

MAGIC TH2^{plus}

System Configuration

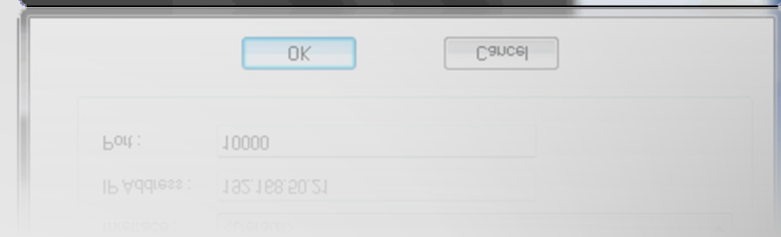
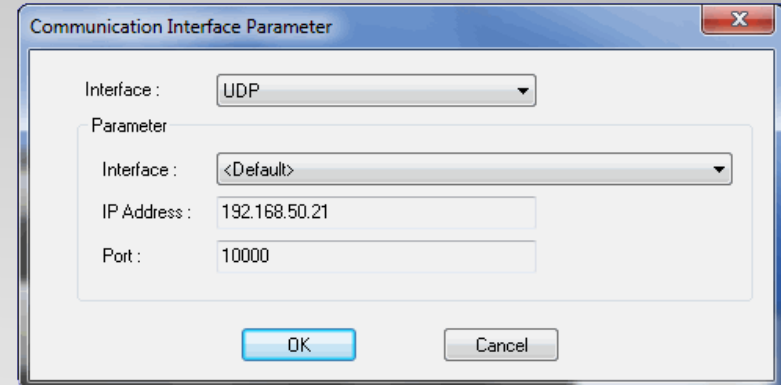
Version V1.3 (21.01.2025)

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Basic Settings

- Starting the Windows PC Software
 - Line interface settings
 - Operating Mode
 - Audio lines
 - Hold Signal
 - Expander & AGC
 - Database Connection

- Install the MAGIC TH2_{plus} Software with administrator rights from the website and start the software afterwards also with administrator rights (right mouse click -> “Execute as administrator...”)
- Your PC must be connected with the LAN interface of MAGIC TH2_{plus}
- Select UDP as interface under MENU → CONFIGURATION → CONTROL INTERFACE
- Select <DEFAULT> under PARAMETER → INTERFACE
 - If you have more than one network interface in your PC, please select the one you would like to use
- Enter the IP address of the system and the control port you use under IP ADDRESS and PORT
 - PC and MAGIC TH2_{plus} must be in the same subnet
 - Press the right telephone button on the front panel of the system twice (in disconnected state) to see the currently allocated IP address of the system



Starting the Windows PC Software

PC 1 : MAGIC TH2plus - Radio-AVT : VoIP

MENU PHONE BOOK Reset DTMF RECORD Night Service LOCK ALL DROP ALL SHOW LISTS

1

John Doe 518 Winner of song contest Prize: BMW

331 PRE TALK HOLD ON AIR DROP R HD AGC

2

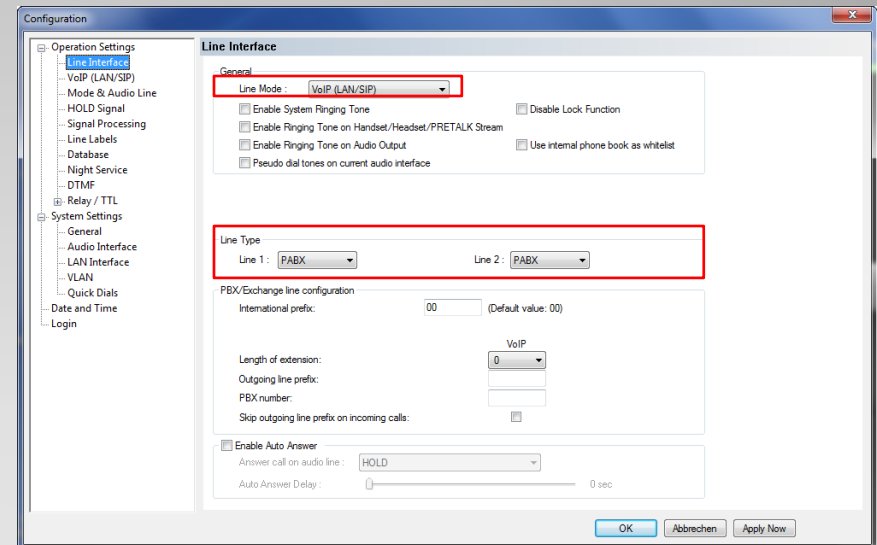
Jimmy Shoe 519 Is not happy with current situation

332 PC 2 HOLD ON AIR DROP R AGC

PC is connected with MAGIC TH2plus

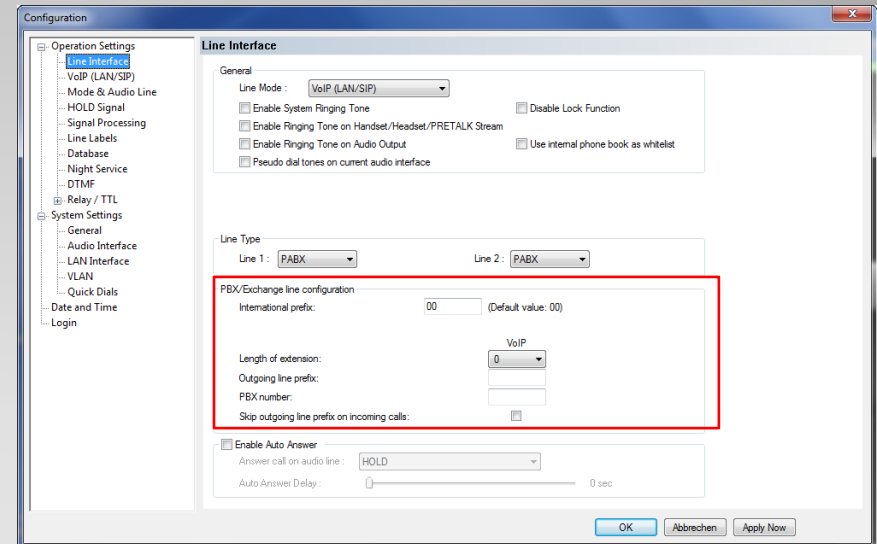
MAGIC TH2plus Windows PC Software

- Under OPERATION SETTINGS → LINE INTERFACE the line interface settings are configured
- Select under LINE MODE which interfaces you want to use
 - POTS
 - ISDN (not available in the new V2 version)
 - VoIP (LAN/SIP) (only available if enabled)
- If you are working with an ISDN mode, please select the ISDN PROTOCOL
- If you are working in POTS or VoIP mode, you must select under LINE TYPE for each caller line if it is connected with a PABX or if it is an OUTSIDE LINE



Line interface settings (1)

- If the system is connected to a PBX, you must enter the settings for the PBX/EXCHANGE LINE CONFIGURATION
- Select the length of your internal telephone numbers under LENGTH OF EXTENSION
 - The outgoing line prefix is dialed automatically if you dial a number that is longer than indicated here
 - If you work with main lines, please enter 0
- Enter the OUTGOING LINE PREFIX, e.g. 0
- Enter your PBX NUMBER if you are working with a PBX
- Optional function SKIP OUTGOING LINE PREFIX ON INCOMING CALLS if the phone number is display in the software with outgoing line prefix
 - The outgoing line prefix is deleted and the displayed telephone number can be saved directly to the phone book



Line interface settings (2)

- Depending on your settings under OPERATION SETTINGS → LINE INTERFACE → Line Type the register cards POTS INTERFACE: PABX and/or POTS INTERFACE: OUTSIDE LINE are displayed

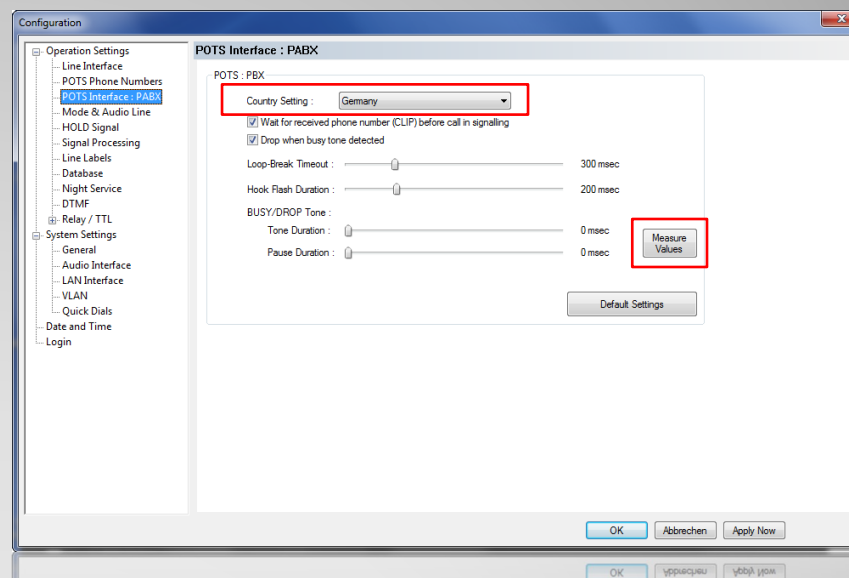
- In this way, POTS In-house lines connected to a PBX and main lines can be configured separately

- COUNTRY SETTING

- If you use main lines: country of your location
- If you use a PBX: country of origin of the PBX

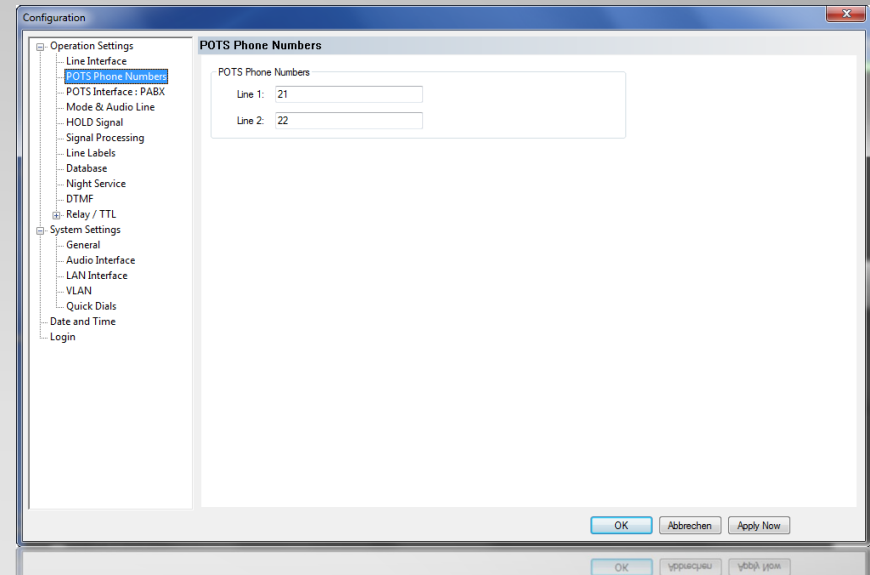
- Measurement of BUSY/DROP TONE

- Call a busy line and press MEASURE VALUES
- With the correct settings the system recognises when a caller drops the line or if the line is busy
- Make sure you save the setting with APPLY NOW or OK



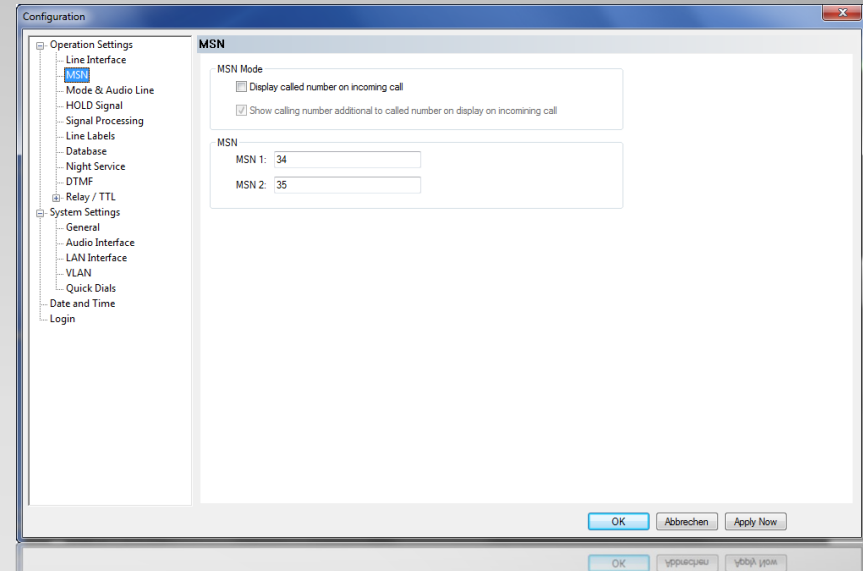
POTS Mode – Country settings

- If you use analogue telephone lines (POTS), please enter the telephone number for each POTS line under OPERATION SETTINGS → POTS PHONE NUMBERS



POTS Mode - POTS Phone Numbers

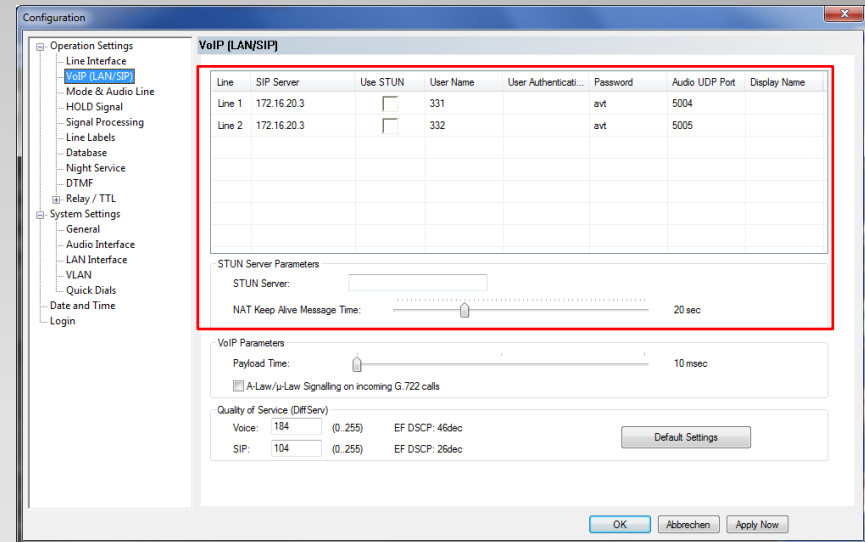
- If you use the ISDN mode, please configure the MSN (Multiple Subscriber Number) for each B channel under OPERATION SETTINGS → MSN



ISDN Mode - MSN

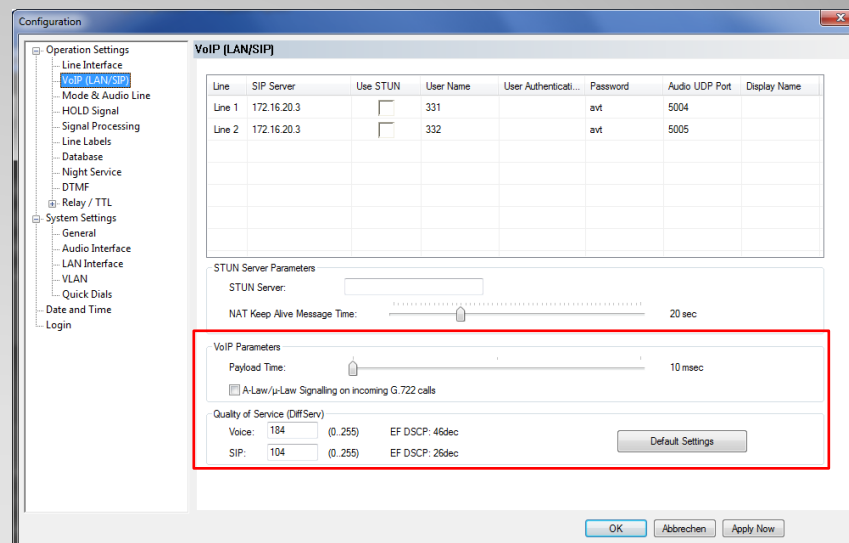
- For each caller line of the system the following parameters can be set individually under OPERATION SETTINGS → VoIP (LAN/SIP)

- SIP Server
- Use STUN
 - Only if required by your SIP Provider
 - In this case a STUN Server (see below) must be configured
- User Name
- User Authentication
- Password
- Audio UDP Port
 - Change only if necessary
- Displayed Name
 - Name is only displayed at the receiving side, subject to the condition that the function is supported by the telephone



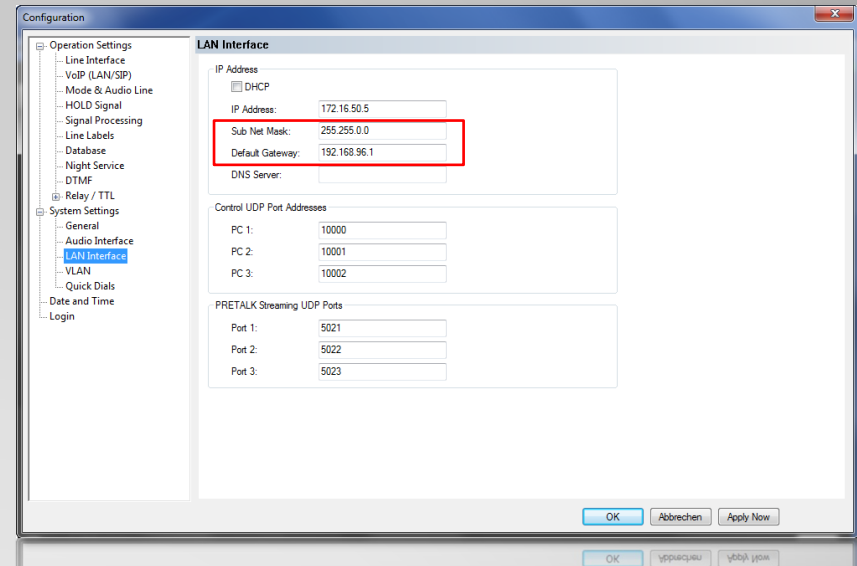
VoIP Mode – VoIP (LAN/SIP) (1)

- If your network offers Quality of Service (QoS), please enter the correct values under QUALITY OF SERVICE
 - The values entered by pressing the DEFAULT SETTINGS button are the ones which are usually used for VOICE and SIP packets
- To avoid Audio dropouts VoIP usually uses a payload (= packet size) of 20 ms
 - In the system the payload is set to 10 ms by default to minimise the basic delay
 - If you experience problems in the form of dropouts, you should increase the payload to 20 ms



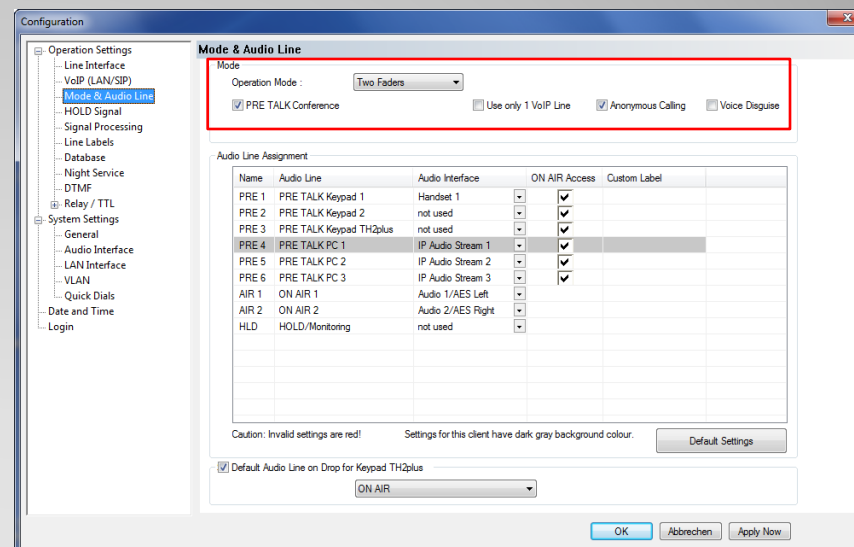
VoIP Mode – VoIP (LAN/SIP) (2)

- If you use an external VoIP Provider or a SIP Server which is not part of your network, you need to enter a DEFAULT GATEWAY under SYSTEM SETTINGS → LAN INTERFACE
- Please enter the IP address of your DNS Server if you use host names



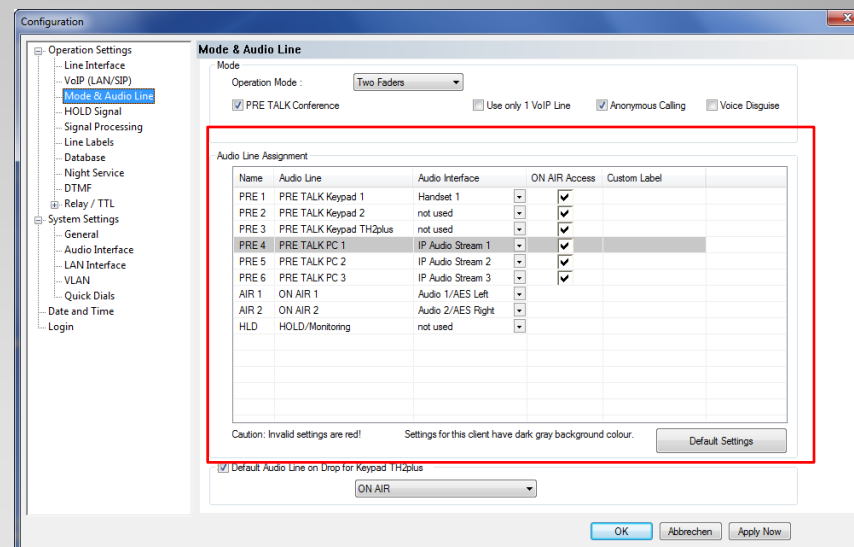
VoIP Mode – Standard Gateway and DNS Server

- In the menu OPERATION SETTINGS → MODE & AUDIO LINES you need to select the operating mode of the system
 - One Fader: one Audio output used for ON AIR
 - Two Faders: two Audio outputs used for ON AIR
 - Shared: fixed assignment of the Audio interfaces
 - Pretalk: Handset 1
 - ON AIR 1: Audio 1/AES Left
 - ON AIR 2: Audio 2/AES Right
- Decide if you want to allow caller conferences in Pretalk and On Air



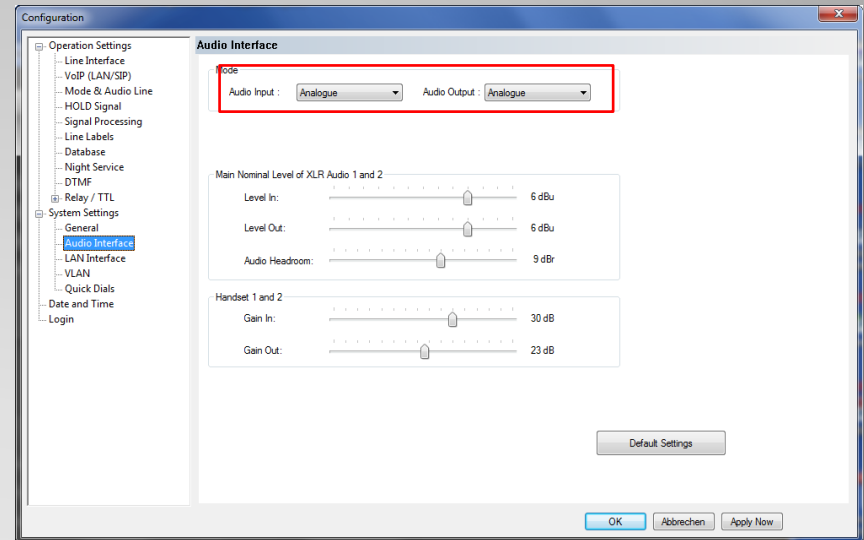
Configuration of the Operating Mode

- In the menu OPERATION SETTINGS → MODE & AUDIO LINES the physical Audio interfaces are assigned to the Audio lines (Pretalk, Hold, On Air)
- Assigning the Audio interfaces
 - All available AUDIO INTERFACES (e.g. Handset, analogue Audio) as well as the available, optional IP Audio Streams can be assigned to the Audio lines Pretalk, Hold und On Air (FUNCTION)
- Individual settings
 - For Pretalk Audio lines you ,must decide if they are allowed to put the caller to On Air (ON AIR ACCESS)
- You can assign customized labels for your Pretalk, Hold and On Air buttons (CUSTOM LABEL)



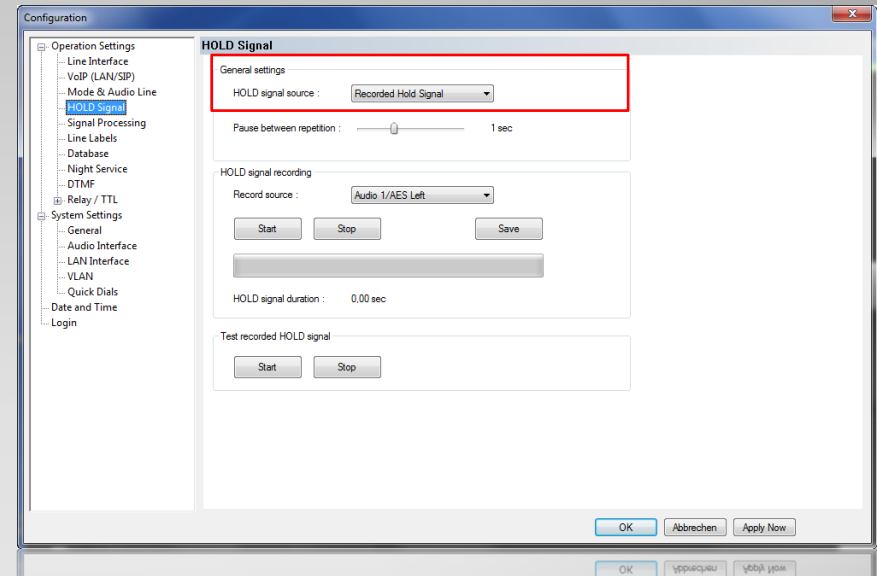
Configuration of the Audio lines

- If the digital Audio interface is used, only the clock source for the digital output needs to be configured
 - Recommendation: RECOVERED
- For the analogue Audio and the Handset interfaces the Audio levels and the headroom can be adjusted under SYSTEM SETTINGS → AUDIO INTERFACE



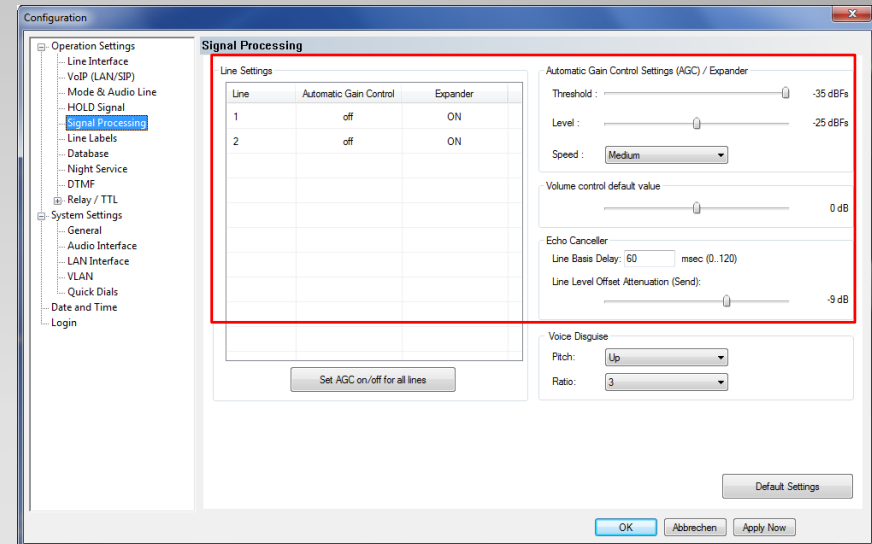
Audio Interface

- Under OPERATION SETTINGS → HOLD SIGNAL you can configure the HOLD Signal
 - ON AIR signal
 - Recorded HOLD signal
 - External HOLD signal via Audio interface (defined under MODE & AUDIO LINE)
- Recording of the signal
 - Select an Audio interface as RECORD SOURCE
 - START starts the recording and STOP ends it
 - With SAVE you can store the recorded signal
- Test the recorded HOLD signal with START
 - The same Audio interface is used as for the recording



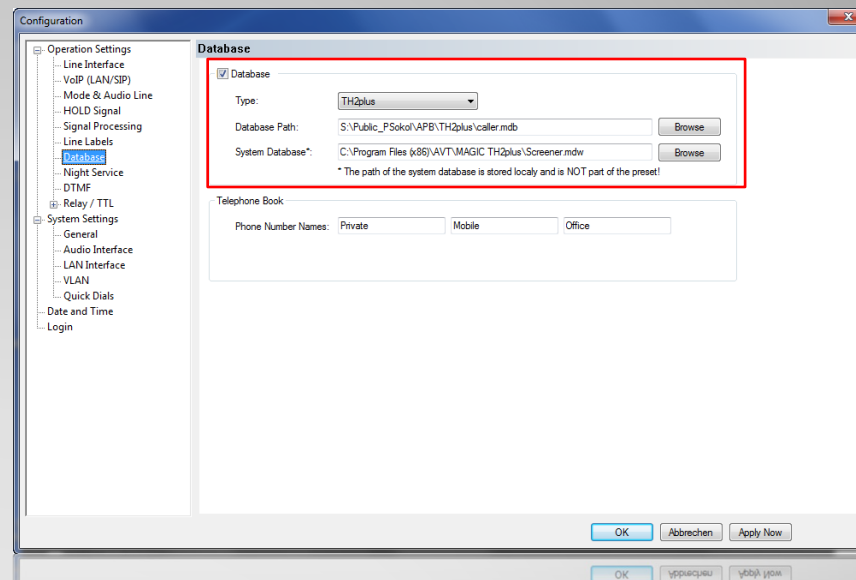
Configuration of the HOLD signal

- Under OPERATION SETTINGS → SIGNAL PROCESSING the following settings can be configured:
- EXPANDER on/off
 - We recommend to switch the Expander on to eliminate background noise
- AGC (Automatic Gain Control) on/off
 - We recommend to activate the AGC as default
 - In this case the user can activate/deactivate the AGC dynamically for each line by clicking on the level meter
 - Via THRESHOLD, LEVEL and SPEED you can adjust the behaviour of the AGC
- The controller VOLUME CONTROL defines the default position of the manual level control
- Remark: The echo cancelling is implemented via a hardware chip per channel and is always active. The Activation/deactivation and the sending of a test tone (as in the old system) is no longer necessary
- For very high delays (>120ms), which can occur especially with VoIP, an additional LINE BASIS DELAY can be configured



Signal Processing

- To activate the database function, go to OPERATION SETTINGS → DATABASE and select DATABASE
- Under TYPE select TH2plus
- Enter the DATABASE PATH manually or use the BROWSE button
 - When the MAGIC TH_{plus} software is installed you will find an empty database in the installation folder; you should store your database somewhere in the network so that your PC can access it
- The path of the SYSTEM DATABASE is usually entered automatically (installation directory)
 - If you do not have a write permission for the installation directory, you must change the path of the System Database to a directory for which you have write permission

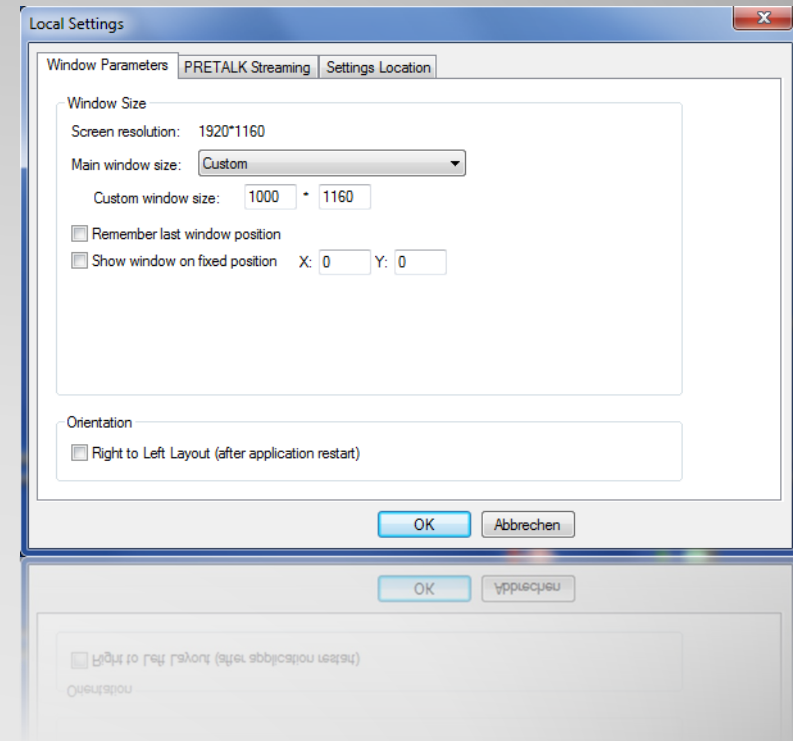


Database Connection

Advanced Settings

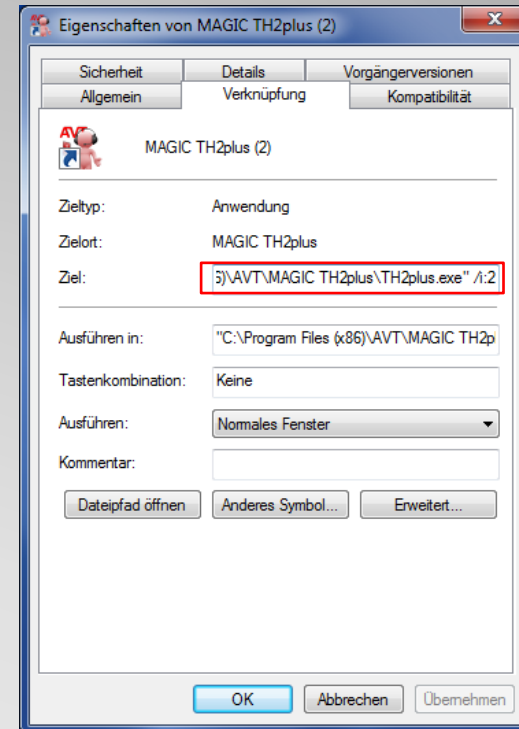
- Window Display
- Line Labels
- Auto Answer
- Night Service
- Voice Disguise
- DTMF Analyser
- Pretalk Streaming
- VLAN
- Presets

- In the local settings under MENU → CONFIGURATION → LOCAL SETTINGS → WINDOW PARAMETERS you can adjust the display of the user interface
- Under WINDOW SIZE you can select the resolution for the main window
 - You can choose between several options from the list under MAIN WINDOW SIZE
 - AUTO means that the window uses the full width and height of the screen
 - CUSTOM allows you to enter your own values; the minimum width is 900 pixels
 - Your current screen resolution is displayed above the list
- The window position of the application can be adjusted via the parameters REMEMBER LAST WINDOW POSITION and SHOW WINDOW ON FIXED POSITION

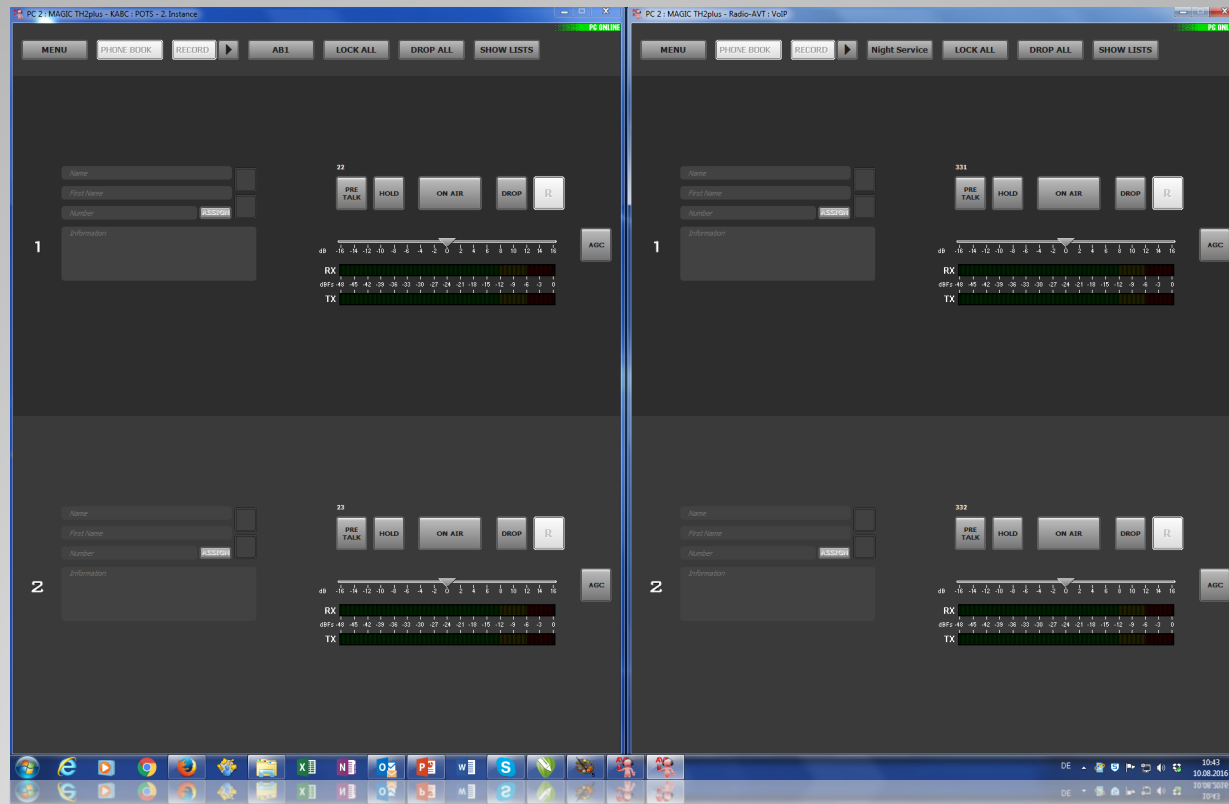


Window Display (1)

- If required, several instances of the MAGIC TH2plus Software can be opened on one PC, e.g. to control two MAGIC TH2plus from one user workplace (alternatively the fee-based INTERCOM Software can be used)
- Create an additional desktop link to the MAGIC TH2plus Software; click on the icon with the right mouse key to open the context menu and select PROPERTIES
- Now add a space character and /i:2 to the target path for the second instance (for a third instance use /i:3 etc.)

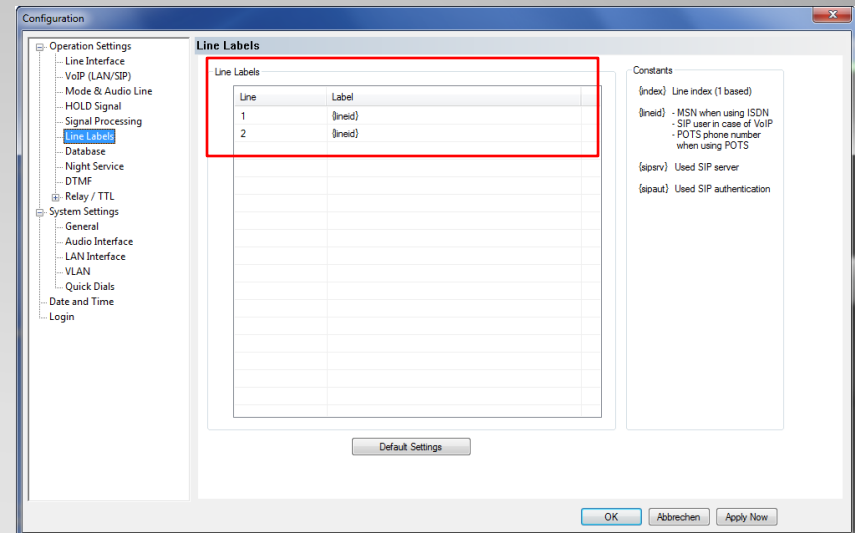


Window Display (2)



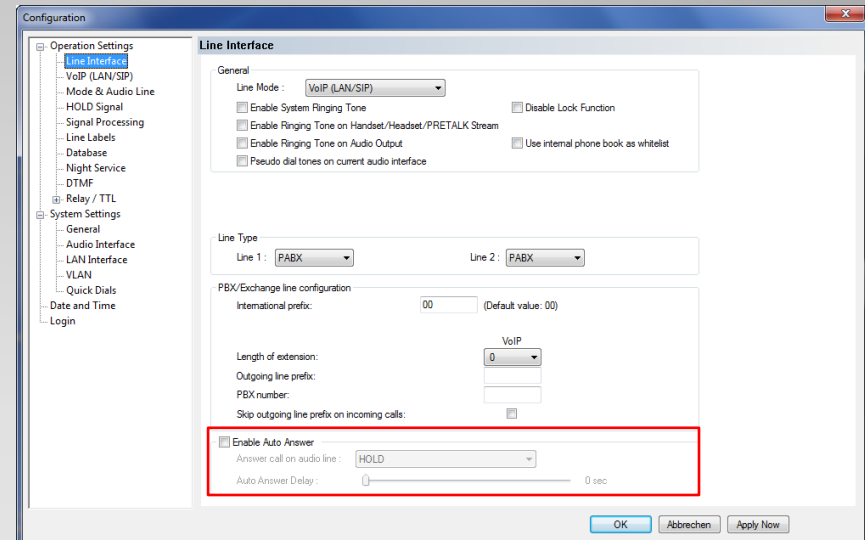
Window Display (3)

- Under OPERATION SETTINGS → LINE LABELS you will find several options for the labelling of the caller lines
 - {INDEX}: Line index (1,2)
 - {LINEID}: Depends on your operating mode
 - ISDN: MSN
 - POTS: POTS Phone Number entered in the “POTS Phone Number” submenu
 - VoIP: SIP Client
 - {SIPSRV}: SIP Server address
 - {SIPAUT}: SIP authentication
 - Enter your own name
- The line label can be defined for each caller line separately



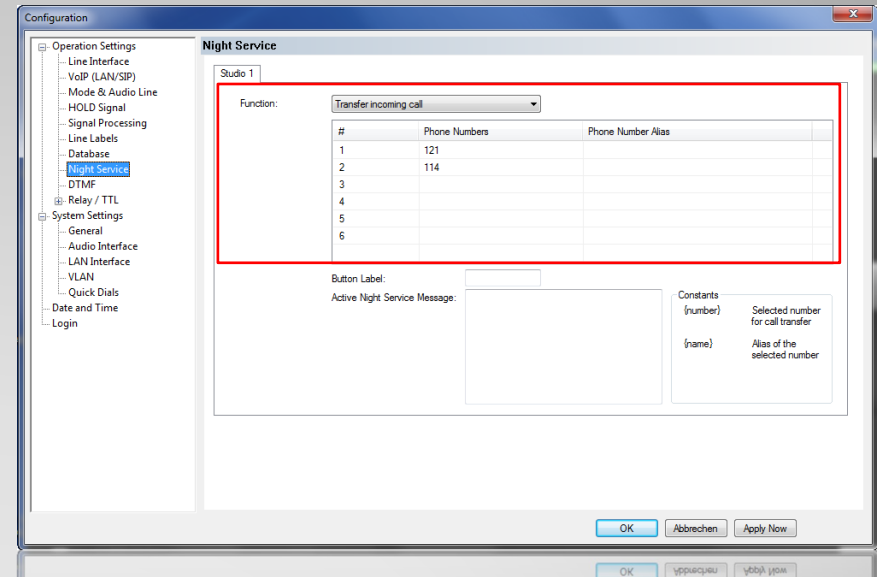
Line Labels

- The MAGIC TH2_{plus} system can accept incoming calls automatically; to enable the auto answer function, go to OPERATION SETTINGS → LINE INTERFACE



Auto Answer

- The Night Service function can be configured under OPERATION SETTINGS → NIGHT SERVICE
 - When the Night Service function is activated, incoming calls are transferred automatically to a pre-defined number
- Select TRANSFER INCOMING CALL under FUNCTION
- Define up to six numbers which are then available for call forwarding
- You can also create your own label for the button (BUTTON LABEL) via which the Night Service can be activated as well as a message that is displayed while the Night Service function is activated (ACTIVE NIGHT SERVICE MESSAGE)



Night Service (1)

PC 1 : MAGIC TH2plus : VoIP

MENU PHONE BOOK **Night Service** LOCK ALL DROP ALL

331

PRE HOLD 1 DROP R

1

Name
First Name
Number
Information

2

Name
First Name
Number
Information

AGC

AGC

dB -16 -14 -12 -10 -8 -6 -4 -2 0 2 4 6 8 10 12 14 16

RX
dBFS -48 -45 -42 -39 -36 -33 -30 -27 -24 -21 -18 -15 -12 -9 -6 -3 0

TX

SWITCH OFF

2

DROP R

AGC

dB -16 -14 -12 -10 -8 -6 -4 -2 0 2 4 6 8 10 12 14 16

1X
dBFS -48 -45 -42 -39 -36 -33 -30 -27 -24 -21 -18 -15 -12 -9 -6 -3 0

BFX

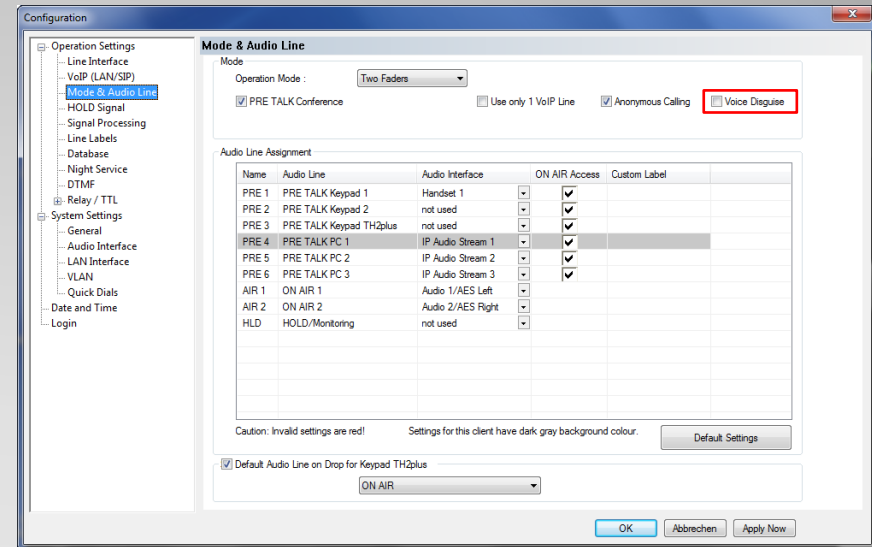
dB -16 -14 -12 -10 -8 -6 -4 -2 0 2 4 6 8 10 12 14 16

VOC

PC ONLINE

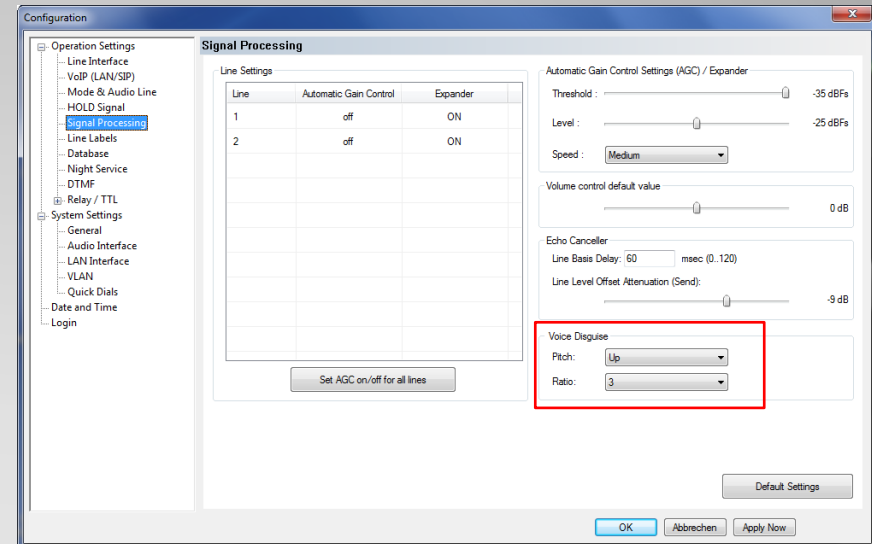
Night Service (2)

- Under OPERATION SETTINGS → MODE & AUDIO LINE you can activate the Voice Disguise function



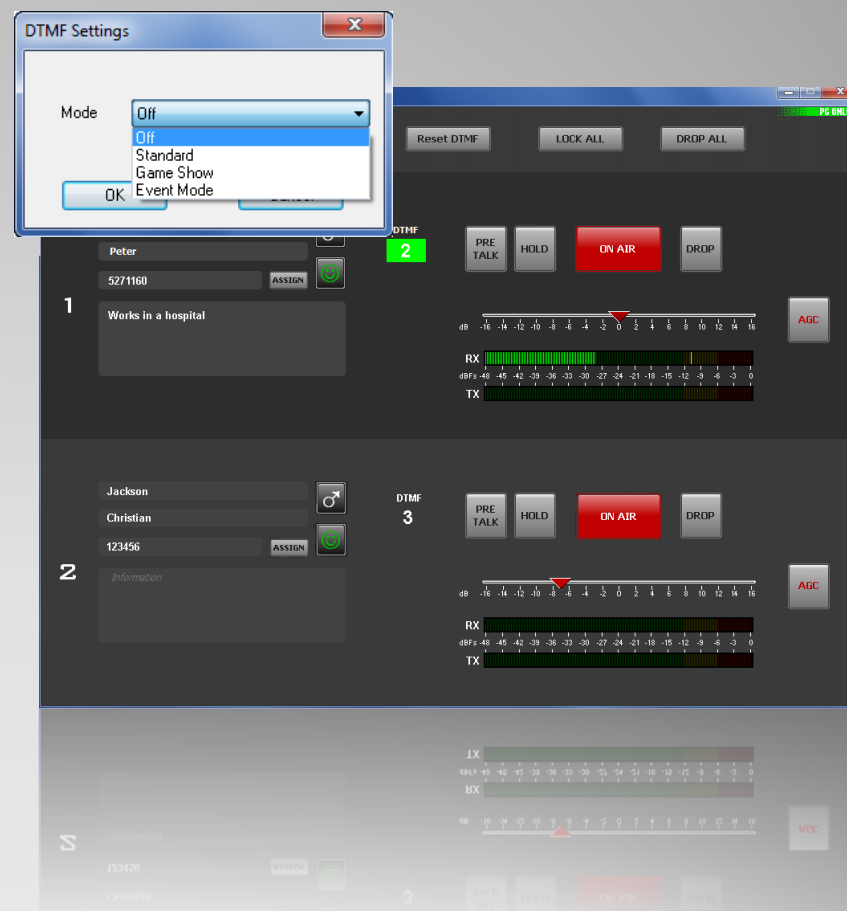
Voice Disguise (1)

- Under OPERATION SETTINGS → SIGNAL PROCESSING you can configure the Voice Disguise function
 - PITCH UP or PITCH DOWN
 - RATIO (1-4)



Voice Disguise (2)

- The DTMF Analyser offers three modes and can be activated under CONFIGURATION → DTMF SETTINGS
 - STANDARD: The pressed number is displayed for the corresponding caller line
 - GAME SHOW: It is additionally marked which DTMF tone was received first
 - EVENT MODE: The pre-defined DTMF Event label is also displayed



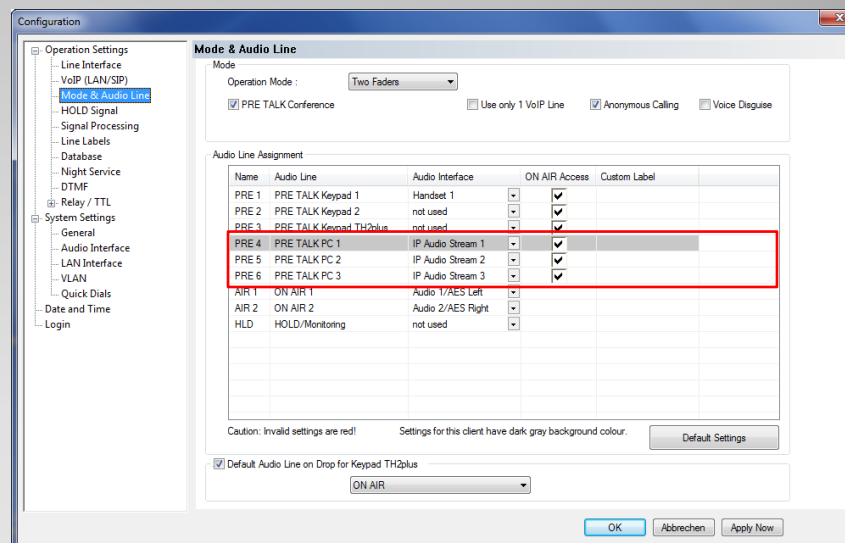
DTMF Analyser (1)

- To use the DTMF Event Mode, you need to configure the so-called DTMF labels under OPERATION SETTINGS → DTMF EVENT LABELS

The image shows two overlapping windows from a software application. The top window is titled 'Configuration' and has a tree view on the left with 'DTMF' selected under 'Operation Settings'. The main area of this window is titled 'DTMF' and contains a table for 'DTMF Event Labels' with 12 rows. The first four rows are filled with labels: 1: Goal, 2: Red Card, 3: Penalty, 4: Yellow Card. Below the table is a note: 'These labels are only relevant when using the DTMF Event mode.' The bottom window is titled 'DTMF Dialing' and shows a control interface for three DTMF events. Each event has a name, a number, and a set of buttons: 'PRE TALK', 'HOLD', 'ON AIR', and 'DROP'. Event 1 is labeled '1' and has a 'Goal' label highlighted with a red circle. Event 2 is labeled '2' and has a 'Red Card' label. Event 3 is labeled '3' and has a 'Red Card' label. Each event also has a frequency spectrum display with 'RX' and 'TX' labels and an 'AGC' button.

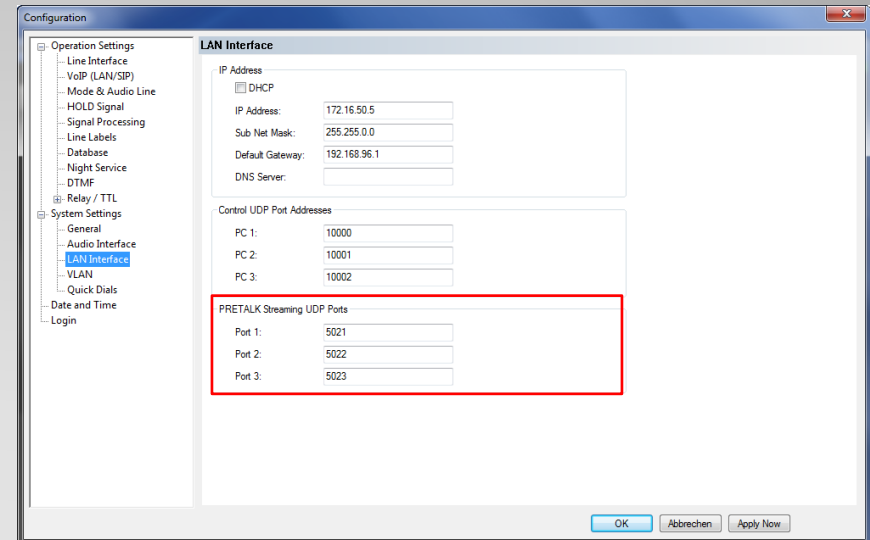
DTMF Analyser (2)

- If you want to use Pretalk Streaming, please select IP AUDIO STREAM 1...3 in the column AUDIO INTERFACE for the corresponding AUDIO LINE (e.g. PRE TALK PC 1) in the menu OPERATION SETTINGS → MODE & AUDIO LINE
 - The number of the available IP Audio Streams depends on how many licences you have purchased (max. 3)
- You can assign customized labels for your Pretalk buttons (CUSTOM LABEL)



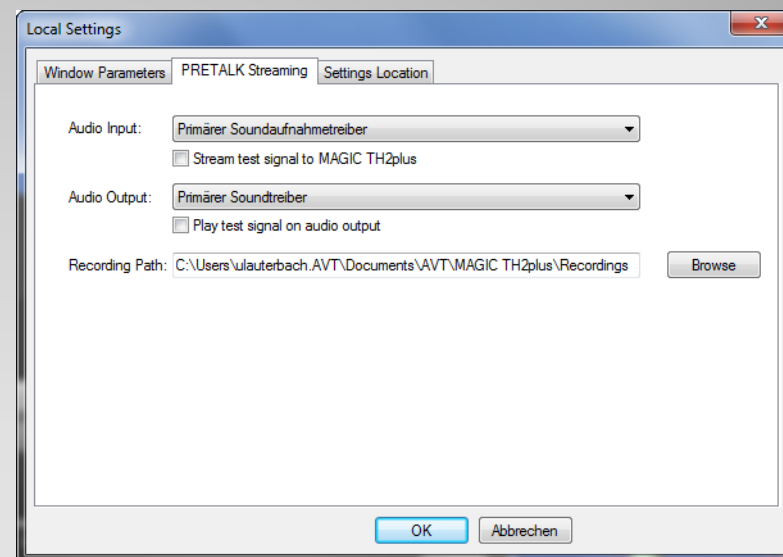
Pretalk Streaming (1)

- Under SYSTEM SETTINGS → LAN INTERFACE you can assign the PRETALK STREAMING UDP PORTS or you use the default values 5021 – 5023



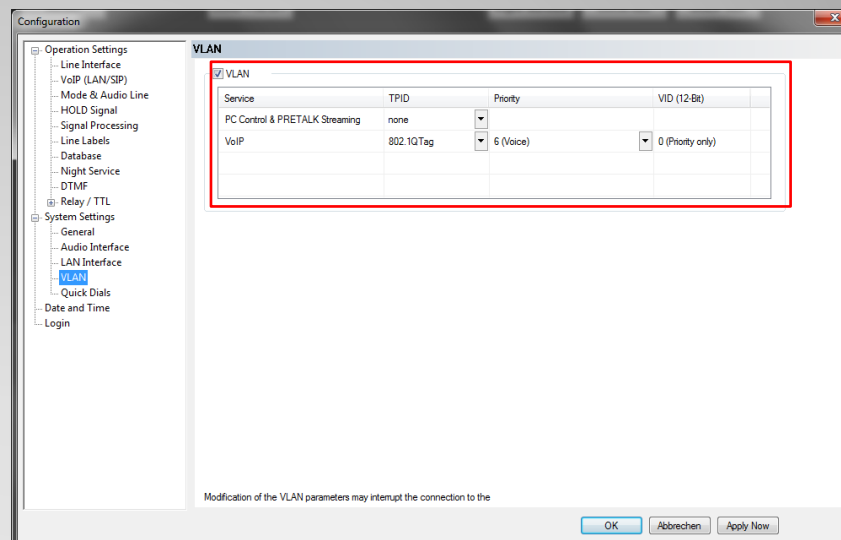
Pretalk Streaming (2)

- For each PC Client which uses Pretalk Streaming, you need to adjust the local settings. Under MENU → CONFIGURATION → LOCAL SETTINGS → PRETALK STREAMING you must select which Audio input and which Audio output you want to use.
- Testing the Pretalk Streaming functionality:
 - To test if the Audio input is selected correctly, you can stream a test signal to the MAGIC TH6.
 - To test if the Audio output is selected correctly, you can play a test signal on the Audio output.
- Each Client that uses Pretalk Streaming can record the caller signal during the conversation (in Pretalk). Please enter the Recording Path for each Client/PC.
 - The recorded files will be saved as .wav files.



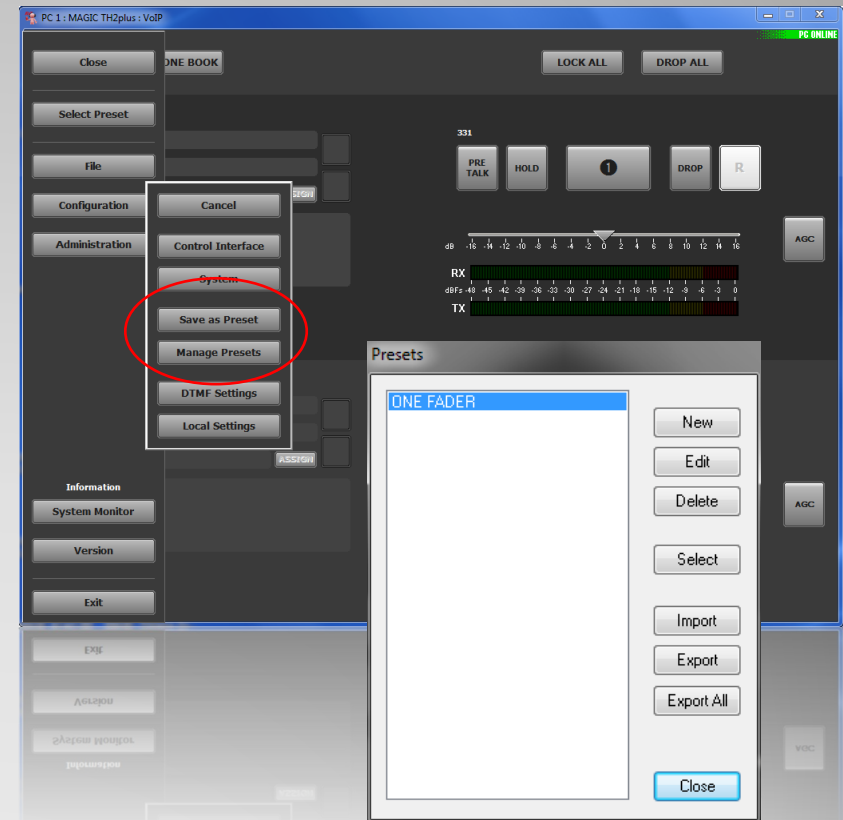
Pretalk Streaming (3)

- We recommend to separate the VoIP network from the Office network for VoIP applications in general
- The configuration is done under SYSTEM SETTINGS → VLAN
- Before you activate VLAN, please make sure that your administrator has configured the Switch Port correspondingly
 - Activate the 802.1Q Tagging for both services
 - Please select the desired priority (Standard for VoIP = 6 Voice)
 - Under VID you need to enter the VLAN ID which has been allocated to you



VLAN - Virtual LAN

- You can save all OPERATION SETTINGS in a Preset
 - LINE INETRFACE
 - MODE & AUDIO LINE
 - HOLD SIGNAL
 - SIGNAL PROCESSING
 - LINE LABELS
 - DATABASE
 - NIGHT SERVICE
 - DTMF EVENT LABELS
 - RELAY/TTL
- To get to the Preset menu, go to CONFIGURATION → PRESETS
 - Create new Presets
 - Edit Presets
 - Delete Presets
 - Select a Preset
 - Import/Export Presets
- You can also select a Preset directly via the main window of the PC software with the button LOAD PRESET

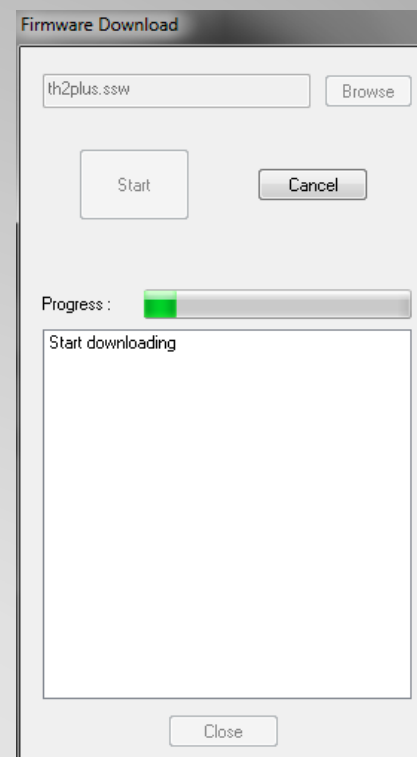


Presets

Maintenance

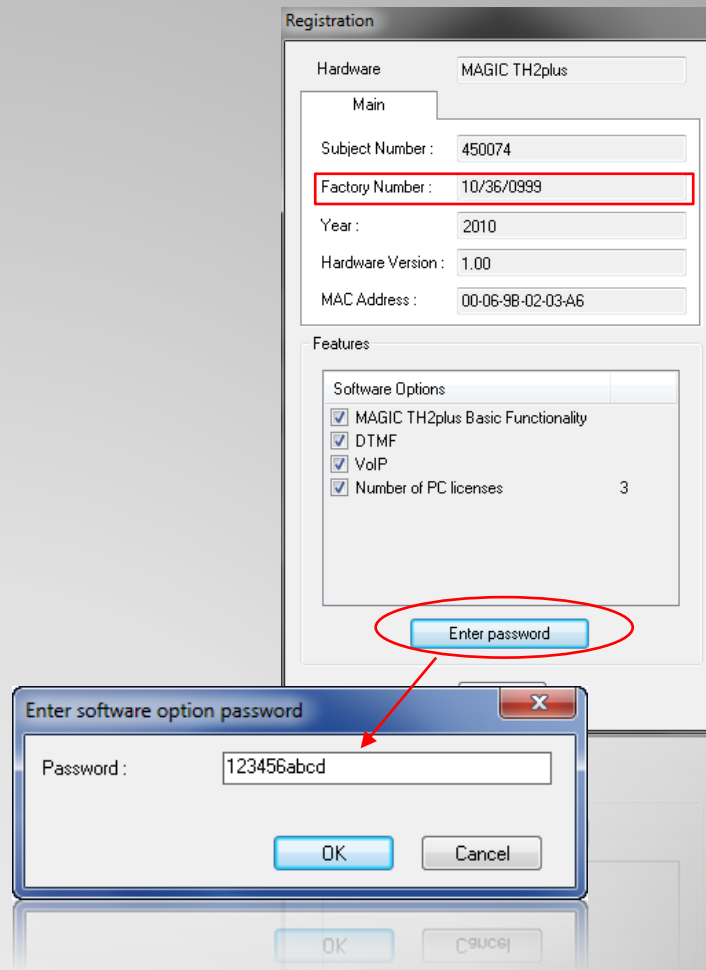
Firmware Update
Activate Software Option
System Monitor

- New software can be downloaded from www.avt-nbg.de under Downloads/Software
- A new software release usually consists of PC software and Firmware
- PC Software and Firmware are installed by executing the SETUP program
- The Firmware file TH2plus.SSW needs to be loaded on the MAGIC TH2_{plus} via the menu ADMINISTRATION → FIRMWARE DOWNLOAD
- The Firmware only works correctly with the corresponding PC Software
- The software versions can be displayed under VERSION



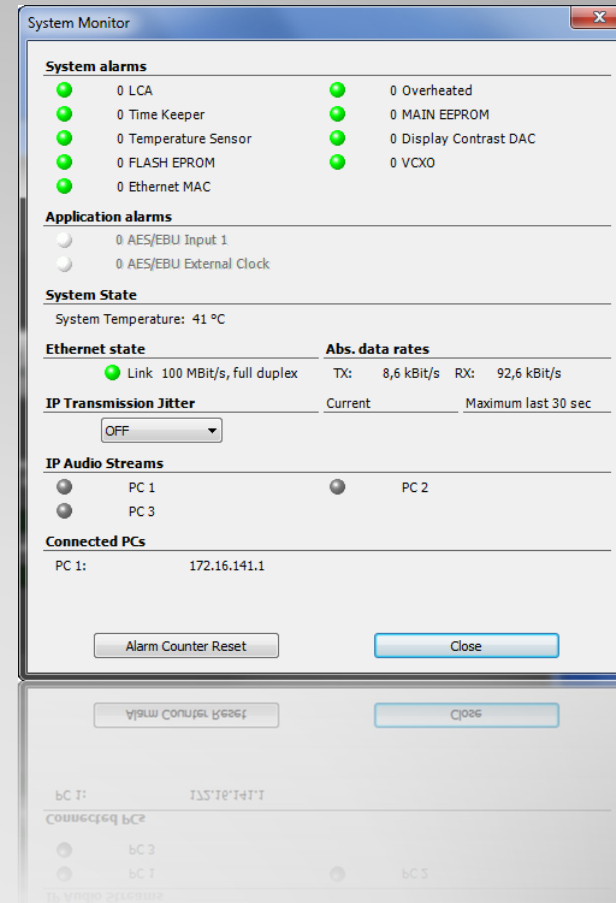
Firmware Update

- If you open the menu ADMINISTRATION → REGISTRATION you will find the serial number of the system
- You need this number if you want to purchase additional software options later on
- You will receive a licence with password which you need to enter under ENTER PASSWORD to enable the software option



Activate Software Option

- The System Monitor shows you various possible system and application alarms
 - To open the system Monitor, double-click on the PC Online symbol in the upper right corner of the PC Software or go to the menu EXTRAS → SYSTEM MONITOR
 - GREEN = No alarm
 - YELLOW = Past alarm
 - RED = Current alarm



System Monitor