wireless devices (no MAC-address filtering)
c) You must know the encryption password of the network
d) You must have switched the name of the wireless network to visible and you have to know how it is called
e) You must have a browser (Internet Explorer, Safari, Firefox, Chrome, etc.) installed
f) The camera must be active within the network (as described above) in wired mode

IMPORTANT:
ATTENTION! The combined mode WPA + WPA2 in your wireless network must not be activated during setting up the camera! Please check this in your router's settings.
Turn your existing router to WPA2 / AES or TKIP or WPA / TKIP – one of these modes, but never to combined mode WAP + WPA2 during installation.

After having installed the camera, and its first successful wireless connection, the combined mode can be reactivated again. The camera supports although most common encryption methods (WPA + TKIP, WPA2 + TKIP, WPA2 + AES, WPA2 + TKIP).

Troubleshooting of possible problems establishing WiFi-connections is described later on in a separate section of this document.

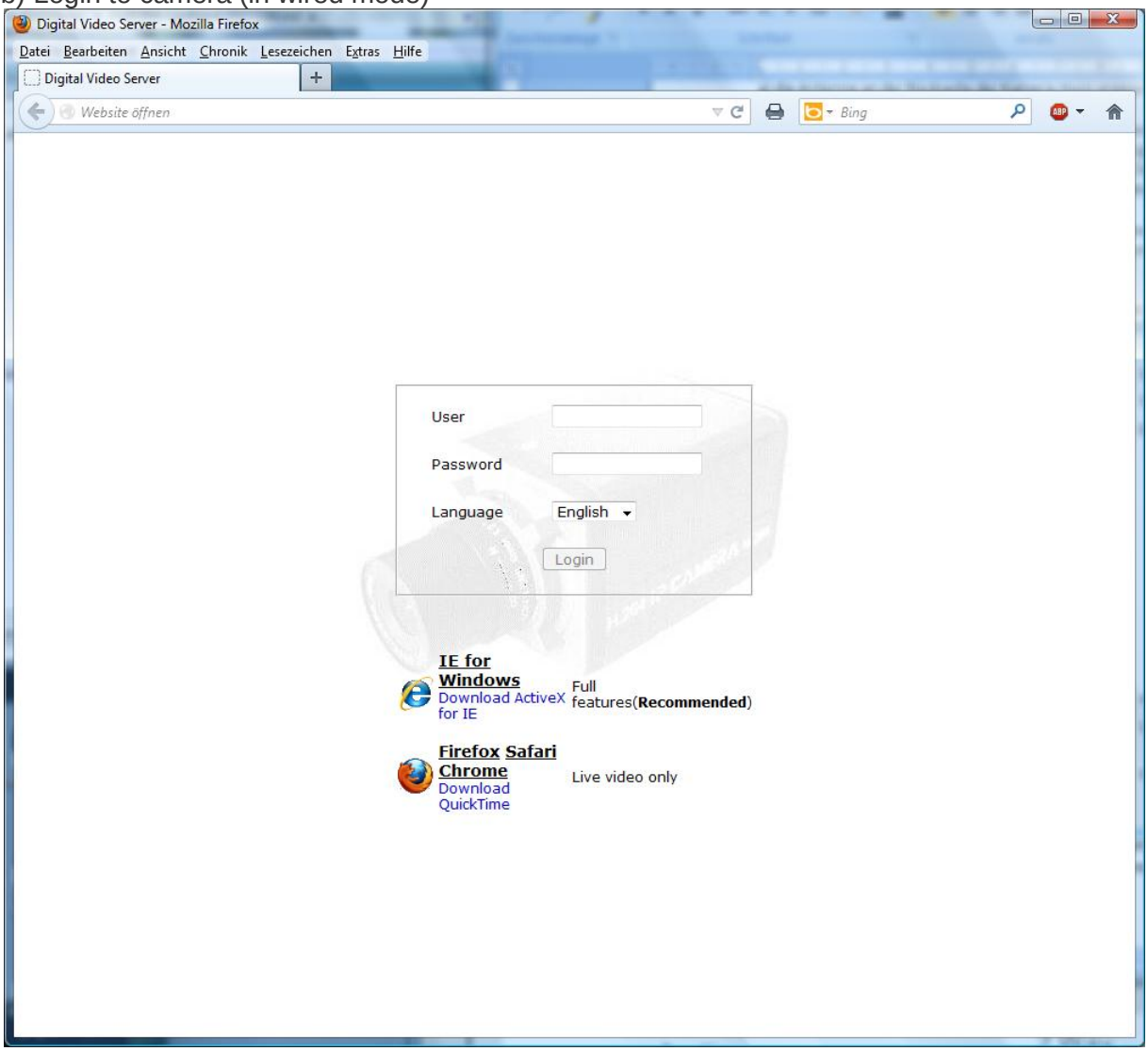
a) Call the camera (wired mord) in the browser of the PC



To do this, double click on the displayed camera within IPCAM Network Setup.
This will open your default browser on your PC and display the login screen of the Camera.

To access the camera manually within the browser, you must enter the cam's IP address followed by : and port number.
(port number is the port number shown in the client setup program at the bottom right; default: 8001). Within Internet Explorer, the term must be preceded with http://
A possible call address of the camera reads thus like
http://192.168.178.24:8001

b) Login to camera (in wired mode)



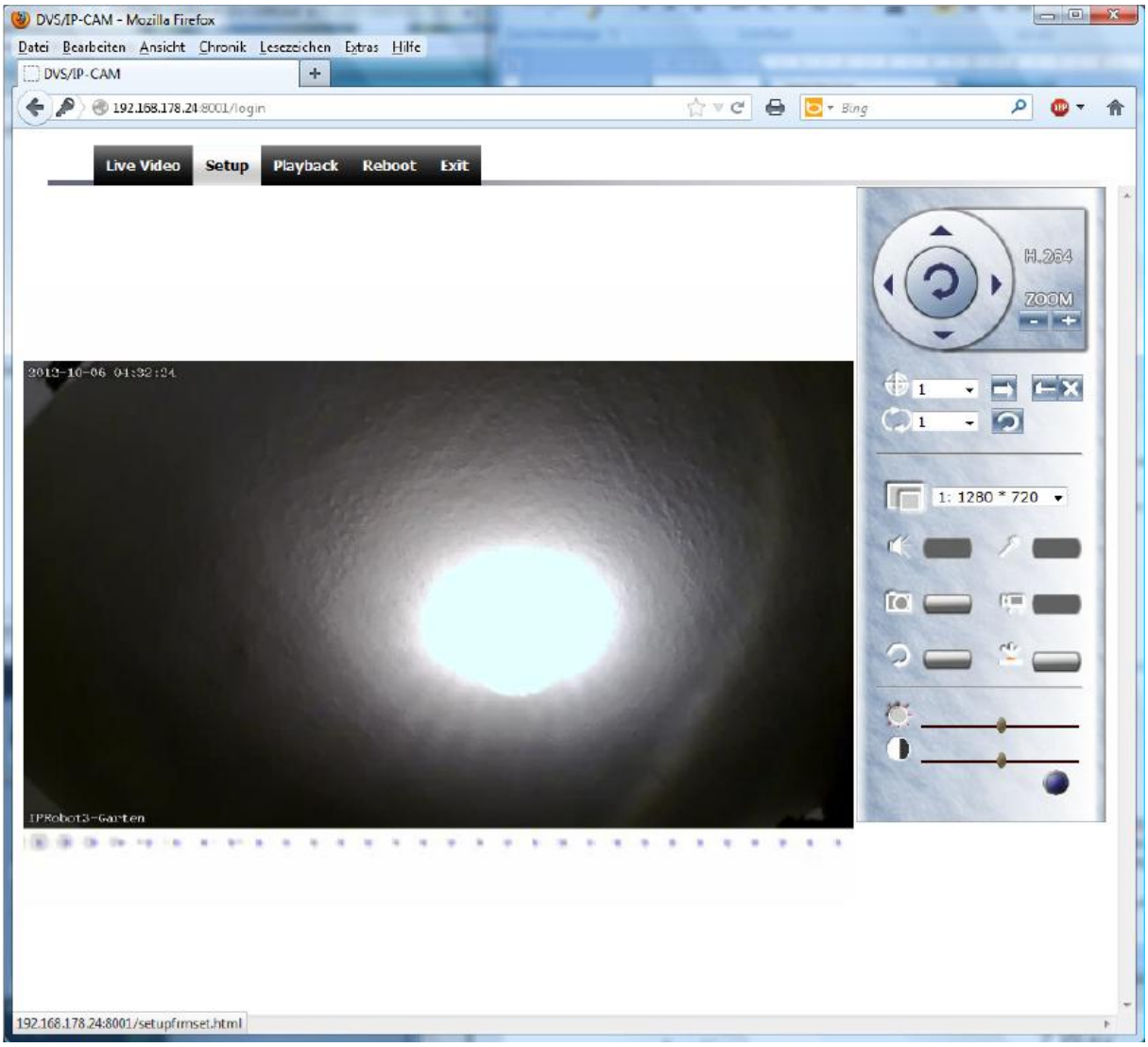
Enter (all lower case):
USER: admin
PASSWORD: admin
and click the "Login" button.

As a European language only ENGLISH is available and set as default.
At this time **you do not need to install the add-ins** for Firefox or IE.

The Setup of the wireless configuration can also be done without add-ins.

c) SETUP menue and WiFi-settings of cam
The camera is now addressed/opend.

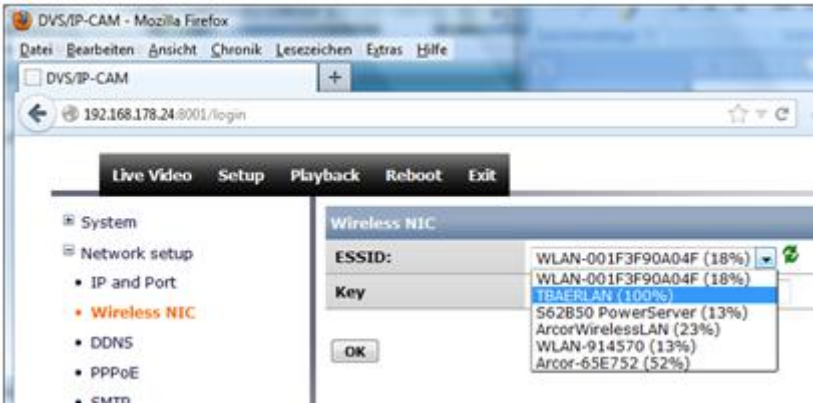
1.Click on the top menu to SETUP!
(Note: The camera image may not appear because the AddIns are not yet installed)



2. From the left menu tree, select "NETWORK SETUP" and then the sub-item "WIRELESS NIC"

The camera now starts automatically to scan all accessible wireless networks and shows it after a few seconds.
The display is not sorted by signal strength! So your own network is not necessarily in the first place.

c) Choose your own network and enter in the encryption-key in the "KEY"-field



d) Click the OK button to save the settings.

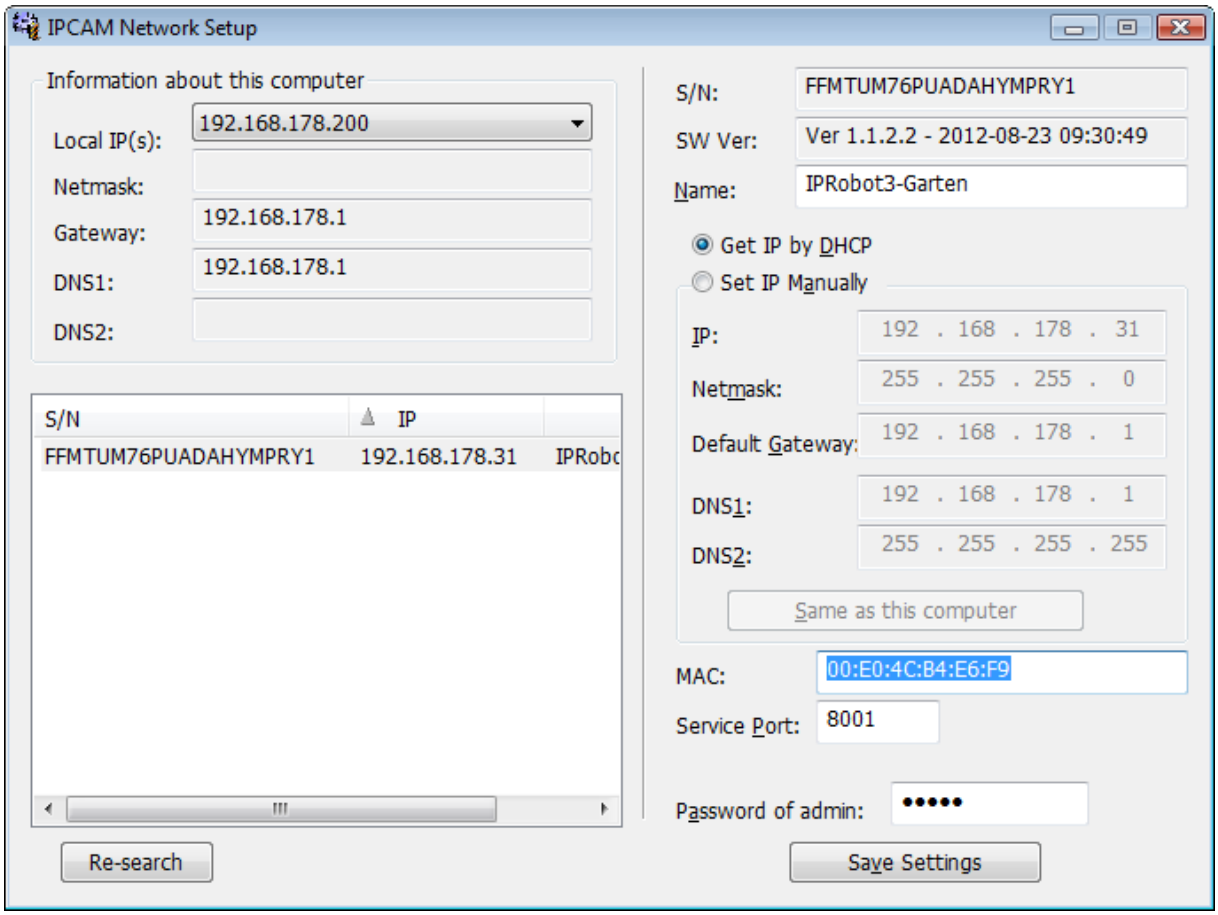
e) Reboot the camera to activate the new settings
Click on the item name "reboot" in the header menu.
The camera will restart and will be available after about 30 seconds.

f) Removing the LAN cable from the camera
Now remove the LAN cable from the back of the camera.
Please, pull the power plug from the camera (cutt off power).

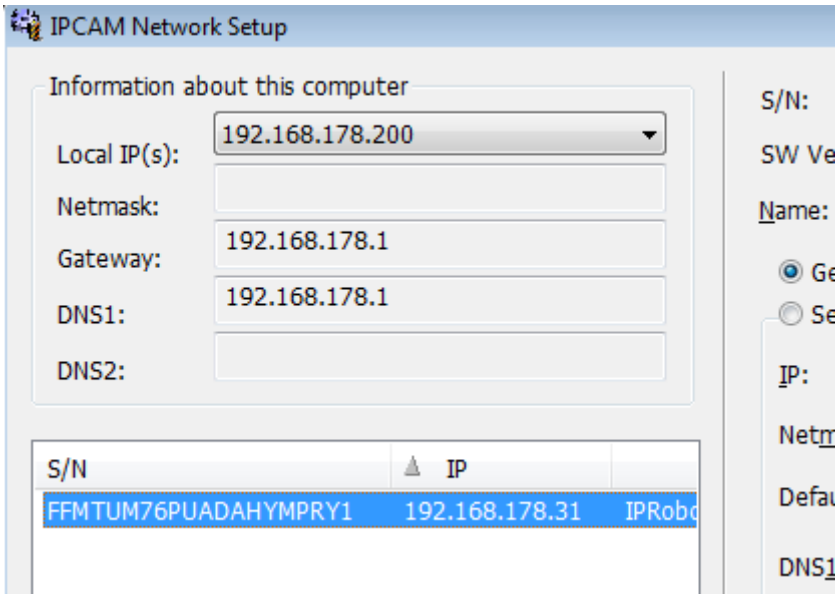
g) Check the wireless connection
1. Leave the camera in vicinity of the router and switch the power back on. The LAN cable is not plugged in!
The camera now works in WiFi mode and will receive a NE IP address from the router as a wireless device. This may take up to 1 minute

2. Open the IPCAM Network Setup (if it is not still open) and click
on the "Re-search".

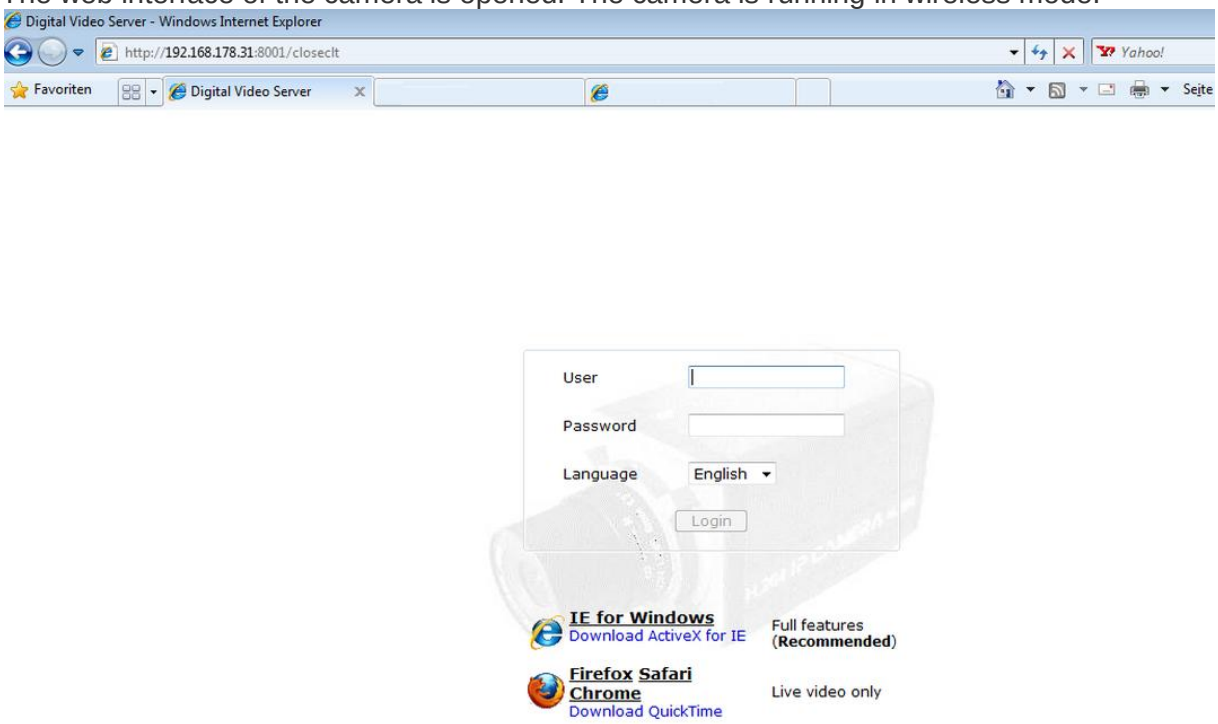
3. The new WLAN / WiFi address of the camera is displayed in the list of cameras now.
The WLAN address shown is different from the previously assigned IP address in wired mode. The wired IP-address is no longer displayed because the cam is not wired anymore.
(The MAC address shown now is the one from the wireless network card)



h) Open the camera web interface in WiFi-mode
Perform a double click on the displayed camera in IPCAM Network Setup and access to the camera.



The web interface of the camera is opened. The camera is running in wireless mode.



The wireless setup is complete. The camera can be brought to its destination and can be mounted.

5. Special features of the wireless setup

Unfortunately, setting up the camera on the wireless network is often a particular challenge because of numerous technical specificities of different routers. In these cases there is no technically correct communication been established between the router and the camera and the camera gets in consequence either no IP address in the WLAN or the data are not transmitted.
In such cases unfortunately it can't be avoided to go a little deeper into the technical aspects of establishing a network connection.

You should first wire the PC you are working with directly to the router by LAN cable, due to the fact, that during the following activities the WLAN configuration has to be changed temporarily. If your PC would not be cabled, it might also have problems connecting to the network.

Anticipate the explanation: The camera has no opportunity/functionality to set a specific security protocol through the UI. The camera uses handshake procedures to handle the respective protocol with the router and only expects the encryption password / keyphrase from the user.

Are there problems with the approval of the protocol, connection problems are the result. For unique protocols this seldom occurs, using combined logs this is more often.

Case 1: password contains special characters

ATTENTION! This change is to be made permanent and not temporary! All wireless devices in the network must be configured accordingly!
Special characters or national charactersets (äüöß € $ ...) are not internationally uniform coded.
Therefore, it will often be differently translated and coded software-internal - although they appear equal on the surface -. As result, character codes and passwords is not totally compliant.
Therefore consider first, whether your wireless encryption key uses such special characters. This must be permanently replaced.

Proceed as follows:
a) Open the router interface and check wireless key and change it, not using special characters

b) Save changes and close-surface again

c) adjusting the camera settings
1. Connect the camera in wired mode
2. Call up the cam menu: SETUP => NETWORK SETUP => Wireless NIC
3. Select your network from list and enter the new revised encryption passphrase (please pay attention to the correct spelling of the passphrase!)
4. Save changed entries
5. Perform reboot of the camera, and then plug off power from the camera
6. De-connect the LAN cable from the camera and power on again
7.The camera will reboot (without LAN cable, so the Wi-Fi mode)

d) Check the connection
1. Call the program IPCAM Network Setup and verify that the camera is found on the network.
2. If the camera is still not found check the new passphrase within the wireless router encryption section.
copy it into clipboard to paste it into the cams section afterwards; so you ensure it is input identical in the camera or assign a new password.

=> repeat section b)

Case 2: WPA + WPA2 - mode (combined mode) with TKIP or AES or TKIP

The camera sees the higher encrypted and secure WPA2 protocol with the new method CCMP, but also the older AES method. It also understands WPA with TKIP (pre-shared key). Since the combination technique is not clearly specified for the cam, there is a , Misunderstanding 'between the camera and the router. Therefore a clear procedure / protocol has to be enforced.

Proceed as follows:
a) Open the router menu, and adjust the wireless security settings to WPA2 - CCMP (If the router still does not support CCPM, then set to AES).
No “Combined mode WPA + WPA2” shall be selected, only WPA2 alone!

Save changed setting. (The router is now performing an internal restart)

b) adjusting the camera settings
1. Connect the camera in wired mode
2. Call cam-menu: SETUP => NETWORK SETUP => Wireless NIC
3. If possible do select a **foreign** WLAN network and enter a deliberately erroneous encryption passphrase (if no other - foreign WLAN is in range, then at least cover a faulty password!)
4. Save the incorrect password
5. Perform reboot of the camera, and then plug off power of the camera, plug in again and restart.
6. After restarting open camera still in wired mode and call setup menu SETUP => NETWORK SETUP => Wireless NIC
7. Cover your network and enter the correct encryption passphrase (please assure the correct spelling of the passphrase now!)
8. Save entries for the network including the correct password
9. Perform a reboot of the camera, and then plug-off the camera
10. De-connect the LAN cable from the camera
11. The camera will reboot (without LAN cable, so the Wi-Fi mode is active)

c) Check the wireless connection between the camera and network
1. Call the client software “IPCAM Network Setup” and verify that the camera is found on the network
2. If the camera is not found, copy passphrase from router to the clipboard to ensure identical entry in the camera later on or assign a new password,
=> perform / repeat section b)

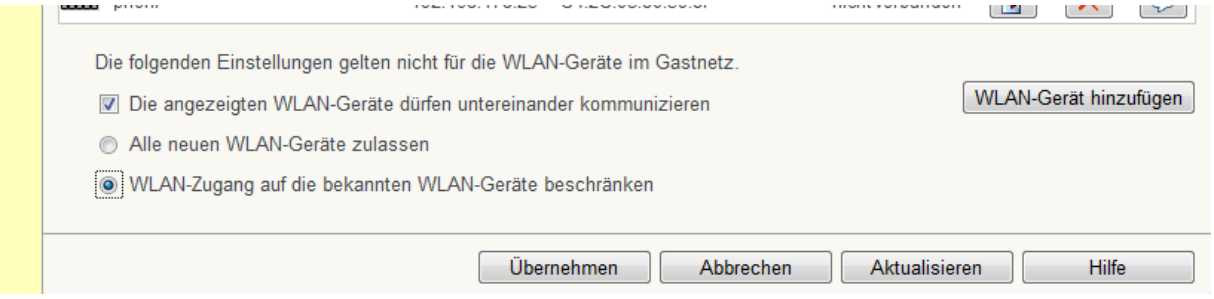
d) restore the original status of the router
1. open the router’s menu, and adjust the wireless security settings to WPA + WPA2 - Mode (combined mode)
2. Save the changes and close the router menu

e) Continue to check the wireless connection between the camera and network
1. Normally turn on the camera and wait about 20 seconds off again
2. Call the client software “IPCAM Network Setup” and verify that the camera is found on the network

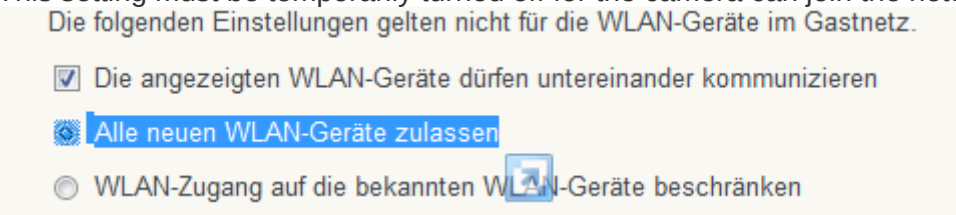
Case 3: You have locked the router adding new equipment or MAC-address-filter active

Many users protect their network beside encryption of data traffic also against new addition of devices in the WLAN.
These settings are made exclusively in the ROUTER menu for your DSL router. It is called “MAC address filtering”.

a) New wireless devices to the router permit: Enable
The example of the Fritz! Router also exists with numerous other manufacturers. It defines an adjustment that new devices are generally not permitted to the network.



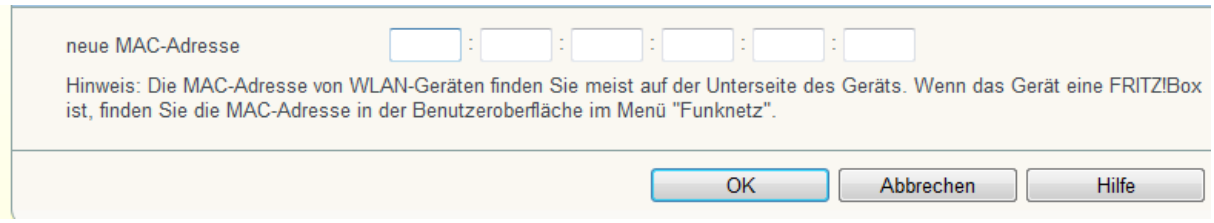
This setting must be temporarily turned off for the camera can join the network wireless.



Once the camera is connected to the WLAN, the option can be activated again.

b) MAC address filter set

Some older routers require the MAC-address of the cam to be entered manually into a list of allowed units.



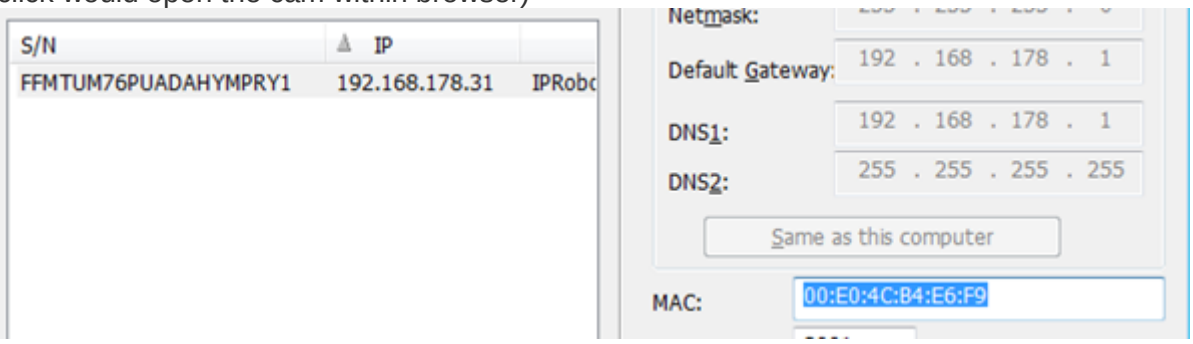
The MAC address is a unique identifier of the network card of a device through which it is detected in the network physically.

If such a MAC address filtering is enabled on your router, the MAC address of network device has to be included here.

The problem here is that the MAC address is visible only when the camera is integrated in the WLAN, which just does not work because the filter is active and does not allow an integration of the cam!

Solution, therefore:

1. MAC address filtering on the router must be temporarily disabled
2. Bring the camera into the network
3. Set the camera to wireless mode (disconnect LAN cable from the camera and Restart)
4. Call the client software “IPCAM Network Setup” and press the "Re-search" button
5. Select camera in list (now in WLAN mode) and click only once on the list entry! (double click would open the cam within browser)



Write down the entry on the right (this is now the wireless MAC address of the second network card of the camera)
6. Call the routers menu with the MAC address filter list and add this address.
7. Reactivate filter setting in router
8. Save and close the router menu.

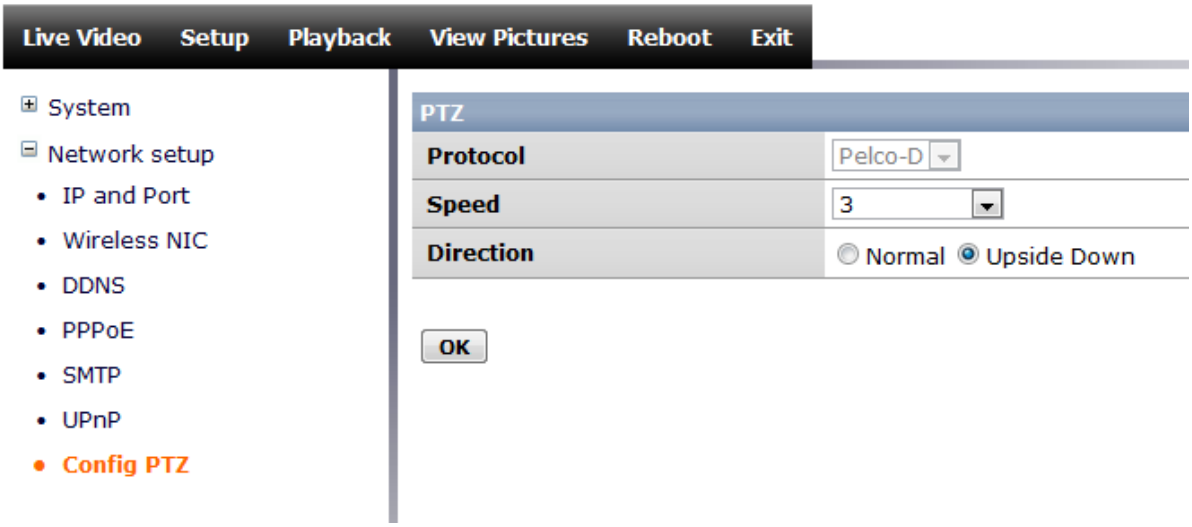
Using this approach, the essential problems of the wireless connections should be able to be fixed.

6. Installation on site

The camera is designed for indoor use. An installation in protected and covered areas where moisture is absolutely impossible, is possible ONLY at your own risk, for example, an Installation on a covered balcony or an enclosed and covered patio. But **it must be ensured at all times that no moisture or wetness gets in contact the camera or its electrical parts.**

The camera can be mounted upright or upside down.
Thus, the display image is still displayed the right way just push the “mirror” symbol on the main video screen.

To ensure that the PTZ-movement goes into the right direction, choose the setup menu SETUP => NETWORK SETUP => CONFIG PTZ and set the "Direction" to “Upside down”



Upside Down = reverse movement of navigation arrows
Normal = normal movement

7. Unlock the camera for access from the Internet

(External access)
DSL routers are equipped with a so-called firewall for security, which does not allow access from outside the network (WAN = Wide Area Network) into the internal network (Local Area Network = LAN).

In addition, the router usually receives a new external IP address (wide area network IP = WAN IP) daily from your DSL-provider (Internet Service Provider = ISP).

The LAN IP addresses remains normally unchanged but also can vary depending on the Lease time setting within your router.

So you see, there is a complete separation between the LAN and WAN, and the address of the DSL router is not really known and constantly changing. Coming from the outside to reach the cam requires knowledge of the actual WAN-IP and the internal LAN-IP of the camera and the permission to pass through the router.

To solve these problems, the camera operates with a defined PORT address (default is 8001). This is the unique identification of the camera on the network and also from outside.

What's missing is the information which WAN IP address is actually assigned to the router by the ISP, and it still lacks permission on the router that the port address
8001 can be accessed from the outside.

So 2 things are necessary:
a) release of the internal port 8001 for access from outside the router (port forwarding = / Port Mapping)

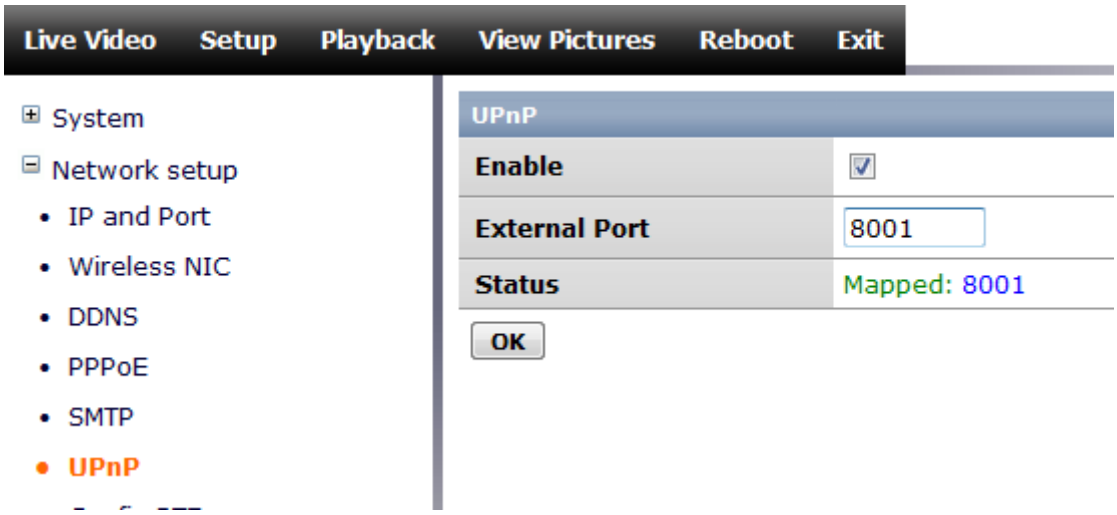
b) notification of specific WAN IP to a central location, which converts that variable IP into a constant/static domain-name.

to a) Port Mapping

In the router menu, there is the function: port mapping / port routing / port forwarding / NAT. Call this function and enter the port there as an internal port of the camera (default = 8001). As an external port, you should add the simplicity sake the same port (8001). Depending on the router manufacturer, it may be that this port number must be entered and combined with the MAC address of the camera.

If you operate the camera either in wireless and wired mode, there are two MAC addresses. Both are connected to port 8001 one. Since the camera is always only active in one of the two modes, there are no collisions in this case.

Alternatively, there is in the SETUP menu of the camera, that configures the portmapping for you automaticly. It is the so-called UPnP (universal plug ‘n’ play). If your router supports UPnP, and this option is enabled, then you can make the entry via the camera menu:



After pressing the OK button, the camera checks whether the port mapping has been accepted by the router and displays the result.

So that the camera is in principle already reached from the outside from the Internet unless your WAN-IP has to be known. (The WAN IP is never the internal IP address! Your current WAN IP can be seen in router menu in the SYSTEM STATUS screen).

If this WAN IP for example is: 78.156.112.213
then the address of your camera is: http://78.156.112.213:8001

to b) Dynamic DNS Management

There are several vendors that offer a service to receive and translate your WAN-IP-address into a constant domain-name (SubDomain). This service is called “dynamic domain name service = DDNS”. Most of these providers will charge you for it.

The function behind it is: If you call this ddns-subdomain within the Internet browser, it forwards the request to that service, which then returns the straight current WAN IP address of your home router and forwards the request to your DSL router. To be able to do this, your router has to forward its own WAN-IP to this service, so that it constantly knows your router’s actual WAN-IP.
This process is called Dynamic DNS (DDNS or DynDNS).

One such provider is, for example, the company DynDNS.ORG.
Please look on the internet, how to get there and reserve a webname for yourself. DynDNS.org offers by Okt.2012 as a free trial for two weeks of use, which first has to be underlied with your credit card data. However, the trial phase can be cancelled any time within the two weeks. Even after termination of the trial period you still retain one DynDNS address for free. If you miss the two weeks cancellation period, you will have to pay for it!
(This information can now no longer be correct. Therefore I have to reject any liability for it. So please inform yourself about the current conditions.)

Unless you opt for one of the DDNS service provider, you need to enter this information also in your router. Dependant on the manufacturer of your router, you will find this item under one of the following terms: DynamicDNS, DDNS, DynDNS.

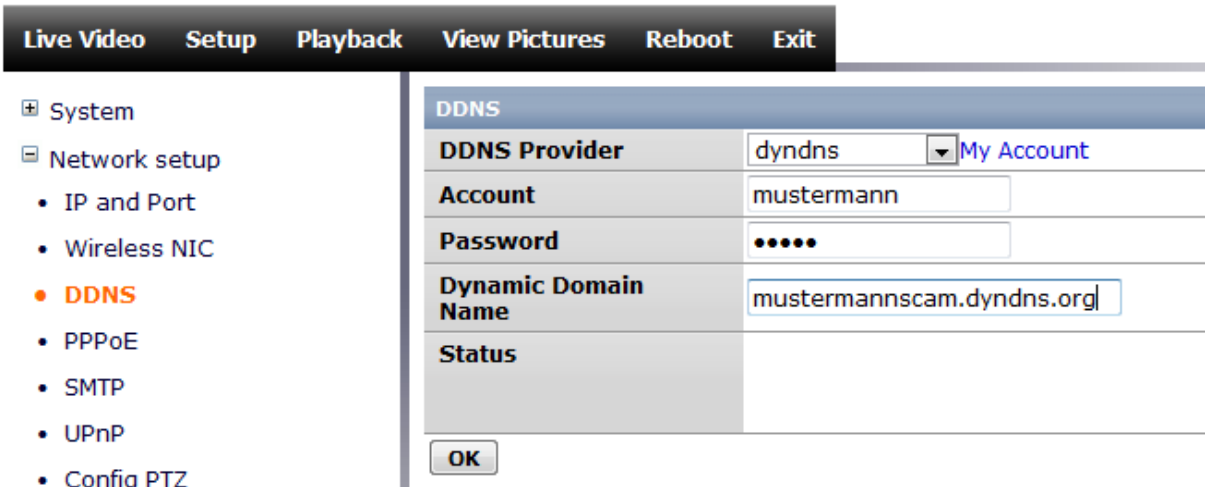
There you enter your selected

- DDNS provider
- Account name
- Password
- Web address names
  (e.g.: Adress-of-the-camera.dyndns.org - without www and without http://)

With this information your router sends its actual WAN IP address to the DDNS provider on daily basis or every time when it is reassigned/changed by the ISP.

Before contracting to a chargeable DDNS-provider, check your router if the selected provider is listed / permitted there! Many routers have predefined providers across fixed and unchangable selection lists. If you select a DDNS provider not in the routers list, you might pay money and may have to buy a new router just for this purpose, which should be avoided!
DynDNS is available in almost all routers as a choice, hence the recommendation. But check it before!

If you want to use your camera within different networks, you can alternatively enter the DDNS items directly in the camera. Also the Camera gets information about WAN IP address changes immediately and can inform the dynamic DNS providers about the change.



(Note: Please specify DDNS-entries either only in the camera menu or within the router but no double entries! Multiple messages through both the camera and the router to the DDNS provider may lock the DDNS-account, particularly when the camera is placed in a different network than the router and both send concurrent information to the DDNS-provider.)
Test the function of DDNS by pointing your browser to enter the external address.

<u>For Example:</u>
Your DDNS-Address is: *mustermannscam.dyndns.org*
Your Port-number is: 8001
So enter in your browser: *http://www. mustermannscam.dyndns.org :8001*

The camera shall open the logon screen. This may last a moment for the first time, as the new web address is not yet published on the Internet.

If it does not work, check the Port-mapping of your router and open the DDNS-providers homepage and check, if the WAN-IP-address of your router is the same as your DDNS provider actually reports to be. If not, initially type in your current WAN-IP manually to the DDNS providers entry screen and try again.

8. Configuration of alarm zones (Motion Alarm)

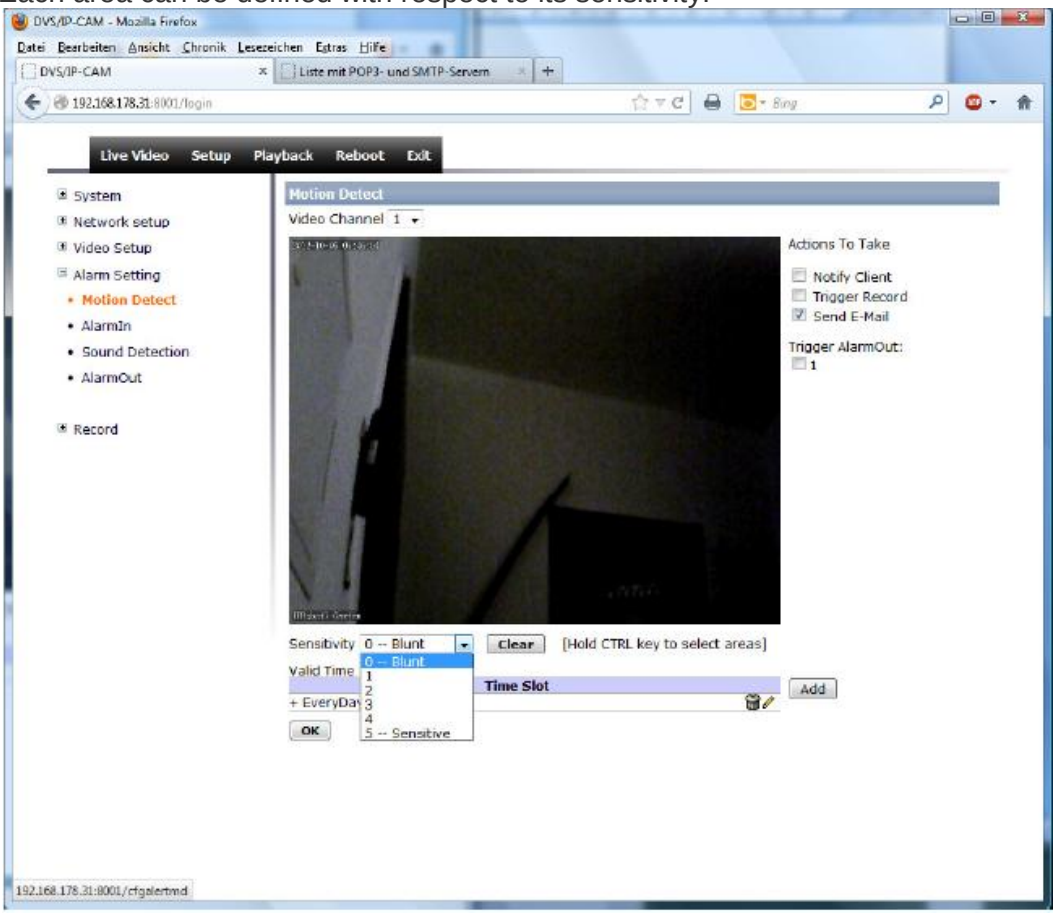
The camera is equipped with up to 4 free scalable ranges within which a change in the Image triggers an alarm.

To access the function select cam's
SETUP menu => ALARM SETTINGS => MOTION DETECT

For these settings, administration rights on the camera are required and the AddIn for QuickTimePlayer has to be installed for Firefox or Chrome browser.

It is strongly recommended to use the browser FIREFOX or CHROME to perform these settings. Take advantage of not using Internet Explorer, since the function in Internet Explorer does not work stable.
IE can partly not set the alarm zones with the mouse and restarting the camera distorts the setting.

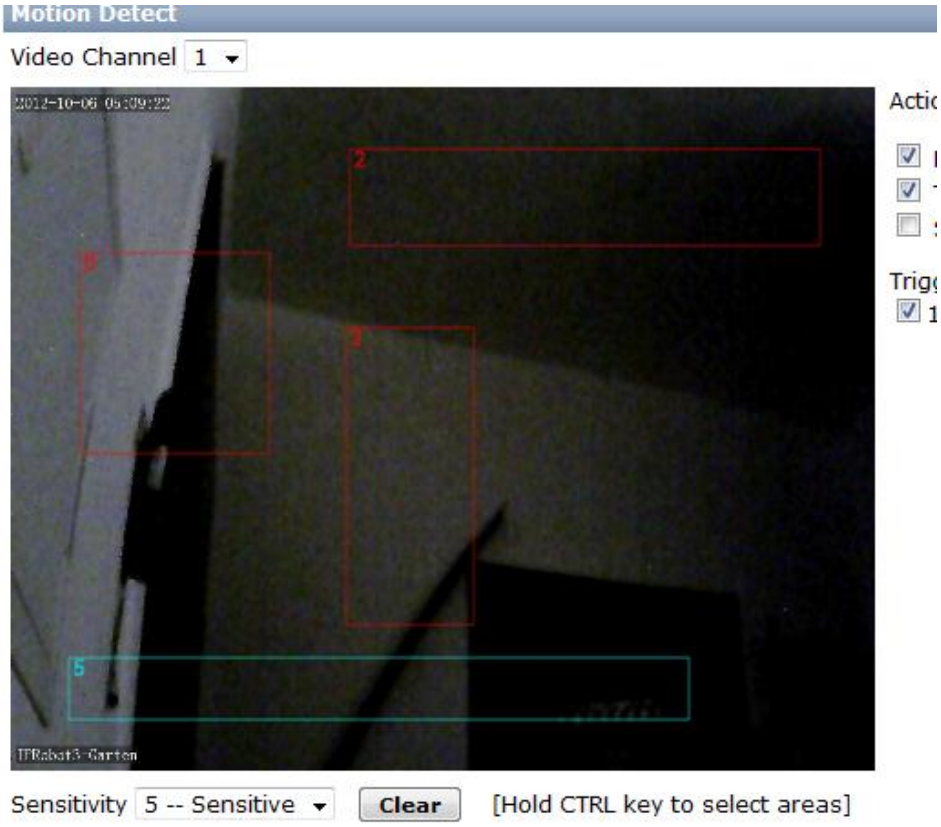
a) Each area can be defined with respect to its sensitivity.



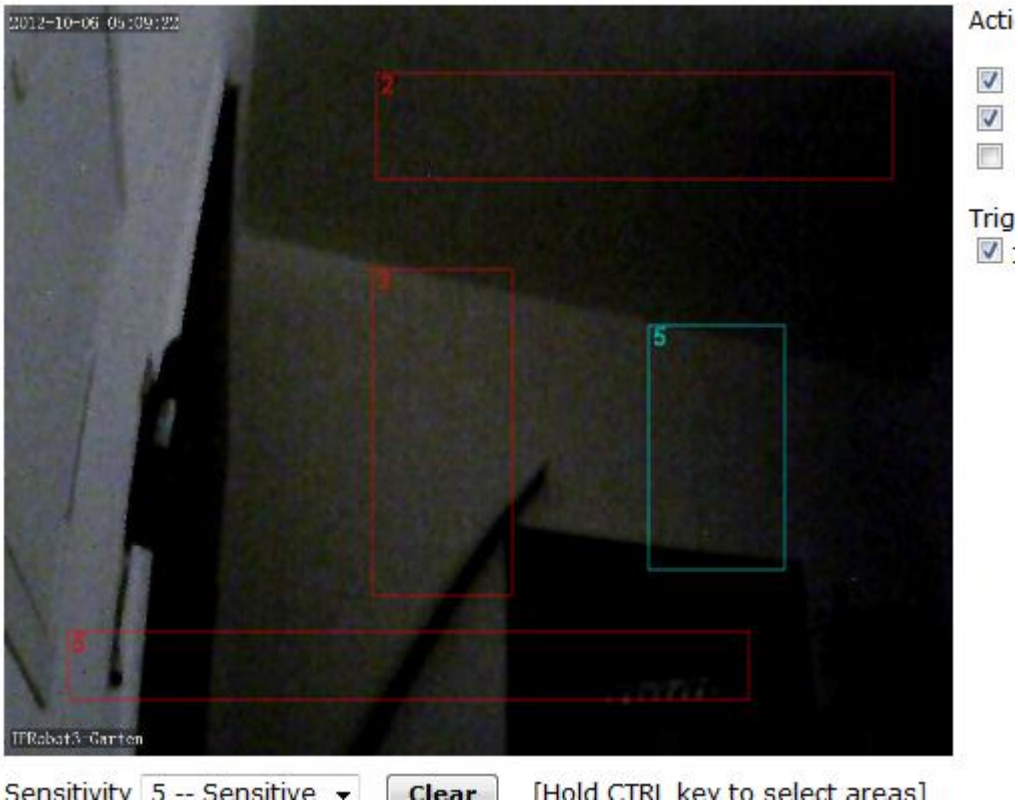
b) The areas can be created by dragging the mouse while holding the left mouse button. Prior to removing an alarm window, the sensitivity ("Sensitivity") has to be defined.
0 = not very sensitive / 5 = very sensitive
This is not possible subsequently.

All four areas need to be created over time as a direct result. If a correction

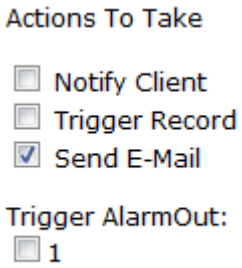
on already created frames is to take place, this is only possible by new definition of all areas in the order the areas initially goes through until you once again arrive at the desired range.
1 -> 2 -> 3 -> 4 -> 1 -> 2 -> ...
Example for 4 defined regions with different sensitivities, the numbers (on the frame indicate the sensitivity of):



Dragging a wider framework automatically deletes the first drawn frame (left).



c) activity when the alarm triggers

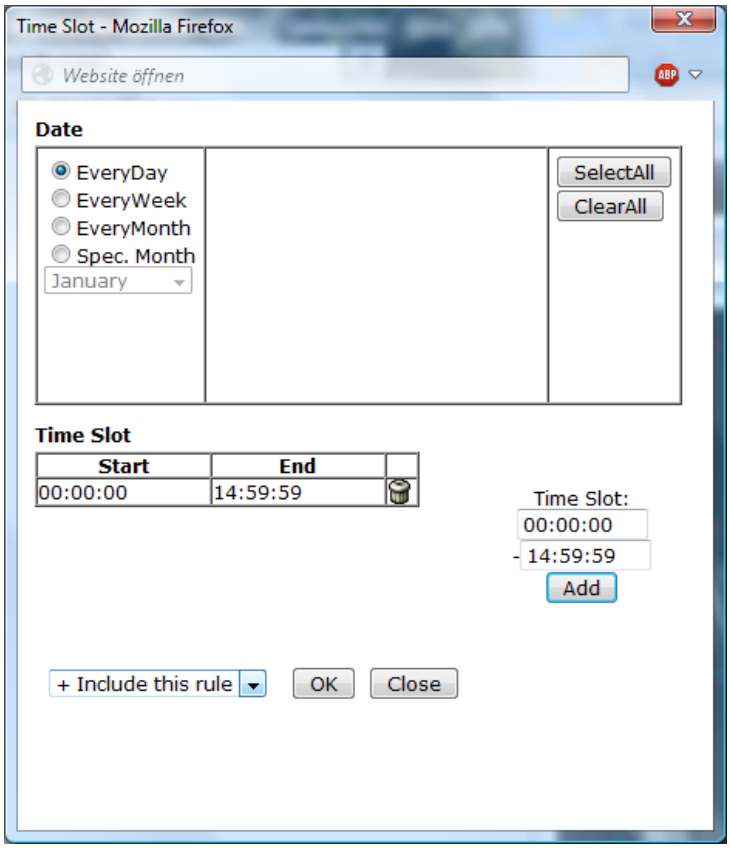


By checking you determine what is triggered by a motion alarm. Several actions can be triggered.
1. Message on the current PC (only useful for permanent PC monitoring or recording Central PC software)
2. Recording a video (you have the microSD card in the camera to be installed)
3. Sending an email with attached pictures for alarm triggering operation
(The mail address is sent to the address defined in SMTP menu that has to be entered!)

d) Save the zone definitions by pressing the OK button!

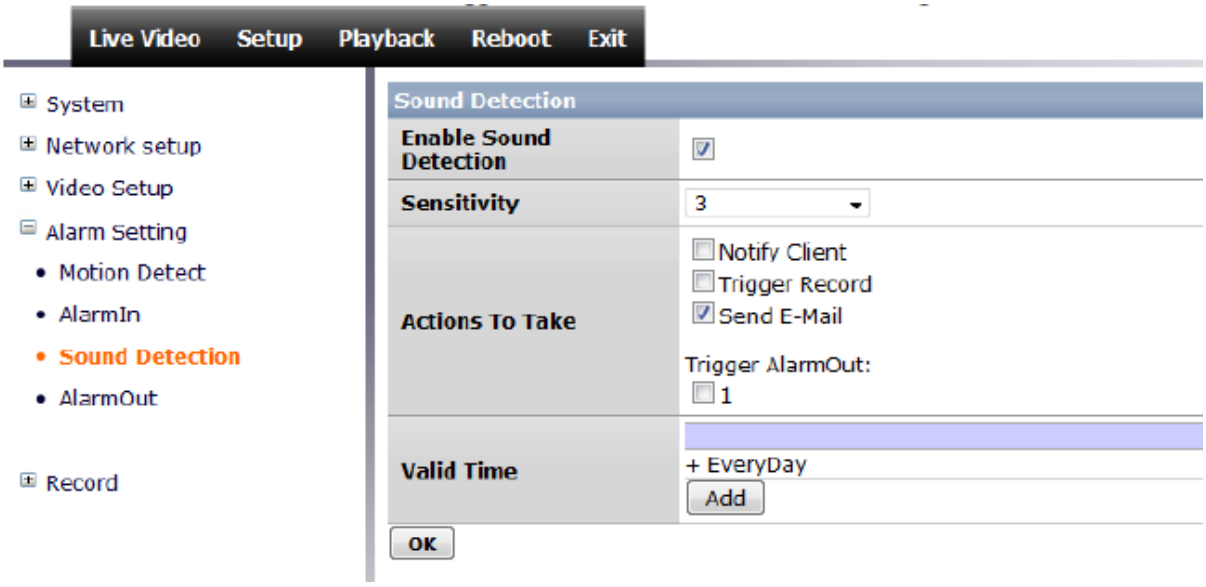
e) In the current version now also the time zone settings are properly applied. This allows the alarm to be limited to certain times. You must specify whether the times given are defined as exclusion or inclusion.

Note: the time setting may not react directly. It starts, when the START-time is reached for the first time.



9. Alarm on noise (Sound Detection)

The camera has the chance of noise monitoring. This only makes sense in a room, because the outdoor use by wind and vehicle noise otherwise permanently triggers alarm.



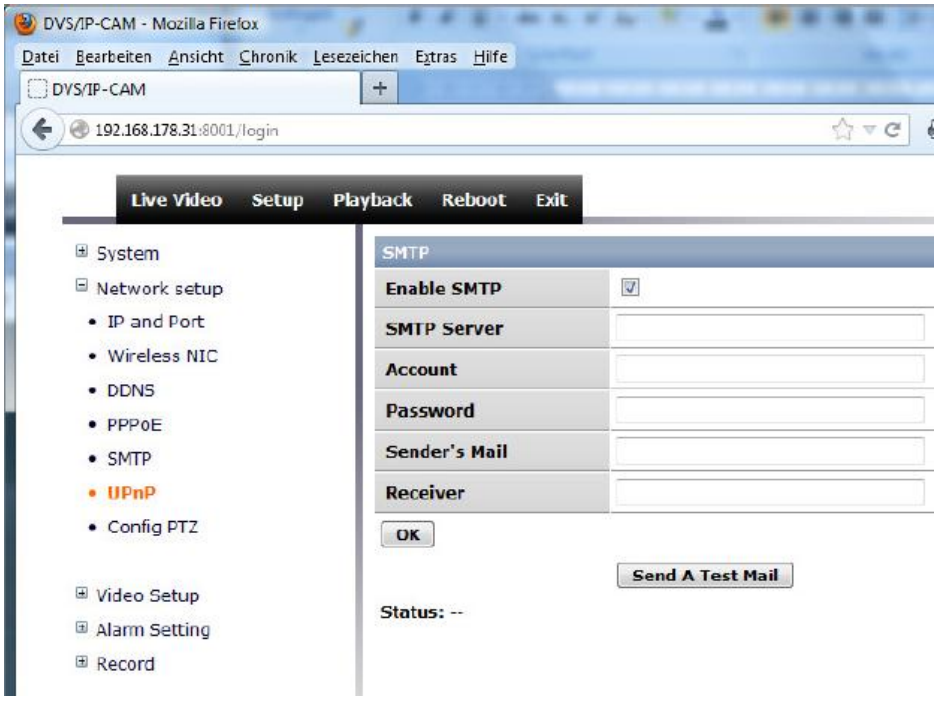
The options are similar as for the motion alarm. The sensitivity is in 10 steps adjustable. Please note that for email alerts only images are transmitted.

10. Set the e-mail address for alarm messages

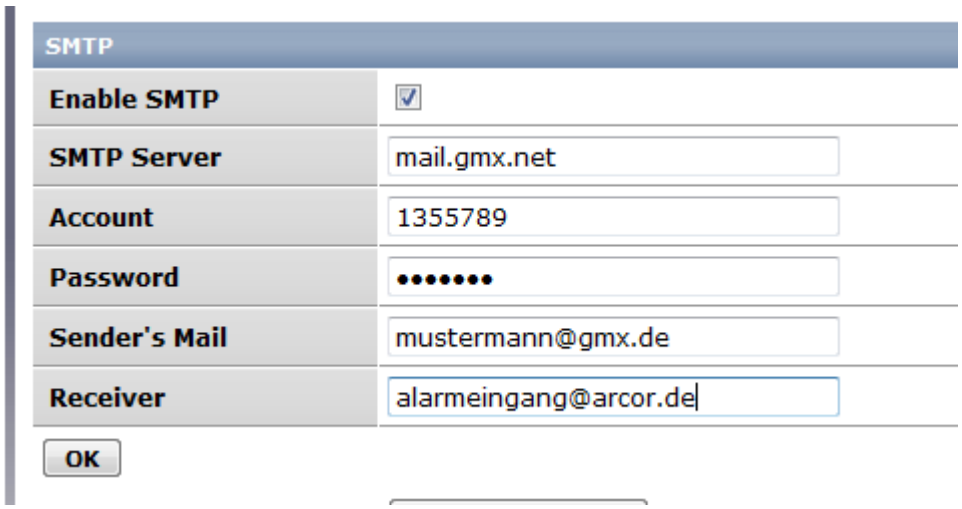
The specification for e-mail address notifications in case of alarm can be reached via SETUP menu => NETWORK SETUP => SMTP

For to be able to send an email to you, the camera needs to refer to an existing email-account. So the cam itself does not provide an own email-server but uses the connection to an existing email account (so it's the same as outlook or other email programs).
For this you have to enter the credentials of an existing email account as "sender" and an email-address where those mails shall be sent to. The senders and recipients address can be the same. Mails sent by the cam will not be stored in your "outgoing mails" folder.

Without the SMTP information (mail information) the alarm function "Send E-Mail" will not work. It is important to activate the button ("Enable SMTP").



The entries are identical to those of a normal email address, for example for Outlook. In the "receiver" the mail address of the recipient must be specified. The fields above are the Information of the senders email account. The camera uses this information in order to send emails.



After entering don’t forget to save all by clicking "OK".

Only after that you can send a test email with "Send A test email".
Mailaccounts that need a special port, are not supported. The camera only uses the standard port for email traffic (port 25).

11. Other functions and recording functions

All other functions such as external alarm transmission, external messages, video recordings,
Playing video recordings, video settings for the different channels, access by phone, update procedures, security settings, etc., please refer to the English documentation.

Find latest updated software versions and descriptions on the website of Manufacturer: http://www.tenvis.com
The FORUM-function of TENVIS is very helpful and provides quick reply.
Most questions are asked and answered there.

Disclaimer

This documentation is not a manufacturer's documentation, but putting together a progress report as user and consumer.
It is merely intended to transfer experiences made with the installation.
For the accuracy and completeness there is no liability.
All indications have to be validated by each reader independent and with own responsibility.

The specification is based on the following versions of the manufacturer IPRobot3 TENVIS:

Software Version	1.1.2.2
Release Date	2012-08-23 09:30:49
Hardware Version:	GM8126

Have fun with the camera.