iMM – Module 3 – Communication with 2N

The aim of this module is to introduce the modularity of the intercom system 2N Helios IP Verso, the method of ordering 2N components and the method of setting up communication of the system iNELS (iMM, iHC) with 2N intercoms.

NOTE: Within the system iNELS, the SIP protocol is integrated, and via Connection or the iMM server, it is possible within VoIP to also use other brands of intercoms having SIP support.

Basic modules 2N

In the product series 2N Helios IP Verso, there are two basic modules available:

- 2N Helios IP Verso basic unit (with video camera)
  - order code 209990901117
  - the advantage is the HD video camera with infrared light and night vision
- 2N Helio IP Verso basic units (without video camera)
  - order code 209990901234

Expansion modules

The basic units can be further fitted with various types of expanding modules. For integration into the iNELS system, the most interesting ones include:

- 2N Helios IP Verso module 5-button
  - order code 209990901457
- 2N Helios IP Verso module keypad
  - order code 209990901459
- 2N Helios IP Verso module infopanel
  - order code 209990901118

License

For complete use of intercoms, you must also order the necessary license. For integrating into the iNELS system, you must use the first listed license "2N Helios IP - License Video", if use of a video camera is required (RTSP stream). In case of a requirement for some other functions supported by a different license, it is appropriate to use the highest license" 2N Helios IP - Gold license". For the sake of completeness, here are listed all types of available licenses:

- 2N Helios IP - License Video (order 209990901458)
  - RTSP streaming server (i.e. video camera support)
- 2N Helios IP - Gold license (order 209990900694)
  - user sounds
  - RTSP streaming server (i.e. video camera support)
  - Expanded lock control (talk activation, activation by quick selection button, time profiles for locks), Picture to email, automatic update (TFTP), HTTP orders for controlling lock
  - 802.1x network authentication protocol
  - does not contain the codex G.729
- 2N Helios IP License Audio
  - user sounds
- 2N Helios IP License Integration

  - expanded lock control (talk activation, activation by quick selection button, time profiles for locks)
  - Picture to email
  - automatic update (TFTP)
  - HTTP orders for controlling the lock
- 2N® Helios IP License Security
  - 802.1x network authentication protocol
- License for codex G.729 (for 2N® Helios IP and 2N® SIP Speaker)

Fixings

For use within the iNELS system, most frequently used are 2-module frames (basic plus expanding module) and intercoms can be mounted flush in the wall or on the surface:

- 2N Helios IP Verso Frame for surface mounting, 2 modules
  - Prod. number 209990901565
- 2N Helios IP Verso Frame for mounting into wall, 2 modules
  - Prod. number 209990900990
- Installation box to frame with order no. 209990900990
  - Prod. number 209990901897

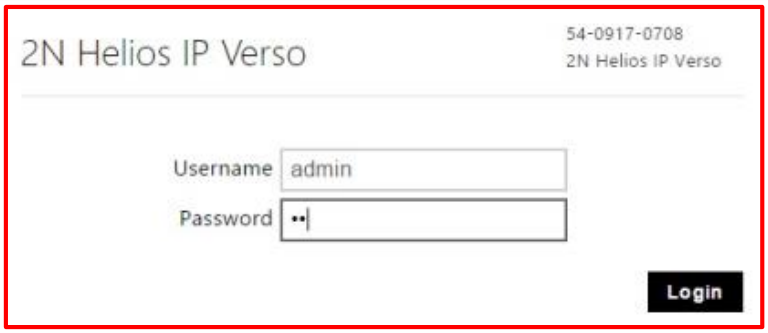
Examples of order

In case of a requirement for an intercom with video camera and keypad for calling on the LARA device, telephones and tablet with the application iHC and at the VideoZone (television screed with application iMM) with surface mounting, it is necessary to order the following items:

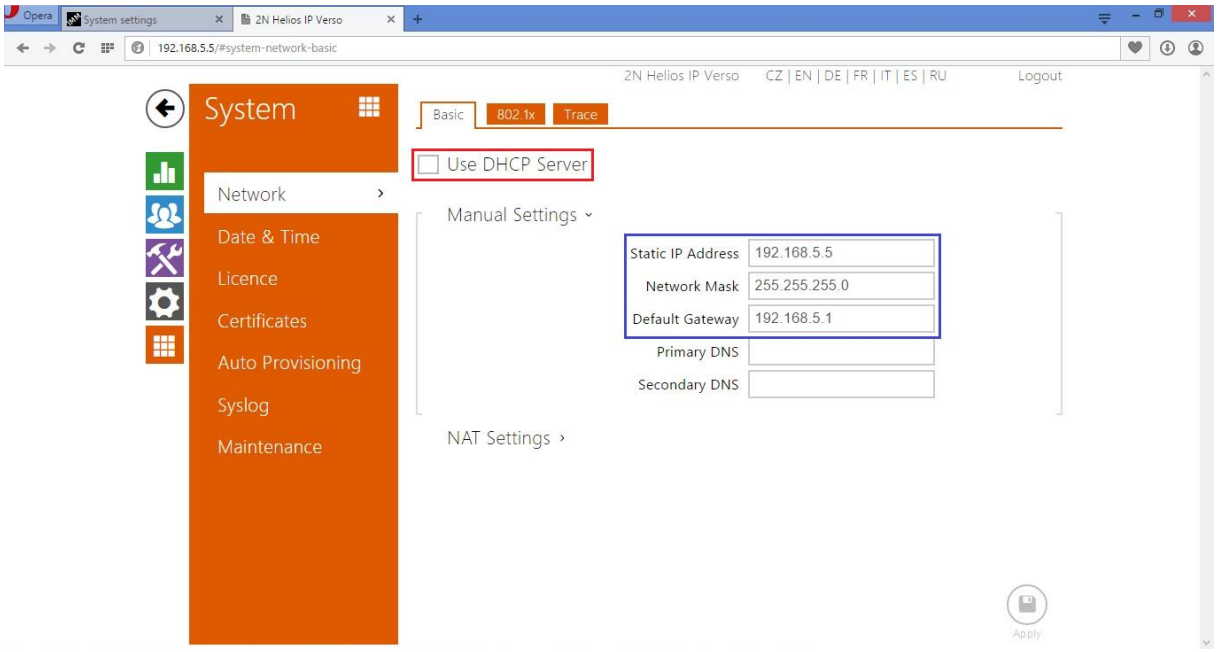
- 2N Helios IP Verso basic unit (with video camera)
  - order code 209990901117
- 2N Helios IP Verso module keypad
  - order code 209990901459
- 2N Helios IP - License Video
  - order code 209990901458
- 2N Helios IP Verso Frame for surface mounting, 2 modules
  - order no. 209990901565

Setting the IP address of the 2N intercom

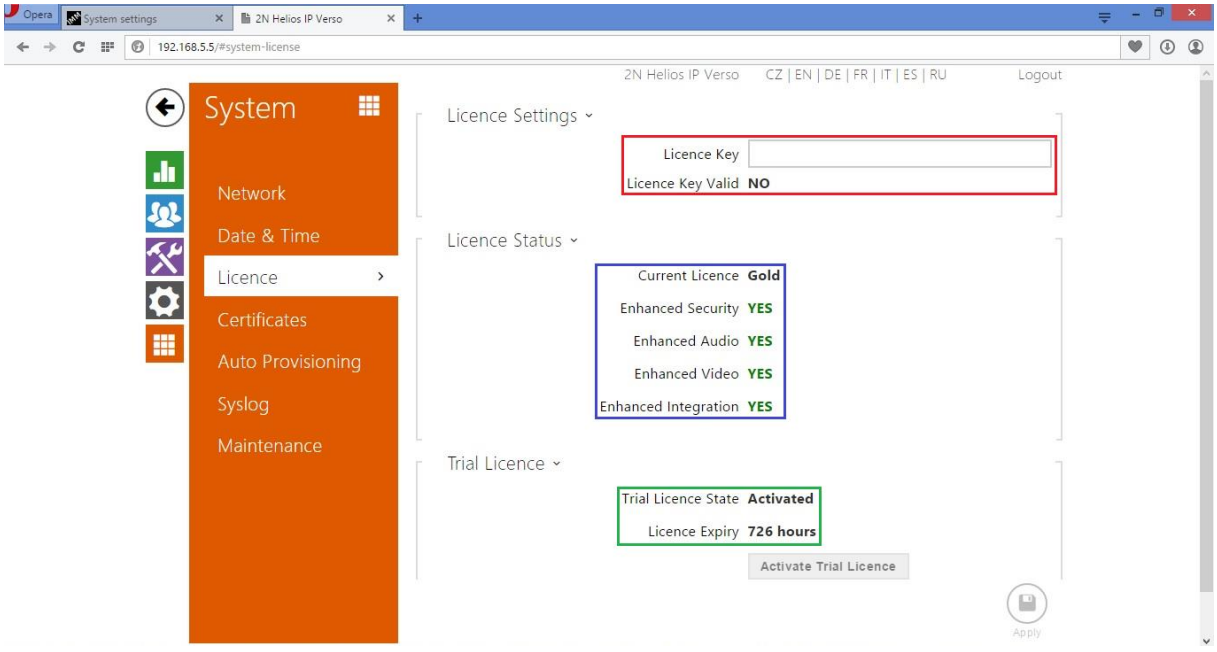
- The first step is to set the static IP address of the intercom with which you will continue to work
  - the intercom is set by default to automatically obtain an address from the DHCP server
    - for ascertaining the assigned IP address, it is possible to use the utility 2N helios IP network scanner, or a similar tool for general use, e.g. Advanced IP scanner
  - in case the DHCP server is not available, it is possible to connect to the intercom by means of the default IP address 192.168.1.100
    - configuration takes place via web interface (i.e. port 80)
    - in case the page displays an error on a missing certificate, you can ignore this error and continue to the page by entering the login data
      - Username "admin"
      - Password "2n"



- Network parameter settings can be found on the orange card "System -> Network", where you cancel the settings in DHCP and set a static IP address



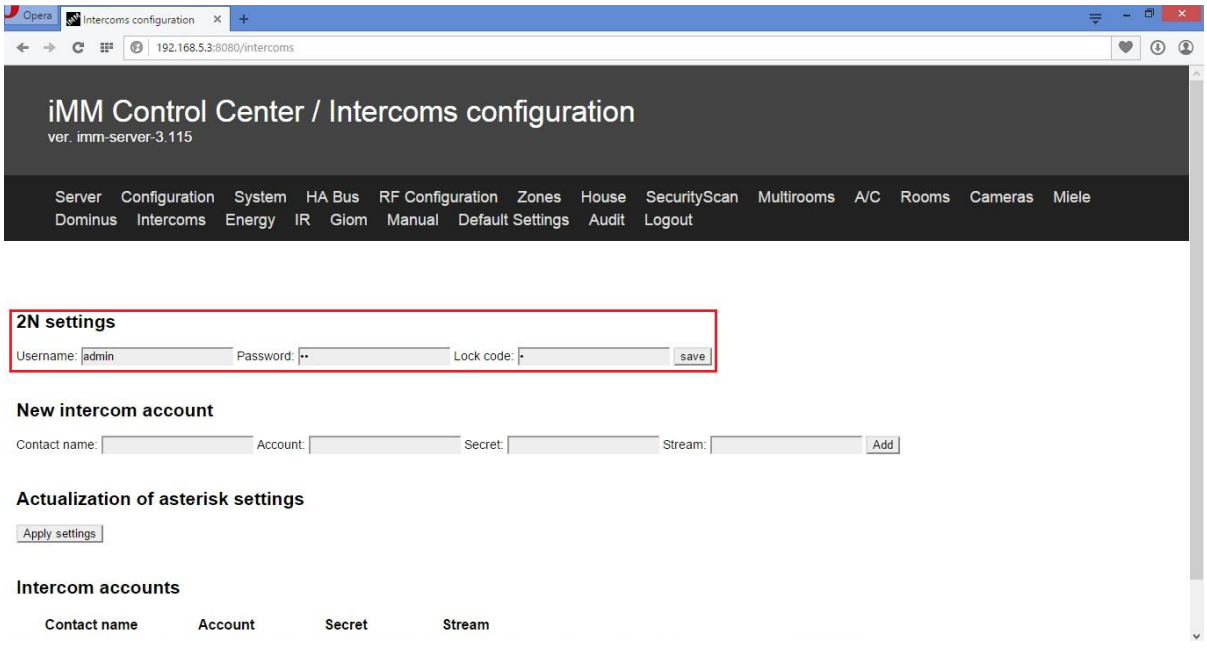
- Then on the tab "License", check the currently available options, and if you purchased your license together with a product, copy it to the open field "License key"



Settings on iMM page or Connection Server

The software branch center Asterisk is used for managing calls. This center is installed along with the software for iMM or Connection Server. Configuration of the Asterisk center is adjusted for the web interface of the server part iMM, and no special skills are needed for basic settings in terms of configuring the Asterisk center or SIP devices in general.

- In the web browser, enter the IP address of the iMM (Connection) server and port 8080 (in this module, the address 192.168.5.3:8080 is used)
  - sign in using the name "admin" and password "imm123"
- Open the tab Intercoms and in the first part marked "2N settings", complete the login data to the 2N intercom
  - default Username "admin"
  - default Password "2n"
  - The "Lock code" must later be set directly in the intercom's web interface. This is a code sent upon a requirement to open a door or gate from one of the applications of iHC or iMM as an audio tone in part of the call. If it matches the set code, a relay switches on in the intercom, which can open e.g. an electric lock.
    - it is necessary to enter a single-digit code, e.g. "1"



- In the second part "New intercom account", it is essential to create an account for each device to be registered to the server Asterisk, i.e. you must create an account for all VideoZones (iMM), smart phones, tablets (iHC applications) and 2N intercoms.
  - **Contact name**: This is the name that will be displayed for the given contact in case of an incoming call. It may contain gaps and special characters including diacritical marks.
  - **Account:** This is the name under which the device registers with the Asterisk server. You must strictly use only small and large letters of the alphabet (no diacritical marks) and digits. It may not contain any gaps or other special characters.
  - **Secret:** This is the password by which the iHC application signs in to its SIP account.

- **Stream:** This is a link to the video stream, which displays in the iMM application in case of a previous call from this account. In the case of 2N intercoms, the link is rtsp://IP_intercomu. This data may vary for other manufacturers.

- It is also possible in the images to see various settings and names of contacts for Videozones (iMM), smartphones, tablets (iHC application) and 2N intercoms. A list of created contacts can be seen in the lower part.
- After completing configuration, it is necessary to press the button "Apply settings" in the part "Update asterisk settings" and restart the iMM server. This registers the changes into the configuration files of the Asterisk server, and you can start using it. You can add further accounts at any time, but you must always update the settings of the configuration files of the Asterisk server and restart the iMM server.

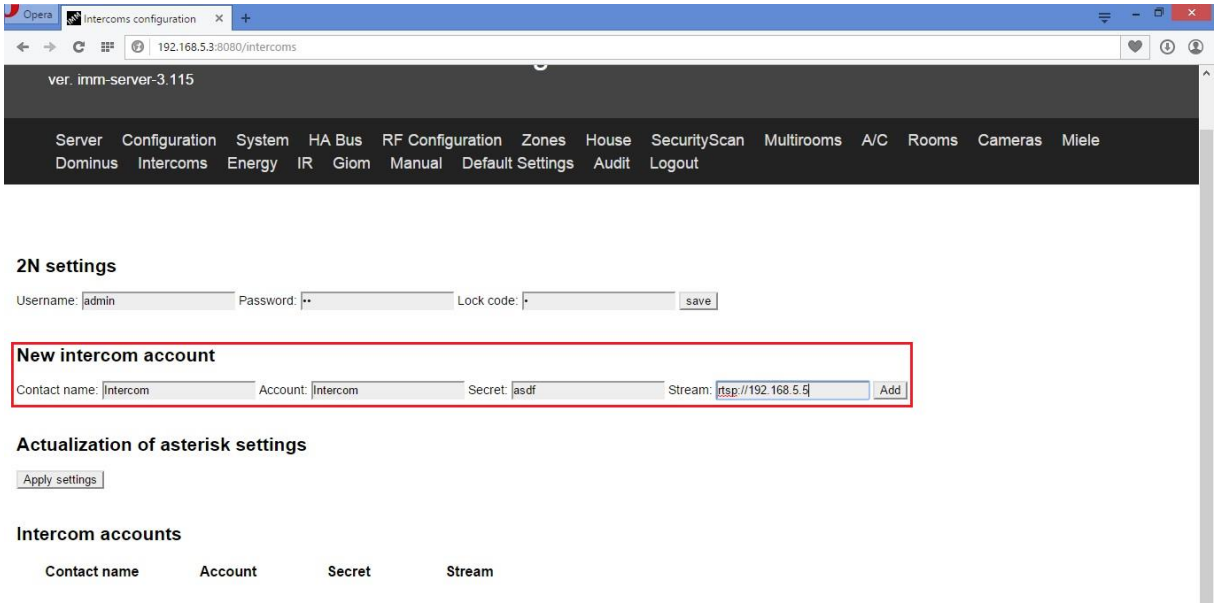


Image: Creating an account for the intercom including entering the video camera stream

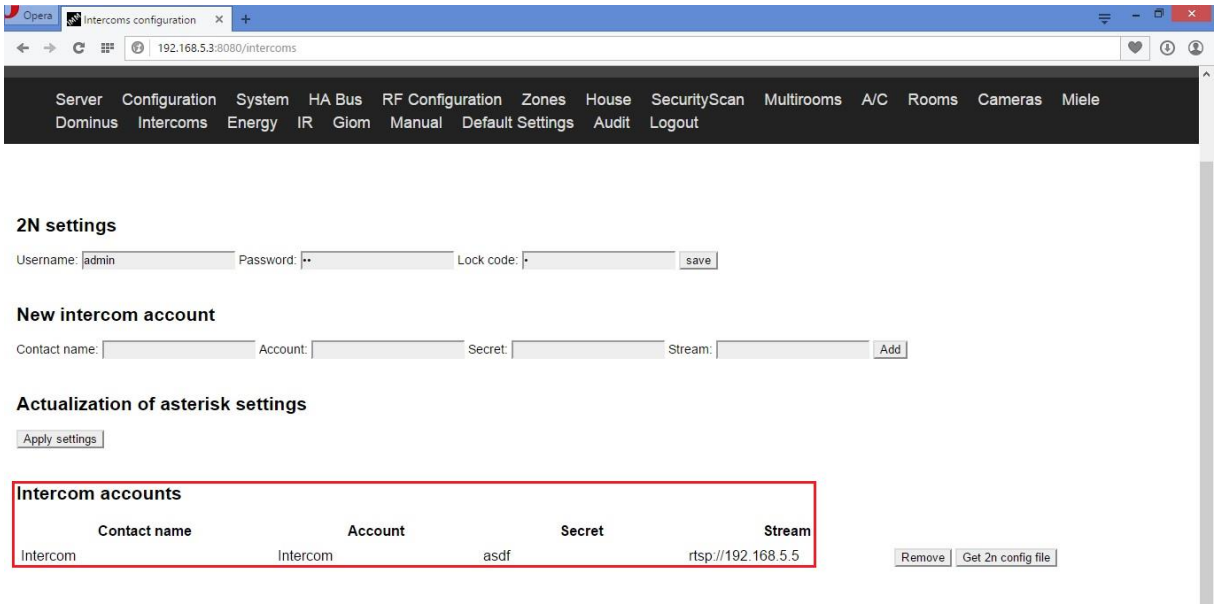


Image: The correctly created account appears below in the section "Intercom accounts"

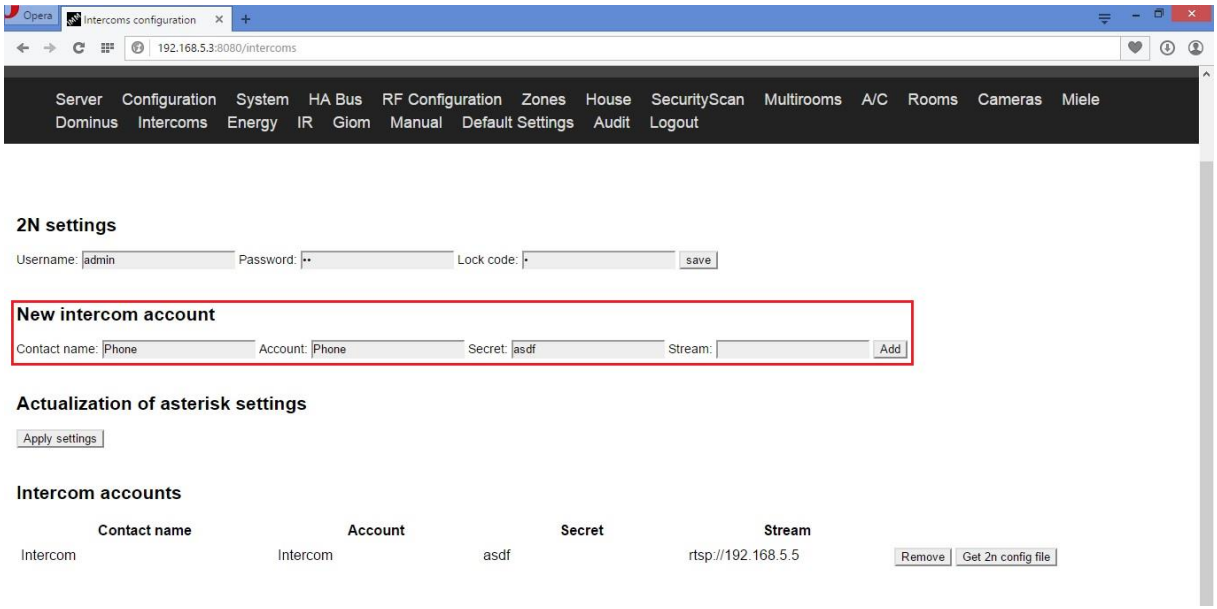


Image: Example of a created account for the iHC application in the smartphone (the stream for access to the video camera is not entered)

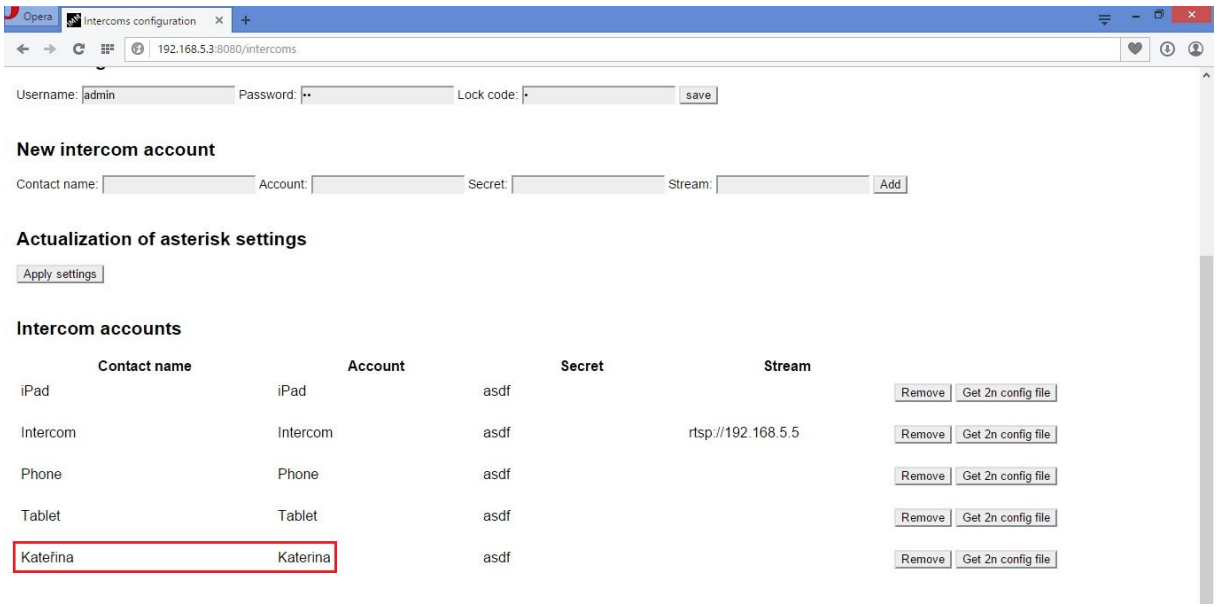


Image: Example of creating an account containing diacritical marks in the user (displayed) name; these diacritical marks however may not appear in the Account column

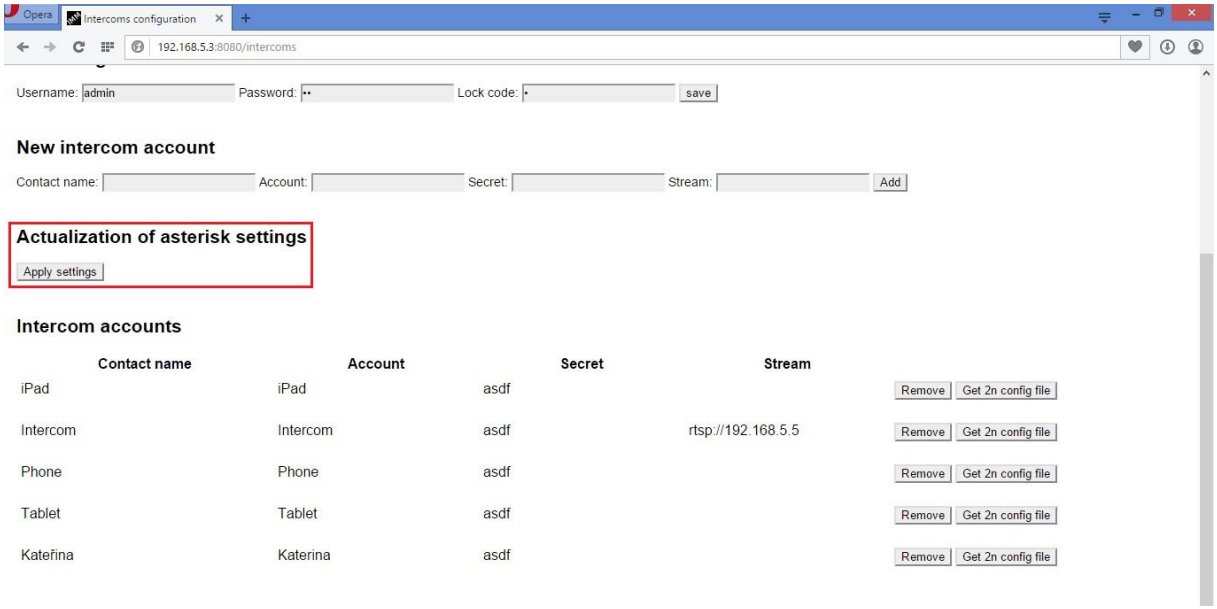
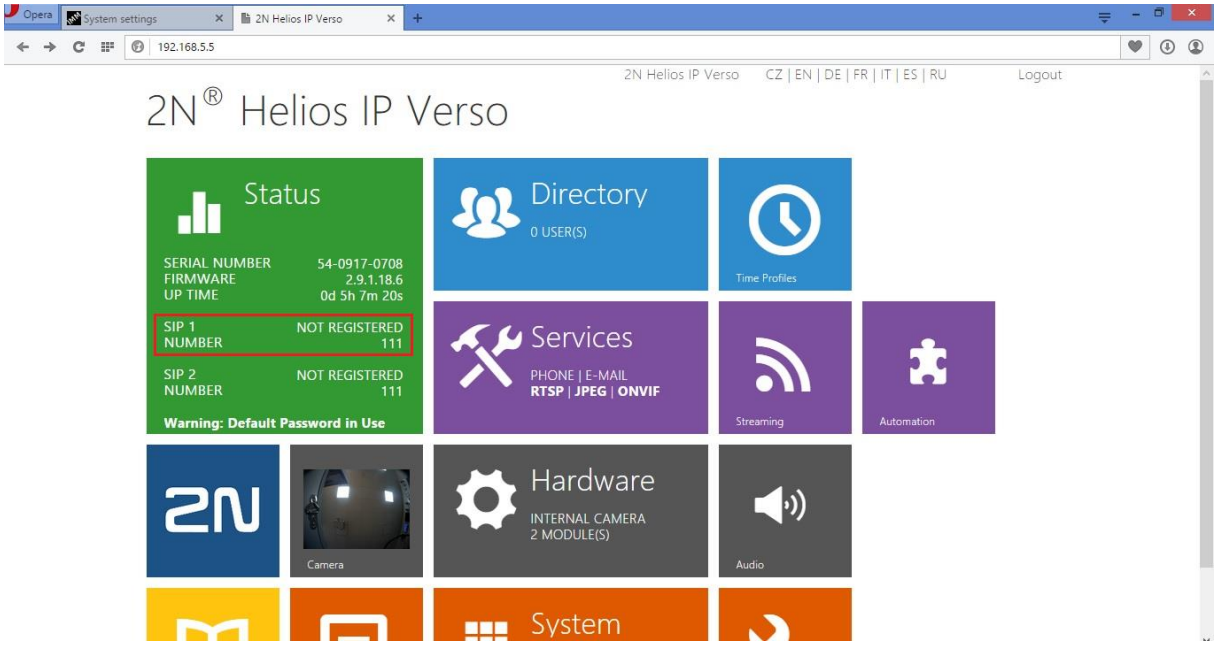


Image: After creating the required accounts, it is essential to record changes in the configuration files of the Asterisk server

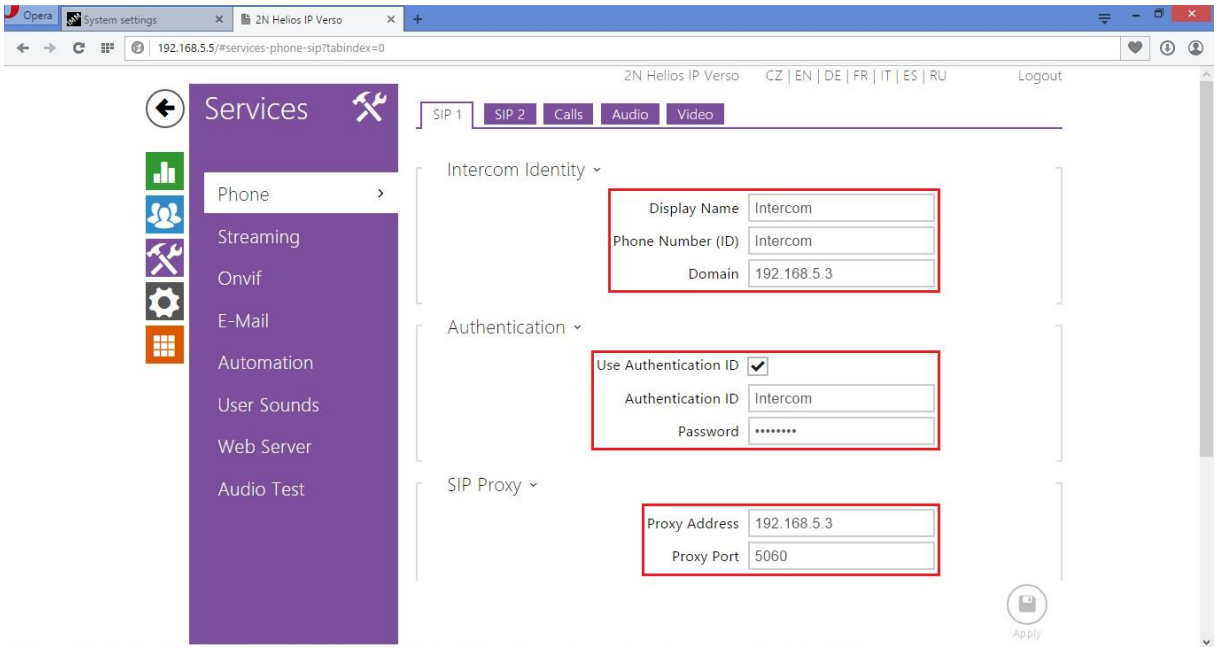
Registration of the IP intercom to the Asterisk server

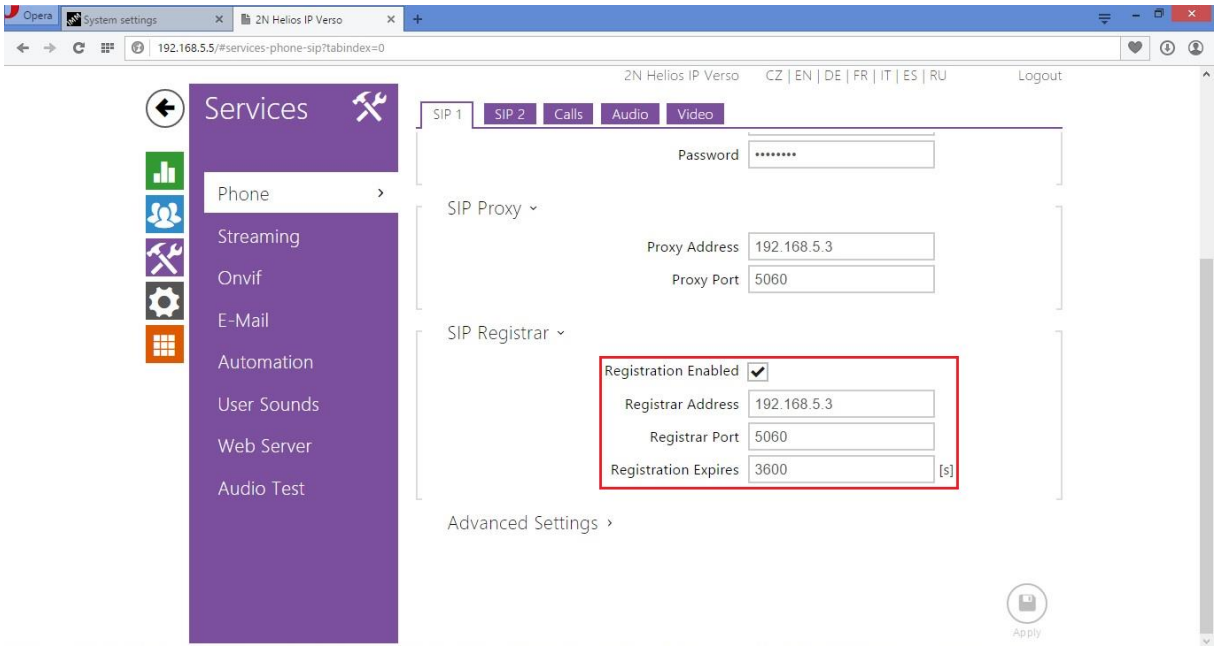
Sign in once again to the web interface of the 2N intercom, now with the newly set fixed IP address. After signing in, you can see on the start page in the green part that the intercom is not yet signed in to the SIP server Asterisk.



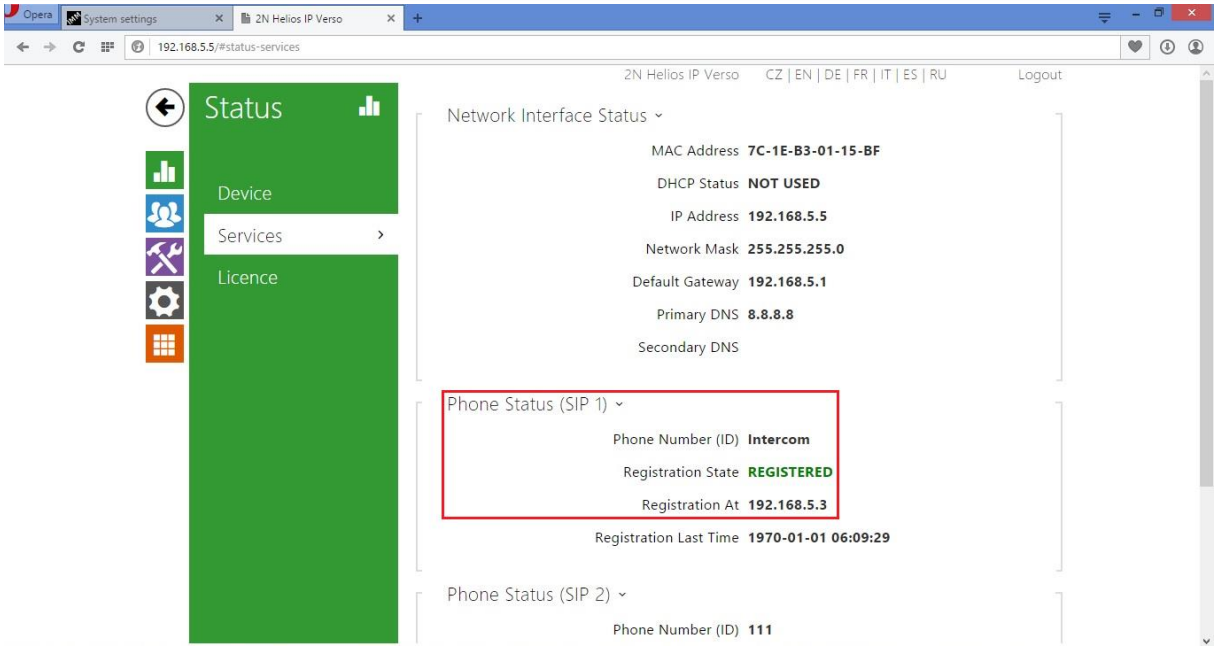
- The login data to the account that you created for the intercom must be entered in the purple part "Services -> Phone", and you can immediately use the first card SIP 1.
    - in the columns "Phone Number (ID)" and "Authentication ID", you must use the specific account name (Account), which you entered in the web interface of the iMM (Connection) server
    - "Password" is the password to the SIP account, in this case "asdf"

- For "Domain", "Proxy Address", "Registrar address", enter the IP address of the iMM (Connection) server, on which the SIP server Asterisk is running, in our case 192.168.5.3
- "Proxy Port" and "Registrar Port" remain set by default for the SIP at 5060





- After saving the changes using the diskette icon in the lower part of the screen, the intercom itself attempts to sign in to the server
  - The result can be checked in the green part of the web interface "Status -> Services"

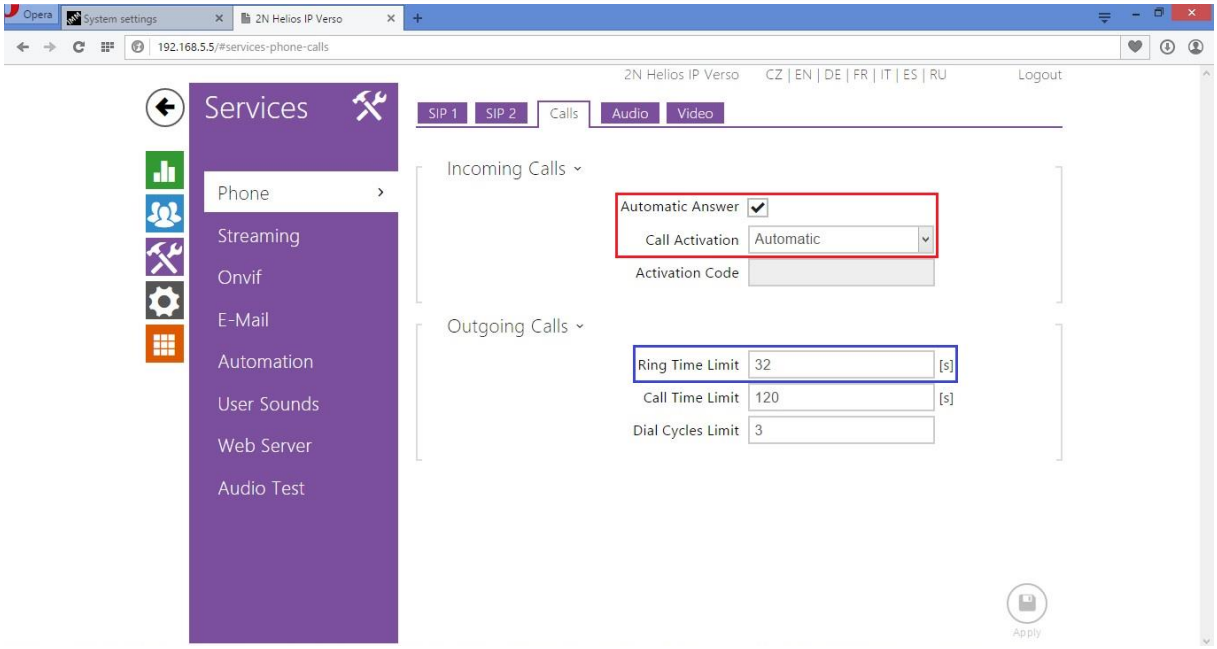


Advanced call parameters

If you want to call the intercom from the applications iHC and Videozones, it is necessary to activate automatic call activation upon an incoming call on the card "Services -> Phone -> Calls"

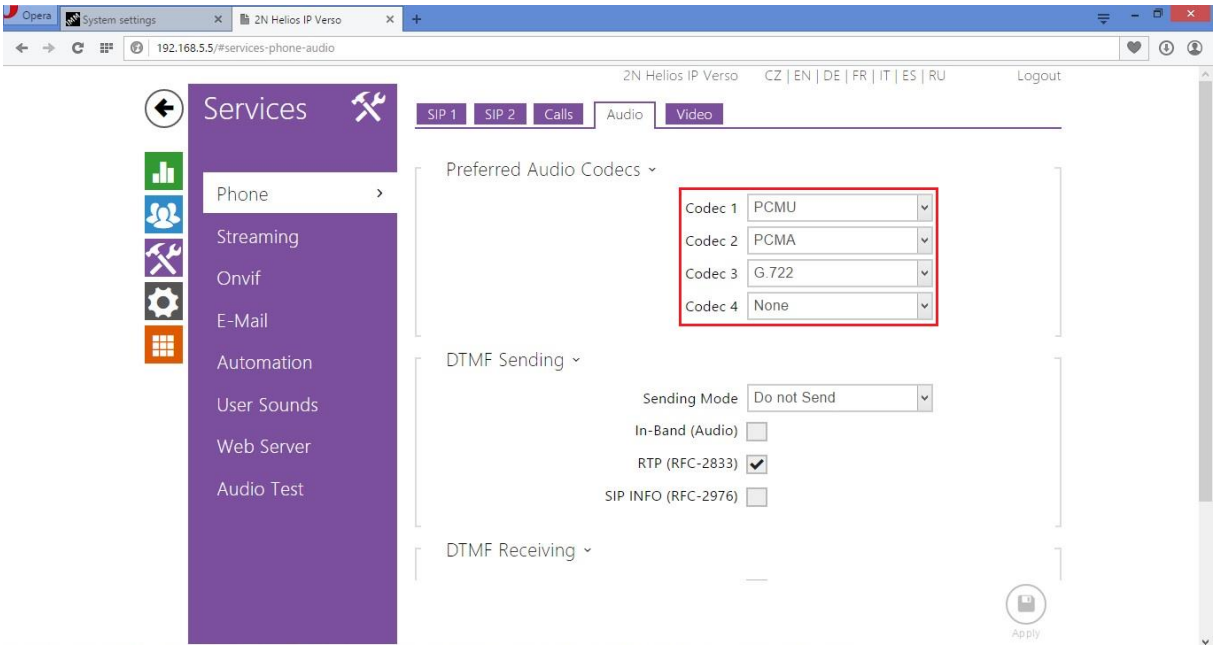
Here in this section, you can also set the parameters for outgoing calls:

a) **Ringing Time Limit** - period during which dialing a number (account) is active. In case the call is not taken by the other party, the intercom dials the next contact in line, or dialing ends.
b) **Call Time Limit** – the period during which the intercom maintains an active call. For example, if somebody forgets to terminate the call, the intercom itself frees up the line after the set time expires.
c) **Dial Cycles Limit** – in case nobody is there to take the call, an alternate account can be set up with which the intercom will attempt connect. This data limits the number of accounts that the intercom will gradually attempt to call.



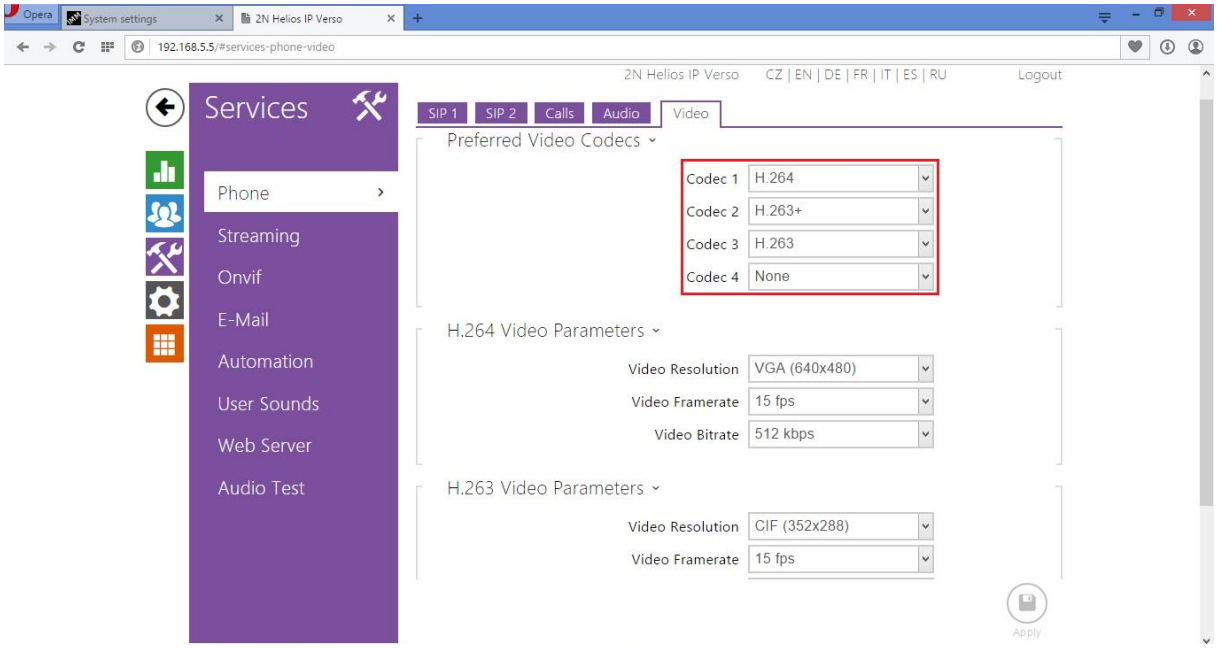
Setting Audio codecs

- Most SIP telephones support multiple audio codecs for transmission. The LARA devices only support the codec PCMU, so choose this one as the priority codec. It is also necessary to verify receipt confirmation of all types of DTMF codes, DTMF Receiving. This is necessary for receiving a signal to open a lock.

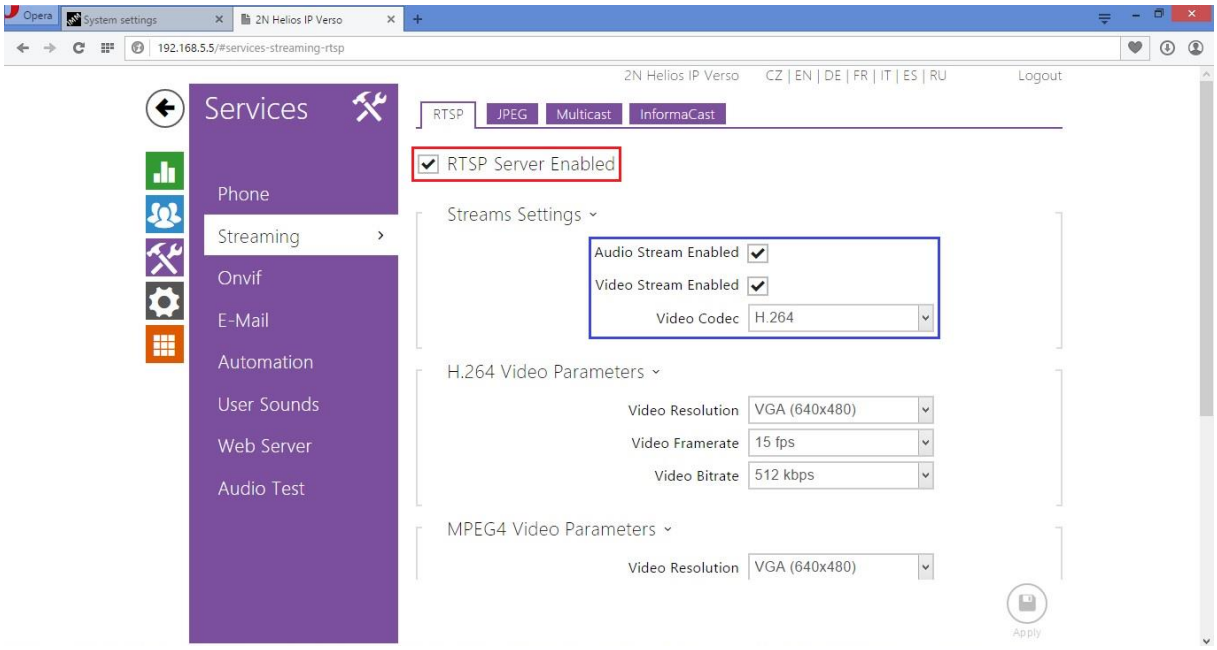


Setting Video codecs

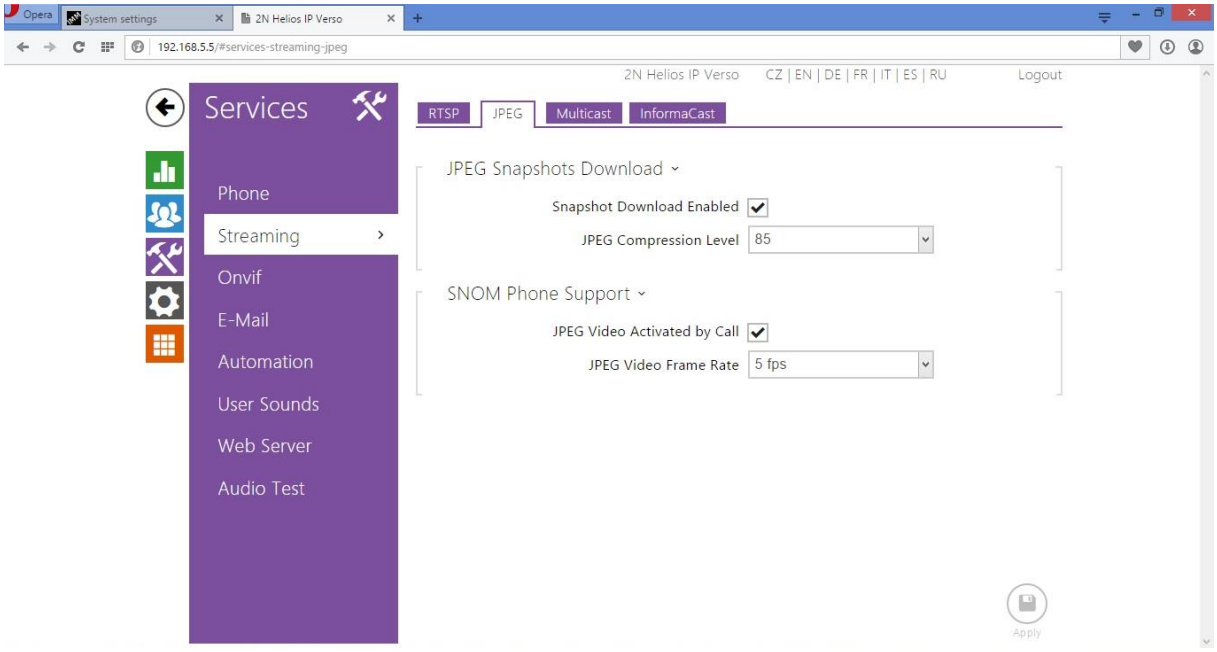
- Especially for receiving on VideoZones (iMM), you must make sure the codec H.264 is set as the priority codec.



- It is also necessary to switch on this stream on the card "Services -> Streaming -> RTSP". This selection is only possible with "License Video"; otherwise it is inactive.

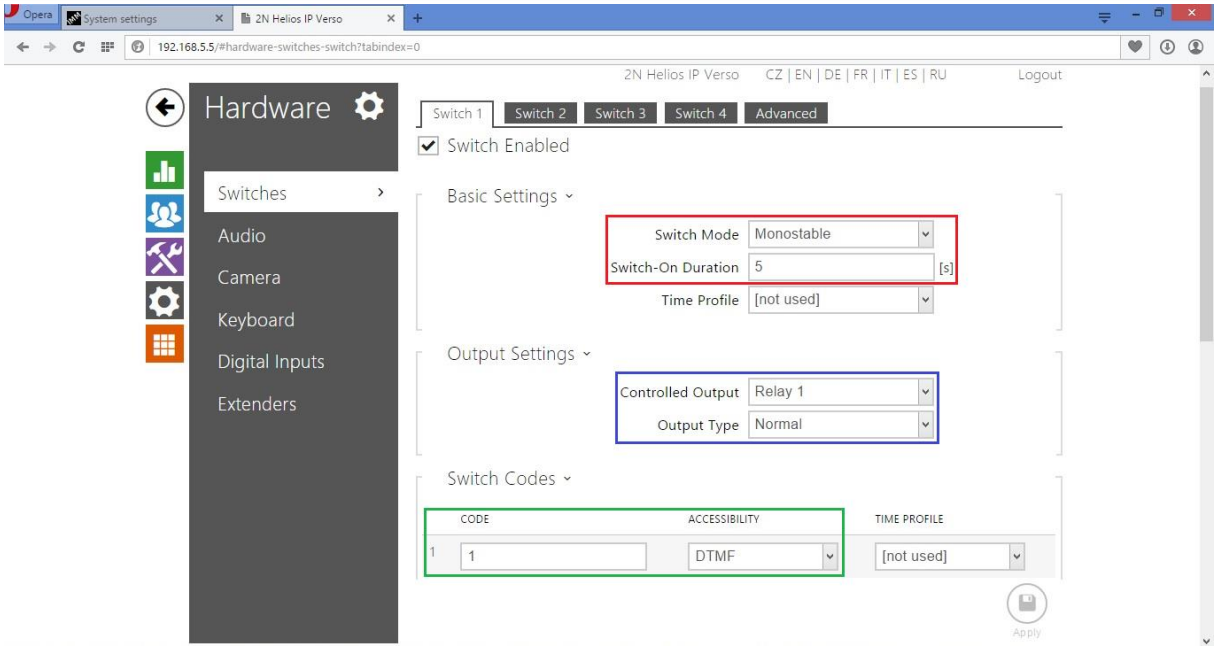


- For access to video in the applications of iHC, you must check to see if the JPEG stream is permitted. It is usually switched on by default already in the basic license.

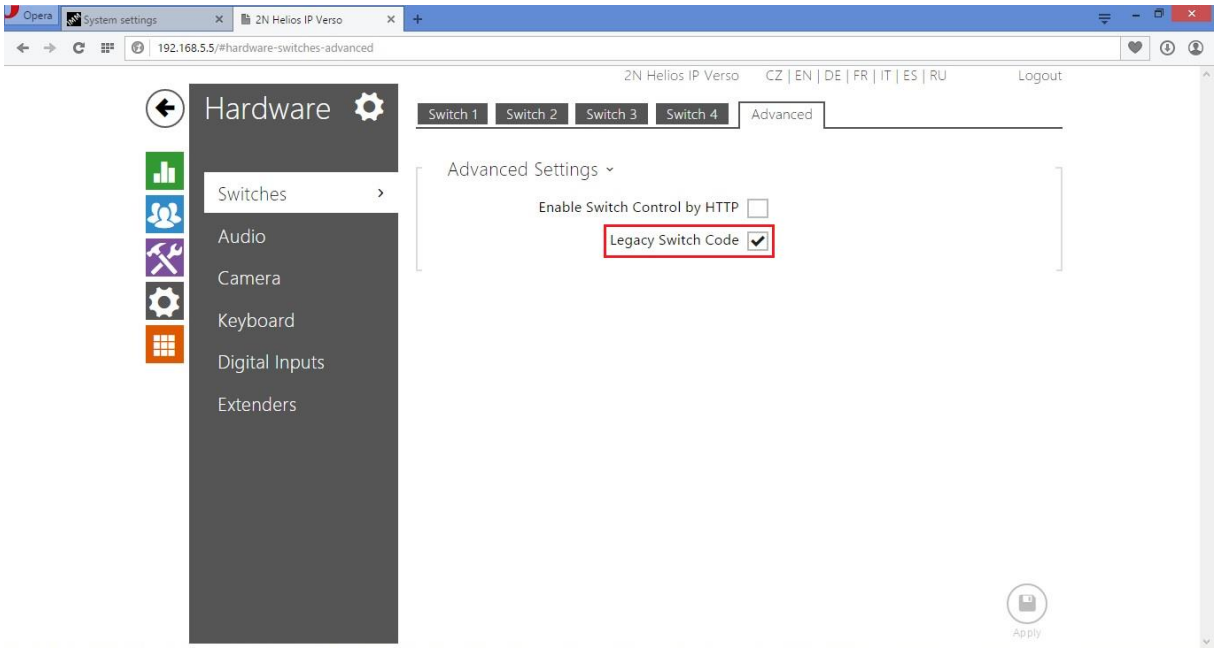


Settings of the relay and access code

- If you want to use the intercom also for opening a door or gate via iHC application or VideoZone (iMM), you must enter the code for opening and set up the relay on the gray card "Hardware -> Switches -> Switch1"
- Check the box to allow use of the relay, set under the option "Switch mode" the value "Monostable", and for the option "Switch-On Duration", the period during which the relay will be switched on
- To send the code, DTMF codes are used, i.e. an audio tone during the call.
    - these codes are verified only with the first position in the table, so for this code, you must select this position no. 1
    - moreover, the iHC application sends just one DTMF code, so select for the first position a single-digit code ranging from 0 to 9
    - in case of using an expansion module of the keypad, it is appropriate for enhancing security to select the method of entering the code on the first position only from DTMF
        - in case of a requirement for entering a numerical code from the keypad, we recommend using the next position

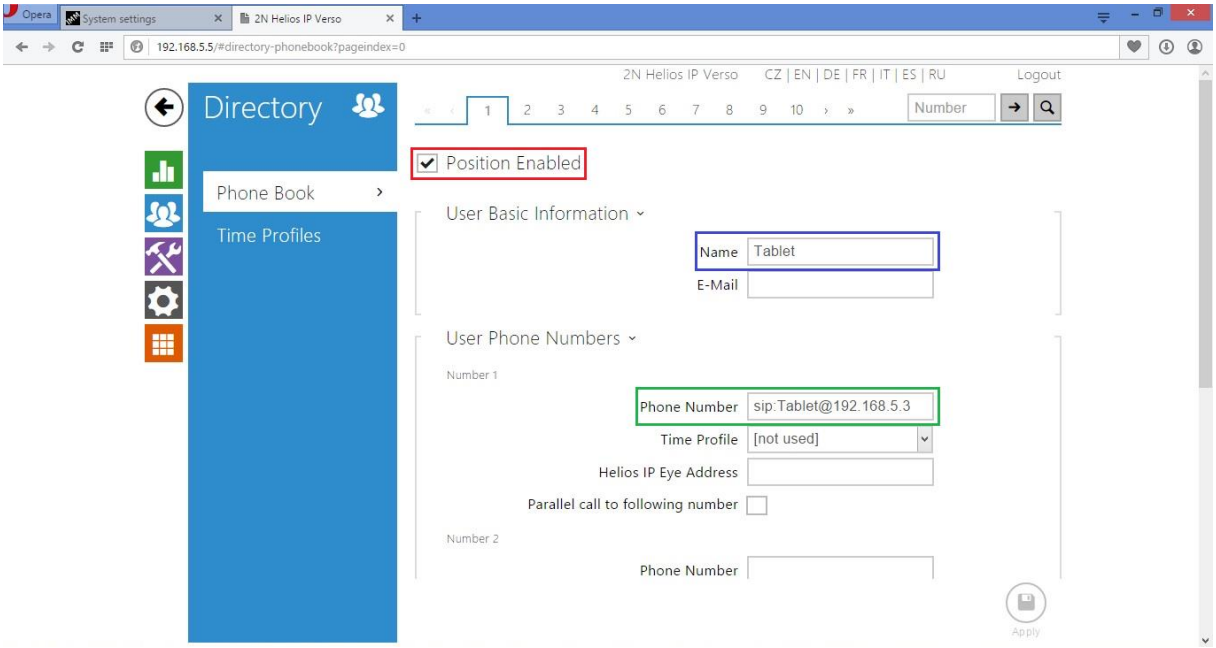


- Since the iHC application does not send the DTMF character "asterisk" (*) for confirming termination of sending, check on the last card "Advanced" the selection "Legacy Switch Code"



Setting selection of buttons

- The actual settings of the selection of buttons can be made on the blue card "Directory -> Phone book"
  - the first positions always indicate the quick selection buttons; if you have a single-button version of the intercom, only position no. 1 will function
  - if a six-button version will be used, the first six positions will function
  - if using the module keyboard, the number of usable position expands up to 999
- For actually calling, two fields are important:
  - **Name** - unique identifier of the position to be called. (e.g. Catherine, Tablet, VideoZone)
  - **Phone number** - usually a direct link to the called account
    - in case the called account is registered in the Asterisk server, the link will be composed as such: *sip:account@IP_server*
      - e.g.: sip:Tablet@192.168.5.3)



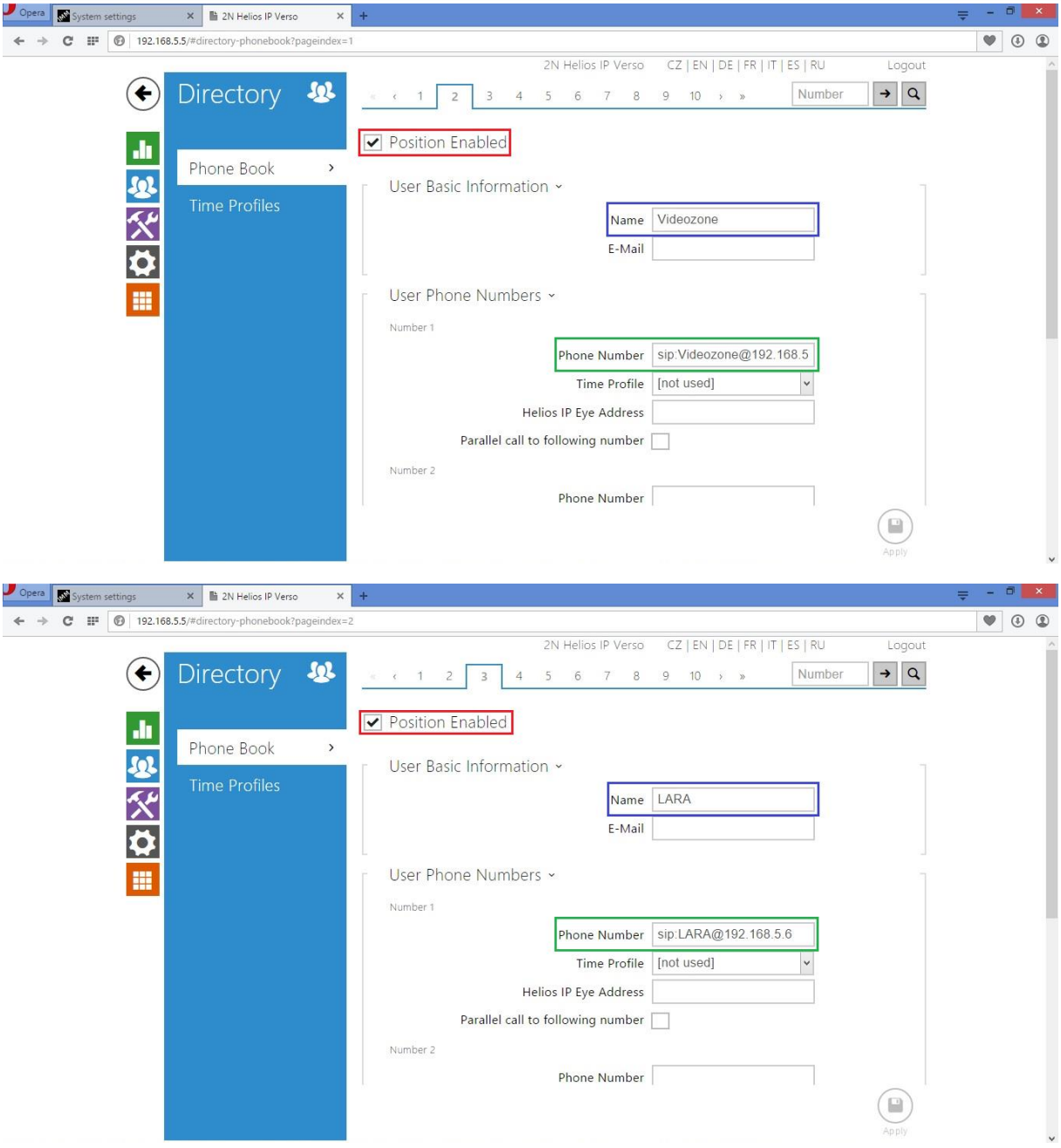
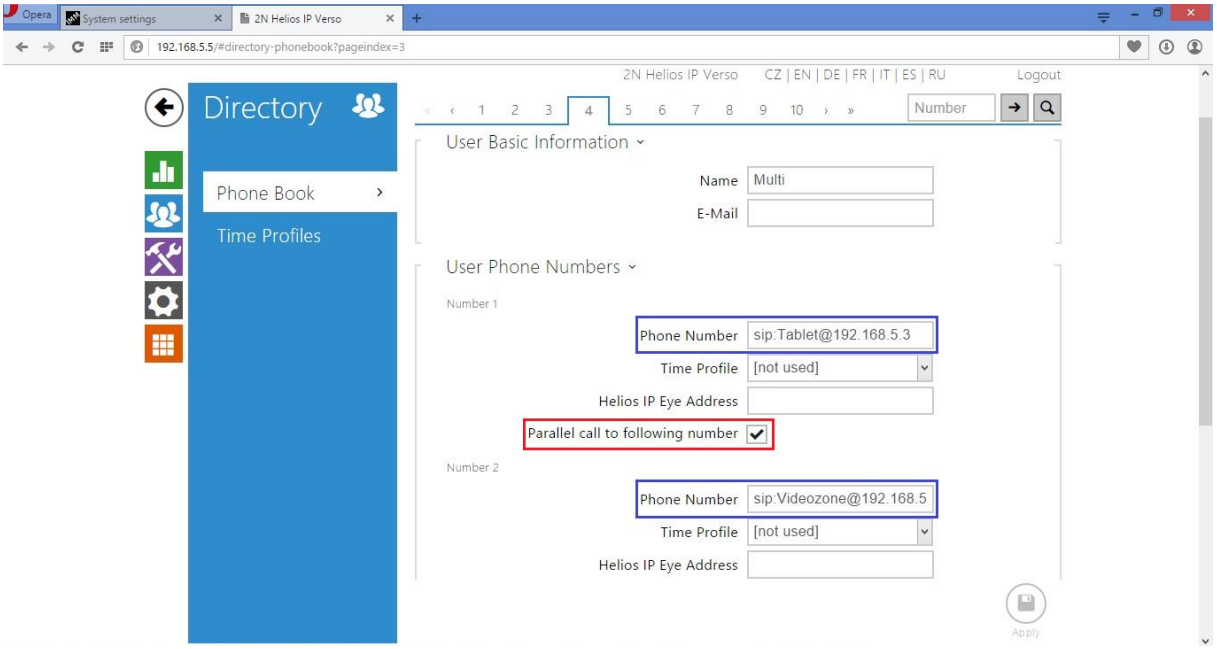
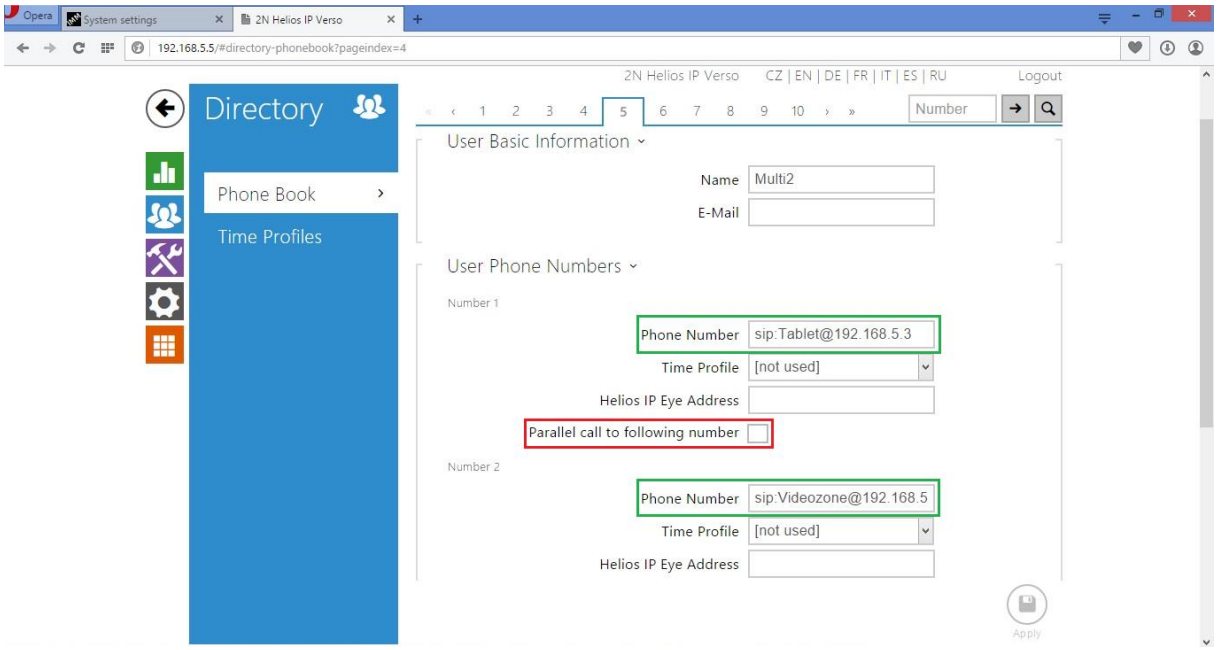


Image: For the LARA device, not the address of the iMM server, but rather the IP address of the given LARA device, is entered with the Asterisk server

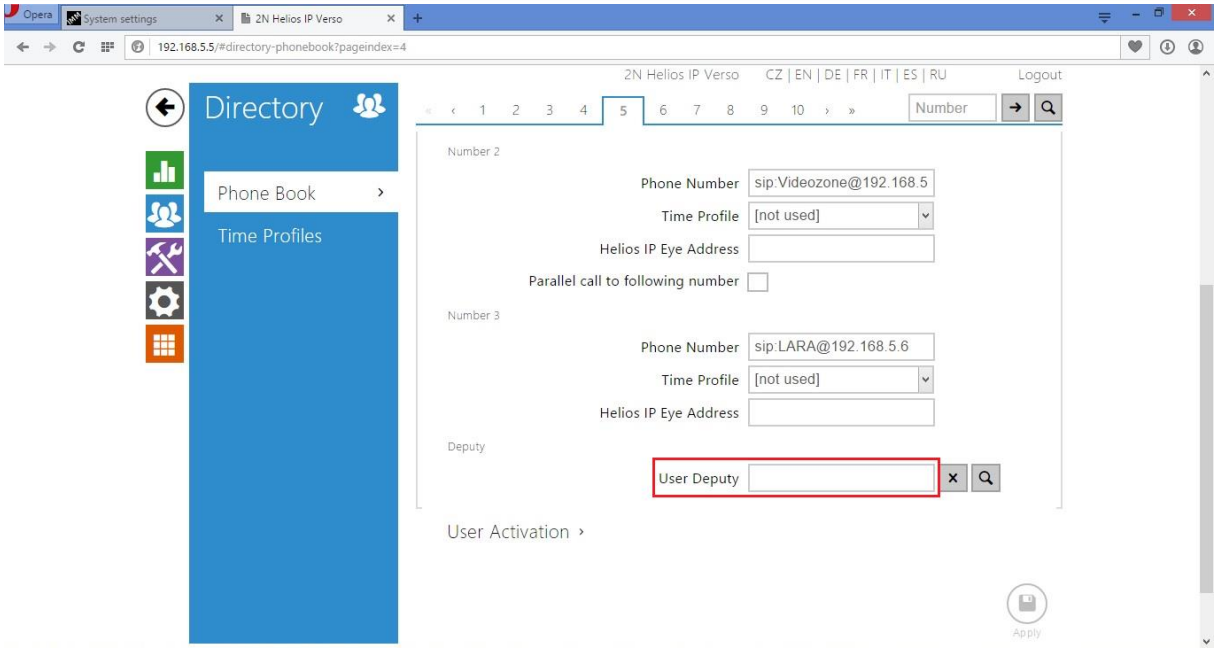
- In case it is desirable to call from one button to multiple accounts at once, it is possible to call up to 3 independent SIP accounts
    - check the selection "Parallel call to following number" and fill out further fields in the same manner, only with a different SIP account



- In case multiple numbers to be called are entered, but the selection **"Parallel call to following number"** is not used, dialing starts of the next number in line until expiration of the period "**Ring Time Limit" (purple part Services -> Phone -> Calls)**



- Another selection in "Phone Book" is "User Deputy"
  - here you can enter the name of one of the next positions, which upon expiration of the "Ring Time Limit", the intercom starts ringing
    - it is therefore possible to expand significantly the options of calling from a single button



- Now everything is ready for calling in terms of settings on the webs servers of the iMM server and 2N intercom. Now it will only be necessary to log in all devices to the Asterisk server via created SIP accounts.

Logging the VideoZone (iMM) in to the Asterisk server

- For calling on the VideoZone (iMM), it is necessary to log it in to the created account
  - entering the login data to the SIP account can be done via the client part of the web interface iMM Control Center (192.168.5.3:8090), where on the Intercoms card, you can enter the name of the account and password
    - then save the changes and restart the iMM application

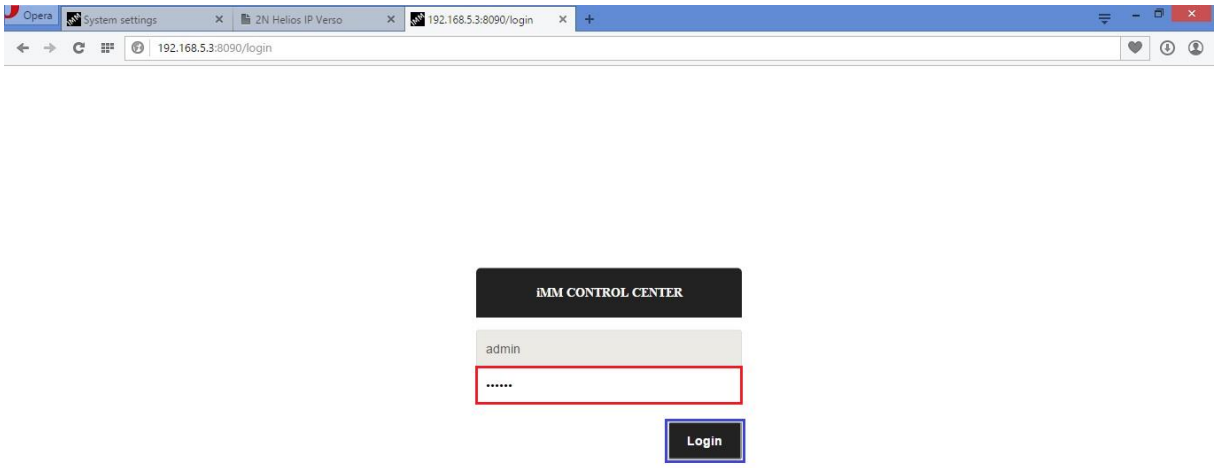
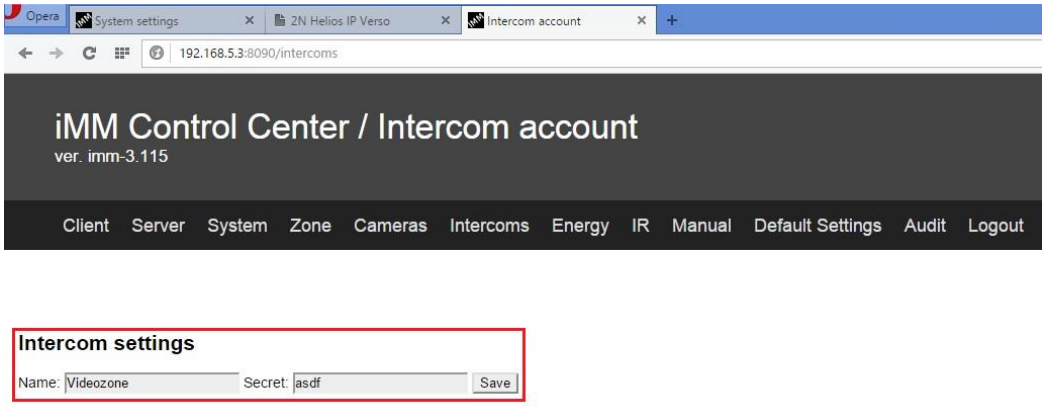
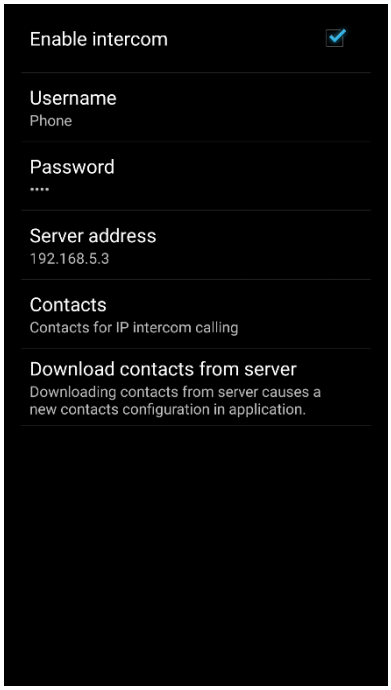


Image: Log in at the client part of the web interface (port 8090) – default login "admin", default password "imm123"

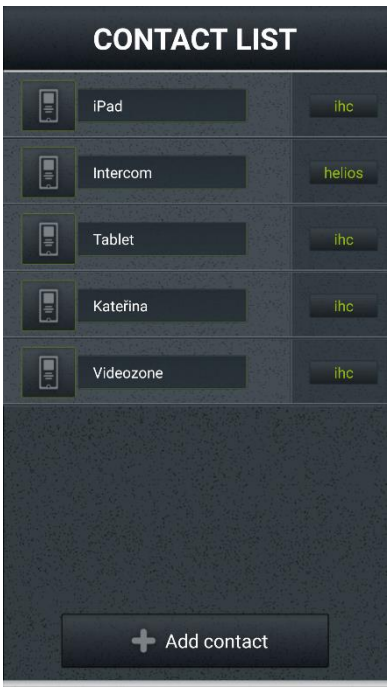


Logging the iHC application in to the Asterisk server

- In the settings menu of the iHC application, select the option "Intercom settings"
  - check the option "Allow intercom"
  - enter the required SIP account, in the example "Phone"
  - enter the password to the given account, in the example "asdf"
  - enter the IP address of the iMM server with the Asterisk Server, in the example "192.168.5.3"
  - by selecting "Download contacts from server", you can automatically download all created SIP accounts



- after automatic download of contacts, perform a check of them by selecting "Contacts"
  - delete the contact Phone, since you are working on this device
    - deleting is performed in Android applications by pressing and holding the name of the contact, for the iOS applications, pull the name of the contact to the left and confirm deletion
    - for the applications iHC and iMM, perform a check of the selection "Other iHC"



- for the intercom, perform a check of the selection "2N intercom" and its settings

Logging in the LARA device to communicate with the 2N intercom

- Perform the necessary settings on LARA by means of the LARA configuration
  - the current versions of FW and the configurator are available for download here http://www.elkoep.com/download/software/
  - for more information on LARA, including the complete manual, click here http://www.elkoep.com/products/audiovideo/lara/lara-radio/lara-radio-radio-mounted-in-the-wall-8295/
- Run the LARA configuration
  - select the option "Search devices"
    - in case of correct network settings, all connected LARA devices will automatically appear, select the required device according to the IP address
    - press the button "Load settings"
      - on the "Functions" tab, enter the IP address of the 2N intercom and check the selection for whether you want to use the video camera
    - then save the settings by pressing "Save settings"