Security Management System
Accessing CMS Channels ('Infinova 307X NVR')
in Remote Client (22.11.28.01)

Note – this document can be considered as optional 'Part 2' of another document 'Security Management System - Remote Client (22.11.28.01)'.
Hence it is recommended to read 'Security Management System - Remote Client (22.11.28.01)' document and to perform the required configuration for 'Remote Client(s)' before following this document

Security Management System supports 'CMS Channels', where recording is processed in 'External Recorders' and NOT in the 'Security Management System Server software'.
The 'External Recorders' can be DVRs, NVRs, VMSs or any video sources which can record the data locally
'Security Management System' however manages the channels added to the 'External Recorders', and also makes them available in the 'Security Management System Client software'.

'CMS channels' are the channels for which 'Recording mode' is set to 'From Video Source'.

Separate document is available for configuration and use of 'Infinova 307X NVR' channels as CMS channels in the 'Security Management System'.

This document describes the configuration for accessing 'Infinova 307X NVR' channels, added as 'CMS channels' in the 'Security Management System Remote Client'.

Note 1 – This document is applicable if the project requirement or solution design includes following 2 components –
(a) Remote clients, running on external network; and connecting to the 'Security Management System Server software' hosted on internal enterprise network.
(b) 'Infinova 307X NVRs', which process the recording on local storage in the NVR, and one or more channels from these NVRs are added to the 'Security Management System Server software' as 'CMS channels'

If the project requirement or solution design does not include both 'remote clients' and 'Infinova 307X NVR' channels added to the 'Security Management System Server software' as 'CMS channels'; this document is not applicable and can be ignored

Note 2 – The configuration needed to expose the 'CMS channels' to the remote client, running on an external network; is from the network side. It involves 'port forwarding' configuration in the router.

The 'port forwarding' configuration is external configuration. It is specific to router used and the network design. The port forwarding configuration needs to be performed by the network team at the site.

The 'port forwarding' configuration is outside the scope of the 'Security Management System' software and the 'Security Management System' software does NOT process the 'port forwarding'. The 'Security Management System Remote Client' only uses the port forwarding information, as configured by the network team at the site, for connecting to the 'Security Management System Server software' and the 'CMS channels' added to the 'Security Management System Server software'.

![Infinova logo]

[A] Ports used by 'Infinova 307X NVRs'

1. Please connect to the 'Infinova 307X NVR' from web browser

2. Please go to the 'Settings' tab, and 'Network settings -> TCP/IP' page under it

Note – the web browser GUI may be different for different 'Infinova 307X NVR' models

3. Please manage and update following values –
   (a) TCP Port
   (b) UDP Port
   (c) HTTP Port
   (d) Preview Port

4. All these port number values should be unique across all 'Infinova 307X NVRs' in the target IP video surveillance solution.
   There should be no duplication of port number value across all port types and across all NVRs

   e.g. if the target IP video surveillance solution has 3 'Infinova 307X NVRs', the sample configuration can be as follows –

Sr. No.	NVR	TCP Port	UDP Port	HTTP Port	Preview Port
1	192.168.0.201	8000	8003	80	5000
2	192.168.0.202	9000	9003	9080	9500
3	192.168.0.203	10000	10003	10080	10500

   (a) The above table is only an example, actual values used at the site can be different.
   (b) Total 3 X 4 = 12 port numbers are used, and each one should be unique.

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5. Please connect to each of the 'Infinova 307X NVRs' in the target IP video surveillance solution, from web browser; and set unique port numbers across all 'Infinova 307X NVRs' and all ports.

Note 1 – When 'HTTP Port' for any 'Infinova 307X NVR' is changed, for connecting to the NVR from web browser, please use URL – http://<NVR_IP_Address>:<HTTP_Port_Number>
Where '<NVR_IP_Address>' is the IP address of the target 'Infinova 307X NVR', and '<HTTP_Port_Number>' is the 'HTTP Port' set for the target 'Infinova 307X NVR'.

Note 2 – When 'TCP Port' for any 'Infinova 307X NVR' is changed, it needs to be reflected in the 'Security Management System Server software too'.
If any channels from the target 'Infinova 307X NVR' are already added to "Security Management System Server software', each of these channels need to be edited

The 'SDK port number' specified in 'Edit video channel' (or 'Add video channel') should match the 'TCP Port' set for the target 'Infinova 307X NVR' from the web browser GUI

6. After configuring the ports for all 'Infinova 307X NVRs', please confirm that settings are OK –

(a) Please connect to each of the 'Infinova 307X NVRs' from web browser, and from web browser GUI, confirm that live video is visible for each of the channels and playback video is visible for each of the channels

(b) Please check and confirm that live video and playback video for each of the channels from each of the 'Infinova 307X NVRs' is visible from 'Security Management System Client software' (Local client)

[B] Port forwarding information

1. Please configure the router in the network, to expose the target 'IP address' and the related ports to external network. List the mapping table, as follows –

Sr. No.	NVR	Internal IP address	Internal port number	External IP address	External port number
1	Infinova 307X NVR 1	<IP address I1>	<TCP Port 1>	<IP address E1>	<TCP Port 1>
2	Infinova 307X NVR 1	<IP address I1>	<UDP Port 1>	<IP address E1>	<UDP Port 1>
3	Infinova 307X NVR 1	<IP address I1>	<HTTP Port 1>	<IP address E1>	<HTTP Port 1>
4	Infinova 307X NVR 1	<IP address I1>	<Preview Port 1>	<IP address E1>	<Preview Port 1>
5	Infinova 307X NVR 2	<IP address I2>	<TCP Port 2>	<IP address E2>	<TCP Port 2>
6	Infinova 307X NVR 2	<IP address I2>	<UDP Port 2>	<IP address E2>	<UDP Port 2>
7	Infinova 307X NVR 2	<IP address I2>	<HTTP Port 2>	<IP address E2>	<HTTP Port 2>
8	Infinova 307X NVR 2	<IP address I2>	<Preview Port 2>	<IP address E2>	<Preview Port 2>
9	Infinova 307X NVR 3	<IP address I3>	<TCP Port 3>	<IP address E3>	<TCP Port 3>
10	Infinova 307X NVR 3	<IP address I3>	<UDP Port 3>	<IP address E3>	<UDP Port 3>
11	Infinova 307X NVR 3	<IP address I3>	<HTTP Port 3>	<IP address E3>	<HTTP Port 3>
12	Infinova 307X NVR 3	<IP address I3>	<Preview Port 3>	<IP address E3>	<Preview Port 3>
nn	(Additional records for remaining 'Infinova 307X NVR's – 4 records per 'Infinova 307X NVR')				

During port forwarding configuration on the router, please allow incoming as well as outgoing traffic and for both TCP and UDP, for all ports being configured for port forwarding.

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(a) The 'Internal IP address' ('<IP address I1>', '<IP address I2>', '<IP address I3>') are the IP addresses for the target 'Infinova 307X NVRs', as specified in the 'Security Management System Server software' ('Add video channel' or 'Edit video channel')

(b) The 'Internal port number' and 'External port number' for each 'Infinova 307X NVR' should be exactly the same, for a record / port.
    i.   '<TCP Port n>' –
    ii.   '<UDP Port n>'
    iii.   '<HTTP Port n>'
    iv.   '<Preview Port n>'

    These values should match the configuration processed in section [A] in this document.

(c) The 'External IP address' is as per 'port forwarding' configuration processed in the router by the networking team.
    The 'External IP address' for each 'Infinova 307X NVR' may be different, or it maybe same for all 'Infinova 307X NVR'

    Following is the example table with example values –

| Sr. No.	NVR	Internal IP address	Internal port number	External IP address	External port number
1	Infinova 307X NVR 1	192.168.0.201	8000	10.10.1.89	8000
2	Infinova 307X NVR 1	192.168.0.201	8003	10.10.1.89	8003
3	Infinova 307X NVR 1	192.168.0.201	80	10.10.1.89	80
4	Infinova 307X NVR 1	192.168.0.201	5000	10.10.1.89	5000
5	Infinova 307X NVR 2	192.168.0.202	9000	10.10.1.89	9000
6	Infinova 307X NVR 2	192.168.0.202	9003	10.10.1.89	9003
7	Infinova 307X NVR 2	192.168.0.202	9080	10.10.1.89	9080
8	Infinova 307X NVR 2	192.168.0.202	9500	10.10.1.89	9500
9	Infinova 307X NVR 3	192.168.0.203	10000	10.10.1.90	10000
10	Infinova 307X NVR 3	192.168.0.203	10003	10.10.1.90	10003
11	Infinova 307X NVR 3	192.168.0.203	10080	10.10.1.90	10080
12	Infinova 307X NVR 3	192.168.0.203	10500	10.10.1.90	10500

Notes –
(a) This table is only an example and actual values, will change depending on the network configuration at the deployment site

2. Please make sure that the remote computer is able to access each of the 'Infinova 307X NVRs', through the port forwarding.
   Using the standard 'Ping' command to ping the router IP address, can be a good initial test. However, advance tools available with the network team need to be used to confirm the port forwarding configuration and access to all exposed ports through port forwarding.

3. As an additional check; from remote client computer, please connect to each of the 'Infinova 307X NVRs' from web browser; and from web browser GUI, confirm that live video is visible for each of the channels and playback video is visible for each of the channels.

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The web browser URL to be used for connecting to 'Infinova 307X NVR' from web browser on the remote client computer, would be –
http://<External_IP_Address>:<HTTP_Port_Number>
Where '<External_IP_Address>' is the as per port forwarding configuration processed.

[C] 'Security Management System' Server software

1. In the 'Security Management System Server software', please navigate to the 'Communication -> Recorders port forwarding' page from the left side navigation menu
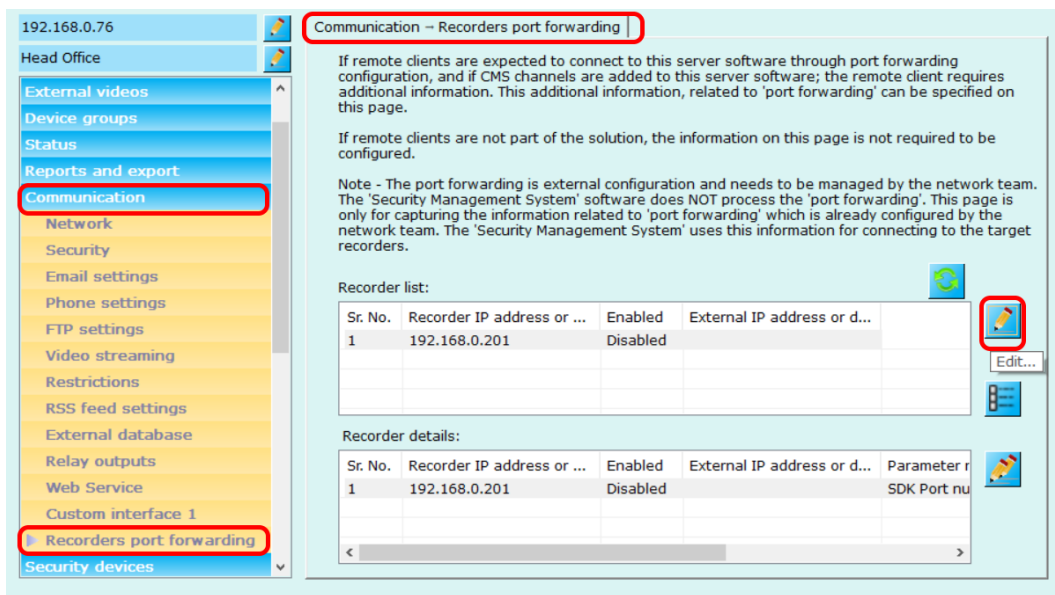
2. The 'Recorder list' will display one entry for each 'Infinova 307X NVR' device, for which at least one 'CMS channel' is added in the 'Security Management System Server software'. By default 'Port forwarding' will be 'Disabled' for all the entry.

3. Please select an entry and click on the 'Edit' button. This will pop up the 'Port Forwarding Configure IP Address' dialog box.
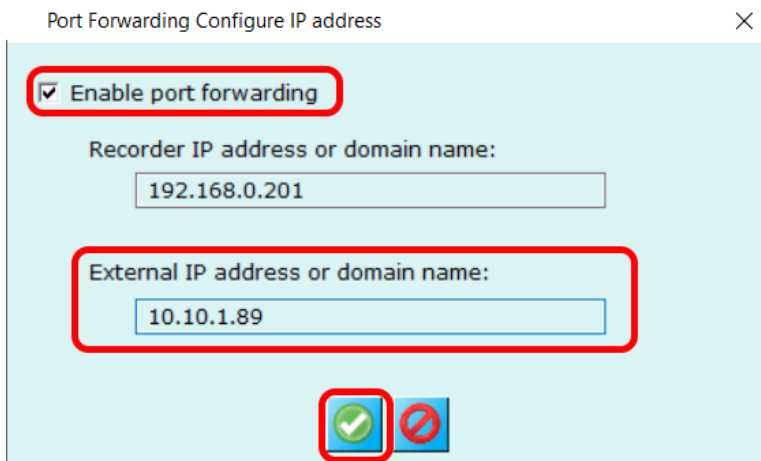
4. Please select / enable 'Enable port forwarding' check-box.
Specify 'External IP address or domain name' for the target 'Recorder IP address or domain name'

The 'Recorder IP address or domain name' is the 'Internal IP address' from the mapping table created as per point [B].1 in this document
The 'External IP address or domain name' is the 'External IP address' associated with the target 'Recorder IP address or domain name' ('Internal IP address') from the mapping table created as per point [B].1 in this document

5. Click on the 'OK' button to save the configuration and to close the 'Port Forwarding Configure IP Address' dialog box.

6. The steps [C].3 to [C].5 configure 'External IP address or domain name' for single 'Infinova 307X NVR'. Same steps need to follow for all 'Infinova 307X NVR' displayed in the 'Recorder list'.
It is important to configure 'External IP address or domain name' for every entry in the 'Recorder list'

7. In the 'Security Management System Server software', please navigate to the 'Communication -> Recorders port forwarding' page; selecting any entry under 'Recorder list' updates 'Recorder details' list.

8. For 'Infinova 307X NVR' entry under 'Recorder list', only one row will be displayed under 'Recorder details' list.

9. Please select the entry under 'Recorder details' and click on the 'Edit' button next to it. This will pop up the 'Port Forwarding Configure Ports' dialog box

10. Specify the 'External Port (SDK port number)' should be exactly same as 'Internal Port (SDK Port number).

11. Click on the 'OK' button to save the configuration and to close the 'Port Forwarding Configure Ports' dialog box.

12. The steps [C].9 to [C].11 configure 'External Port (SDK port number)' for single 'Infinova 307X NVR'. Same steps need to follow for all 'Infinova 307X NVR' displayed in the 'Recorder list'. It is important to configure 'External Port (SDK port number)' for every entry in the 'Recorder list'

[D] 'Security Management System' Remote Client

1. No special configuration is required in the 'Security Management System remote client' software.

Notes –

(a) It is very important to have sufficient and consistent network throughput available between each of the 'Infinova 307X NVRs' and the remote client.
   i. In the direction from remote client to 'Infinova 307X NVR' – minimal network throughput 32 kbps is required
   ii. In the direction from 'Infinova 307X NVR' to remote client – higher network throughput is required. Exact value can be calculated based on multiple parameters including live video stream bitrate, maximum simultaneous number of live videos viewed in remote client, recorded video bitrate, maximum simultaneous number of recorded videos viewed in remote client etc.

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(b) If sufficient network throughput is not available, the videos from the 'Infinova 307X NVR' may not be displayed properly in the 'Security Management System Remote Client'

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