

## REMOTE ACCESS SETTING MANUAL

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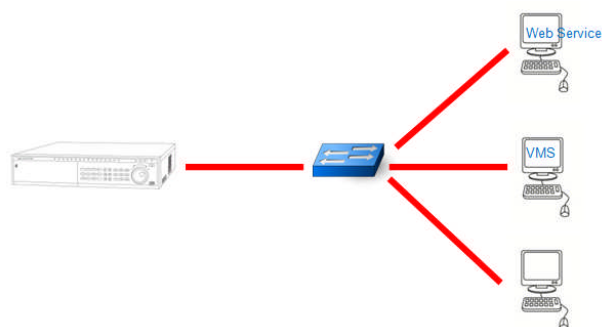
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# 1 Introduction

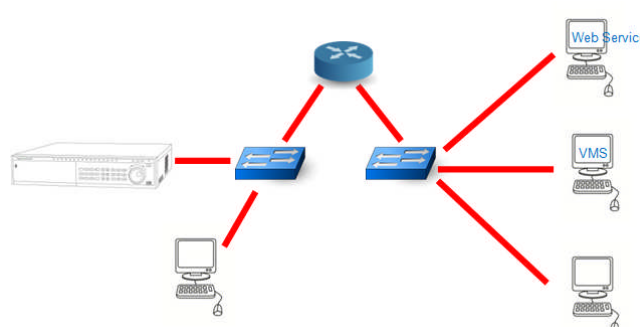
The high definition DVR can be remotely accessed via a local network (LAN) or via the internet network (WAN).

Examples:

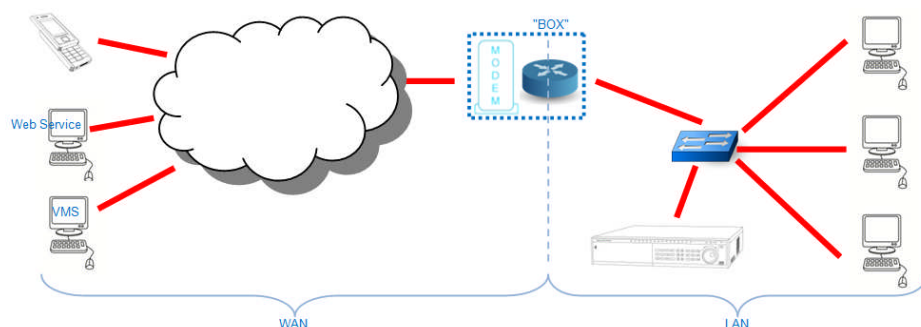
LAN access



LAN access with router



WAN access



Each machine connected to the network is identified by an address called "IP address". It could be compared to the postal address of a building "10 Main road".

In addition to the IP address, each application use different ports. They could be compared to the flat number in the building "flat nr 10".

Each standard application (internet, mail, domain mane, file transfer...) has a default port number (80 for internet HTTP).

An IP address will be write AAA.BBB.CCC.DDD, with AAA, BBB, CCC and DDD from 1 to 255.

An IP address + port will be write AAA.BBB.CCC.DDD:N, with N from 1 to 65535.

The default port number is optional (192.168.1.10:80 ⇔ 192.168.1.10).

An IP address on the local network (LAN) is called "private address". An IP address on the web (WAN) is called "public address".

The IP address could be fixed (or static: always the same) or dynamic (periodic change, DHCP mode).

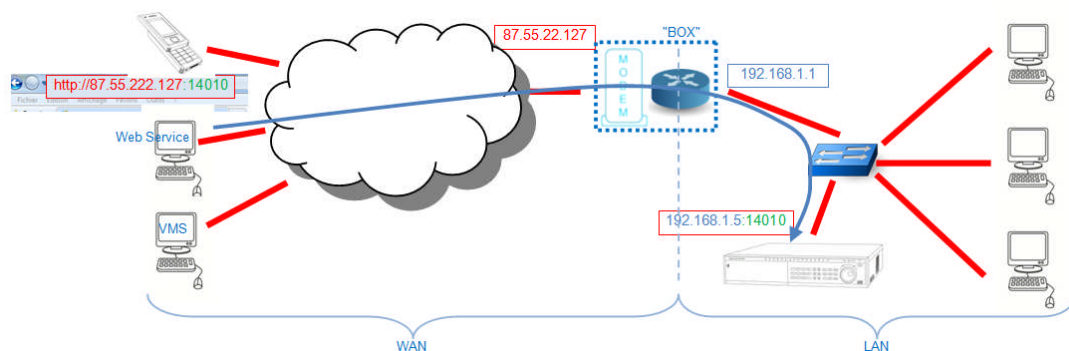
Local network private addresses of routers are most of the time in DHCP mode.

Internet Service Providers (ISP) are most of the time in DHCP mode. It is possible on demand to switch to fixed IP public address. This could be not free.

In DHCP mode, as it is not possible to access remotely to a device with the IP address this is done by its name (DNS mode).

From the internet side (WAN), the local network (LAN) has only one IP address: the router's one. In the way to address a device on the local network, a "route" has to be set between an external port number and the private IP address of the device.

Example:



In the router, the external port number 14010 from the IP address 87.55.22.127 is forwarded to the internal port number 14010 from the private IP address 192.168.1.5

On the remote computer, we have to enter "87.55.22.127:14010" to be connected directly to the recorder IP address 192.168.1.5:14010

Before settings, following information has to be asked to the ISP:

- Fixed or dynamic IP.
- If it is possible to switch to a fixed IP. If possible, wait for the switching to begin settings.

**Note:**

In this guide, commands are described for Windows 7 and Internet Explorer 8. They could differ depending of the operating system and browser version.

## 2 Network address

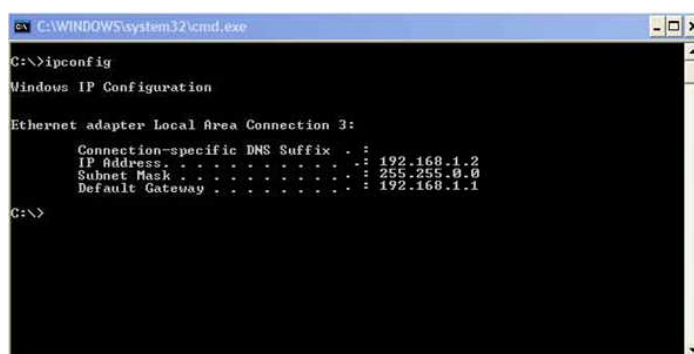
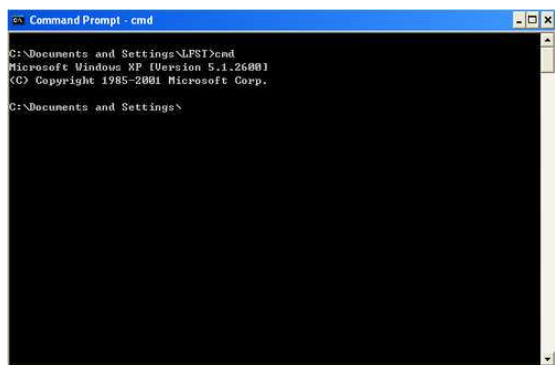
### 2.1 Gateway and subnet mask:

On a computer connected to the local network:

Open an MS-DOS window:

- "Start" > "All programs" > "Accessories" > "Command Prompt":

Enter: "ipconfig":



IP address:	AAA.BBB.CCC.DDD	Computer IP address
Subnet Mask:	EEE.FFF.GGG.HHH	Define the address area of the local network
Default gateway:	III.JJJ.KKK.LLL	Router address (gateway).

#### Note:

Most of the time, in case of home or small business network, IP address will be:

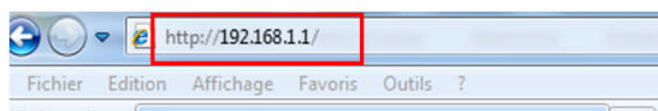
Computer and gateway: 192.168.1.DDD or 192.168.0.DDD (with DDD from 1 to 255)

Subnet mask: 255.255.255.0

### 2.2 Address area

Control of the fixed IP address area of the router (gateway):

Open the Internet browser. In the address bar, enter the IP address of the default gateway (III.JJJ.KKK.LLL).



See the router guide for login - password and fixed IP address area information.

Example:

The screenshot shows a 'LAN IP Setup' configuration page. Under 'LAN TCP/IP Setup', the IP Address is 192.168.0.1 and the Subnet Mask is 255.255.255.0. The 'Use Router as DHCP Server' checkbox is checked. The DHCP range is set from 192.168.0.2 to 192.168.0.254. Below this is an 'Address Reservation' table with columns for #, IP Address, Device Name, and MAC Address. At the bottom are 'Apply' and 'Cancel' buttons.

#	IP Address	Device Name	MAC Address
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Buttons: Add, Edit, Delete, Apply, Cancel

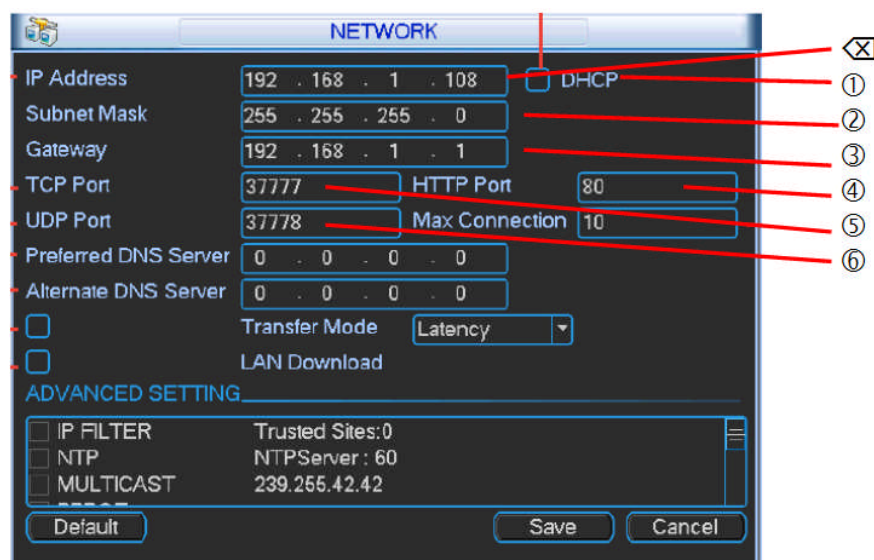
**NOTE:**

On some router, it is possible to give to a device a fixed (static) IP address in the DHCP area, while DHCP mode remains on. In this case, the device (the recorder) must be set in DHCP mode.

### 3 Recorder setting

For detailed setting, see the recorder manual.

Go in the network setting: "Main menu" > "Setting" > "Network"



- Disable "DHCP" ①
- Verify that the "Subnet Mask" ② is the same as the subnet mask found before. Modify it if needed.
- Verify that the IP address "gateway" ③ is the same as the gateway (router) address found before. Modify it if needed.
- Modify the recorder IP address :

Default address is 192.168.1.108

The new address must be:

- In the fixed IP address area of the router.
- In the same sub network:

For example if the subnet mask is:  
And the router address is:

255.255.255.0
192.168. 1.1
=
192.168. 1.2

Recorder IP address could be:

- Not used by another machine

The recorder uses 3 different port numbers.

Default port numbers are:

- 80 for HTTP protocol ④
- 37777 for TCP protocol ⑤
- 37778 for UDP protocol ⑥

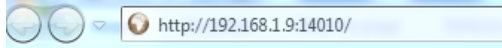
Those port numbers could be modified in case of conflict with another application.

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**NOTE:**

If the default HTTP port number is modified, the port number must be added following the IP address in the Internet Explorer address Bar:

For example, for IP address 192.168.1.9 and HTTP port number 14010:





## 4 Router setting

For each port number, create a "route": define a service name, the protocol type, the start and end port numbers, the recorder IP address, as defined in it (<img alt="route icon"/>):

For example:

"DVR", type= HTTP or TCP, start port = 80, end port = 80 (or the number choose on ④), IP address = 192.168.1.9

"DVR\_TCP", type= TCP, start port = 37777, end port = 37777 (or the number choose on ⑤), IP address = 192.168.1.9

"DVR\_UDP", type= UDP, start port =37778, end port = 37778 (or the number choose on ⑥), IP address = 192.168.1.9

The recorder has the UPnP-IGD function (Universal Plug N Play – Internet Gateway Device).

If the router has also the compatible UPnP function, port forwarding will be done automatically.

### NOTE:

- The two last services could be associated
- According to the type of router, services and forwarding could be set in two separated menu.
- Internal and external port numbers must ALWAYS be the same.

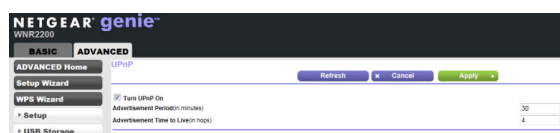
### 4.1 Standard router configuration

For detailed setting, see the router or the modem-router manual.

Above pictures are only for example. They are coming from NETGEAR® modem-router manual.

#### 4.1.1 UPnP setting

Validate the UPnP option:



Unconnect and then connect the network cable of the recorder.

If the function exists, verify that the ports numbers are correctly forwarded:



Else, test the remote connection.

If it is not the case, uncheck the UPnP option and do the manual setting.

#### 4.1.2 Manual setting:

Example 1

The screenshot shows two configuration windows. The top window, titled 'Services', has 'Service Definition' with 'Name' set to 'DVR', 'Type' set to 'TCP', 'Start Port' set to '80', and 'Finish Port' set to '80'. The bottom window, titled 'Inbound Services', has 'Service' set to 'DVR (port 80)', 'Action' set to 'ALLOW always', 'Send to LAN Server' set to '192.168.1.9', and 'WAN Users' set to 'Any'.

Example 2

The screenshot shows the 'Port Forwarding / Port Triggering' configuration window. The 'Service Name' is set to 'FTP' and the 'Server IP Address' is set to '192.168.1.1'. Below this is a table with two rows of port forwarding rules. The first row is for 'DVR' and the second row is for 'DVR\_TCP'. The table has columns for '#', 'Service Name', 'External Start Port', 'External End Port', 'Internal Start Port', 'Internal End Port', and 'Internal IP address'.

#	Service Name	External Start Port	External End Port	Internal Start Port	Internal End Port	Internal IP address
1	DVR	80	80	80	80	192.168.1.5
2	DVR_TCP	37777	37778	37777	37778	192.168.1.5

#### 4.2 DDNS setting:

This setting is only to be done in case of dynamic IP address (DHCP mode) when a fixed IP address cannot be obtained.

- New DNS account:

A lot of websites allows DNS account creation. Most of them are free:

<http://www.dyndns.com> or <http://dyn.com>

<http://www.no-ip.com>

<http://www.dnsperspect.com>

<http://www.dnspark.com>

<http://www.easydns.com>

<http://www.namecheap.com>

<http://www.dnssq.org>

<http://www.dhs.org>

<http://www.myip.us>..... and more

Follow the instruction on the website to create an account.

Choose a significant name for the recorder (for example "peter\_home\_dvr"), a password and service provider name:


(Example for [www.dyndns.com](http://www.dyndns.com) website and service name [dyndns.org](http://dyndns.org): the recorder name will be: "peter\_home\_dvr.dyndns.org")

The screenshot shows the 'New Dynamic DNS Host' configuration window. The 'Hostname' is set to 'peter\_home\_dvr' and the 'Service Provider' is set to 'dyndns.org'. The 'IP Address' is set to 'w.x.y.z'. The 'Enable Wildcard' checkbox is unchecked. The 'Mail Exchanger (optional)' field is empty. The 'Backup MX?' checkbox is unchecked. The 'Add Host' and 'Reset Form' buttons are at the bottom.

Validate the automatic IP address update. This is often done by a little software installed on one local network computer. (For example "DynDNS updater" for website [www.dyndns.com](http://www.dyndns.com))

For direct access to the recorder, enter in the browser address bar: "http:\\recoder name.service provider name" (Example: http:\\peter\_home\_dvr.dyndns.org)

On the router, set the DNS service on, the recorder name ("peter\_home\_dvr" in the example), the service provider name ("www.dyndns.org"), the user name and password of the account:



The image shows a 'Dynamic DNS' configuration window. At the top, there is a checkbox labeled 'Use a Dynamic DNS Service' which is checked with a red 'X'. Below this, the 'Service Provider' is set to 'www.DynDNS.org' in a dropdown menu. The 'Host Name' field contains 'peter\_home\_dvr', the 'User Name' field contains 'account user name', and the 'Password' field contains 'xxxxxxxxxx'. These three fields are highlighted with red rectangular boxes. At the bottom left, there is an unchecked checkbox labeled 'Use Wildcards'. At the bottom right, there are three buttons: 'Apply', 'Cancel', and 'Show Status'.

## 5 Windows and Internet Browser setting

For the first remote connection to the recorder via the Web Service and Internet Explorer, it is asked to download and record an ActiveX and a file on the computer.

Internet Explorer and Windows have to be set to allow that.

### NOTE:

This setting could be asked again in case of software updating.

### 5.1 Windows setting:

### WARNING:

Each time the Web Service is opened, files in the computer folder "C:\Program Files" are updated.

User as to be logged in with administrator rights or has to have read/write rights on the folder "C:\Program Files\Webrec".

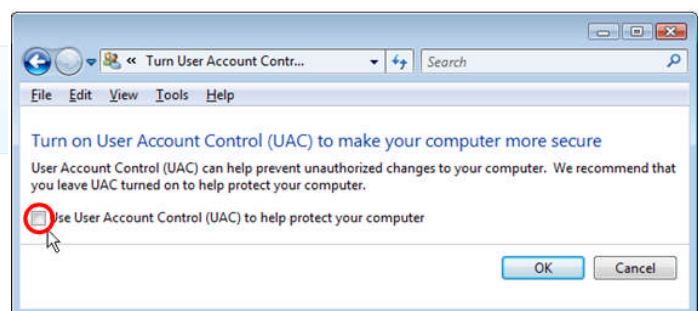
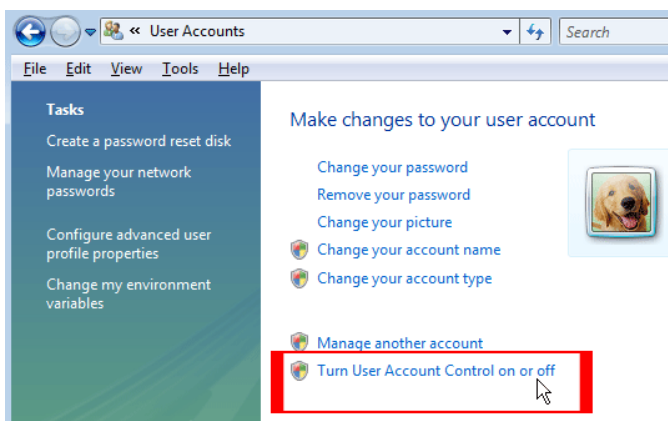
Open the control panel: "Start" > "Control Panel".

Open "User accounts" application.

#### 5.1.1 Windows Vista:

Select "Turn user Account Control on or off".

Uncheck "use Account Control (UAC) to help protect your computer":



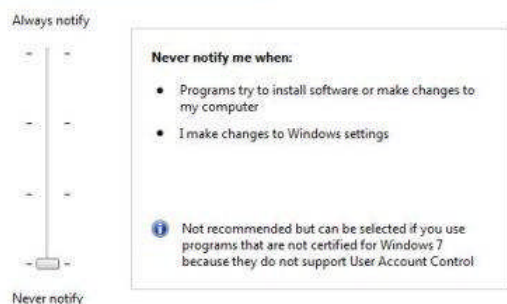
#### 5.1.2 Windows 7:

Select "Change User Account setting"

Place the cursor on "never notify":

Choose when to be notified about changes to your computer

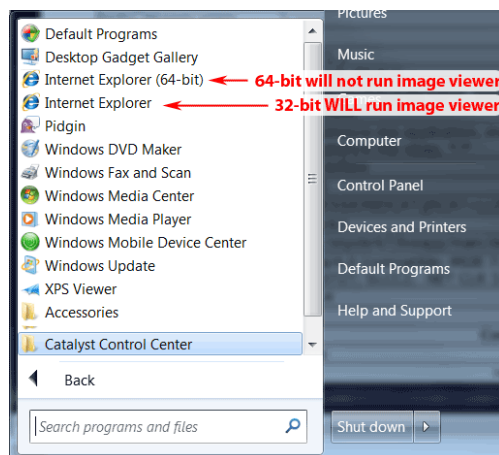
User Account Control helps prevent potentially harmful programs from making changes to your computer.  
[Tell me more about User Account Control settings](#)



This setting does not exist in version before Windows Vista

## 5.2 Internet Explorer:

For 64 bits Windows versions, choose Internet Explorer 32 bits:



Open Internet Explorer.

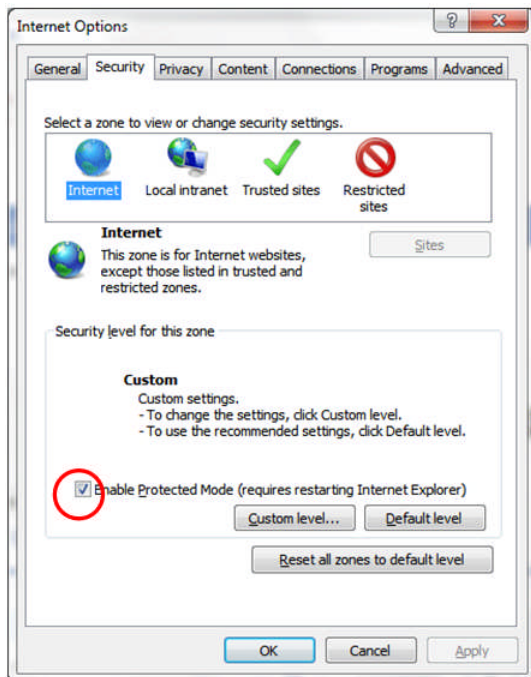
Click on "?" then on "About Internet Explorer".

Read the first number of the version (6, 7, 8, 9)

Close opened windows.

Click on "Tools" then "Internet Options" then "Security"

For versions 8 or higher, uncheck "Enable Protected Mode"" and click two times on "OK".



If the "Security level for this zone" is "Custom", note all above modified setting to be able to come back to the original settings.

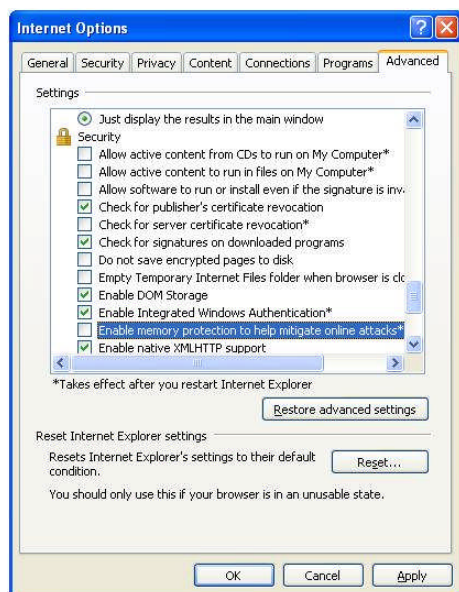
Click on "Custom level..." and find in the list "ActiveX controls and Plug-ins":



Enable all options until the end of this section (next one is "others").

Click "OK" in the warning window.

For version 8 or higher, choose "Advanced" then find in the list the "security" section"  
Uncheck "Enable memory protection to help mitigate online attacks\*":



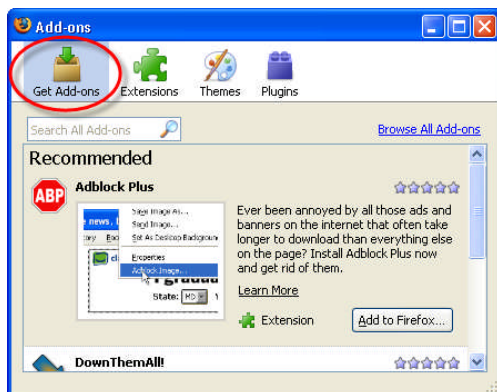
Click two times on "OK" and close Internet Explorer

When all recorders remote connections have been done on the computer (and video from cameras displayed), it is possible to set back the original security settings of Internet Explorer.

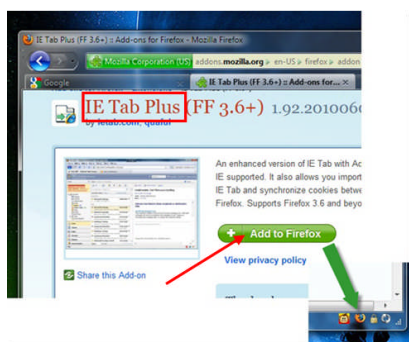
### 5.3 Moxilla Firefox:

To use the Web Service with Firefox, the extension "ie-tab +" has to be added:

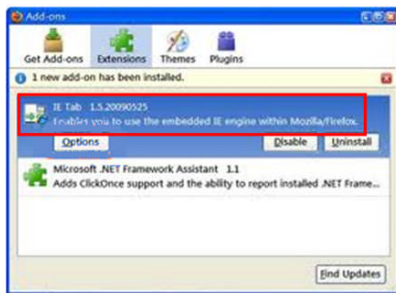
Open Firefox. Click on "Tools" > "Add-ons" and choose the tag "Get add-ons"



In the search bar, enter "ie-tab". Select "IE-tab +" (Select the more recent version) and add to Firefox. Restart Firefox.



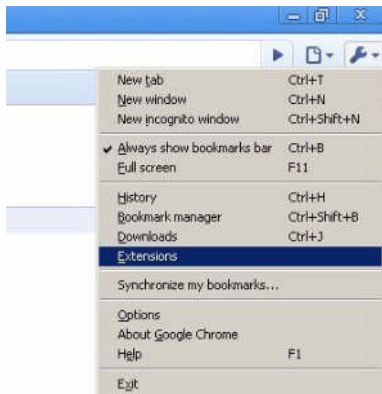
Click on the tag "Extensions" to verify that the extension has been correctly added:



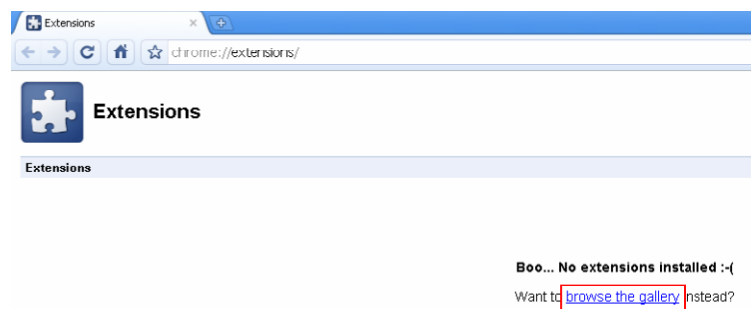
## 5.4 Google Chrome:

To use the Web Service with Google Chrome, the extension "ie-tab +" has to be added:

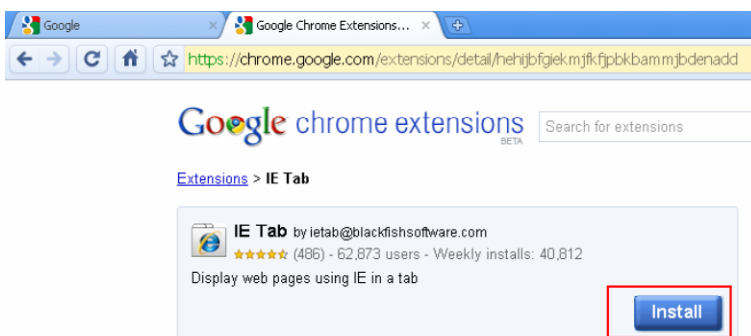
Open Google Chrome. open the toolbar and select "Extensions":



Click on "Browse the gallery" and search for "ie tab":

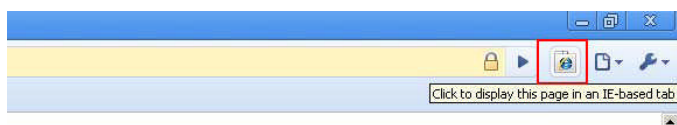


Select the most recent found version and click on "Install":





Following the installation, the icon  appears in the Google Chrome bar:



Click on this icon and enter the recorder IP address in the address bar.

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## 6 Firewall

If the IT system has firewalls, they have to be set. A firewall can be installed on the router and on the remote access computers. On those, the firewall could be part of the antivirus software.

Verify that following functions are open in the firewall:

- Internet access (HTTP)
- TCP and UDP protocols
- All port numbers used by the recorder(s)

**NOTE:**

In case of a doubt, to see if the firewall stops a stream, devalidate it temporarily and do a remote access to the recorder.

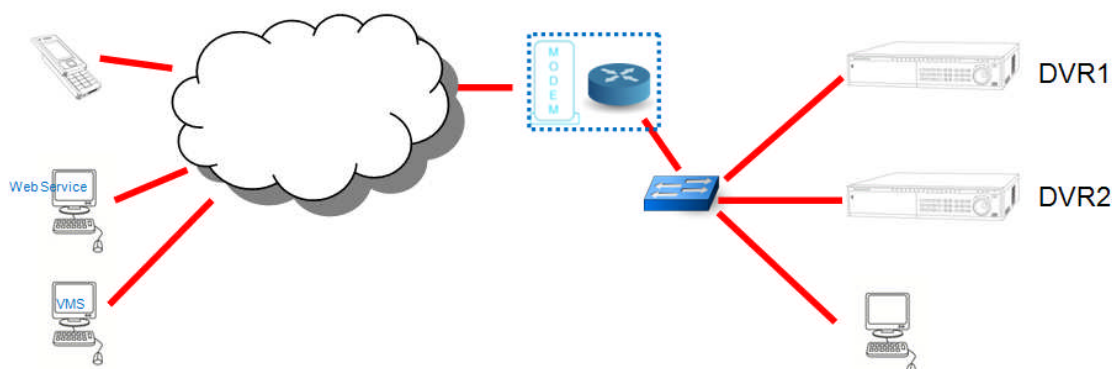
## 7 Connection of several recorders

If several recorders are connected on the same router, port numbers must be different to be able to have a WAN remote access to each recorder:

Port numbers have to be modified on the second recorder. Take unused port numbers (for example by adding 1) and do the port forwarding at all port numbers in the router.

If there is a doubt on the use of port numbers by other devices or applications, take port numbers in the area 14000 -14999 (This area is not used by any commercial application)

Example:



"DVR1" setting:

IP address: 192.168.1.9  
 HTTP port: 80  
 TCP port: 37777  
 UDP port: 37778

"DVR2" setting:

IP address: 192.168.1.10  
 HTTP port: 81  
 TCP port: 37779  
 UDP port: 37780

Router setting:

Public IP address: AAA.BBB.CCC.DDD

Ports forwarding:

service	Internal port	External port	IP address
HTTP	80	80	192.168.1.9
TCP	37777	37777	192.168.1.9
UDP	37778	37778	192.168.1.9
HTTP	81	81	192.168.1.10
TCP	37779	37779	192.168.1.10
UDP	37780	37780	192.168.1.10

Recorders network setting:

DVR1: AAA.BBB.CCC.DDD:80

DVR2: AAA.BBB.CCC.DDD:81

### NOTE:

As the port number 80 is the default HTTP one, it is optional in the IP address. The DVR1 could be addressed by AAA.BB.CCC.DDD.

## 8 Specification:

Firmware version: 2.606.0000.0 or 2.608.0000.0

Web Service Version "Web service 2" 2.1.7.31 or 2.1.7.35

Operating system: Windows XP, Vista, Seven, 32 and 64b. Administrator right for first connection

Internet Browser: Internet Explorer 6, 7, 8, 9 Download and execution of unsigned ActiveX

Firefox all versions "IE\_TAB +" Extension (IE engine)

Google Chrome all versions "IE\_TAB" Extension (IE engine)

Default Ports 80 HTTP

37777 TCP

37778 UDP

25 SMTP If e-mailing ON

123 NTP If NTP service ON

36666 Multicast If Multicast used

21 FTP If FTP used