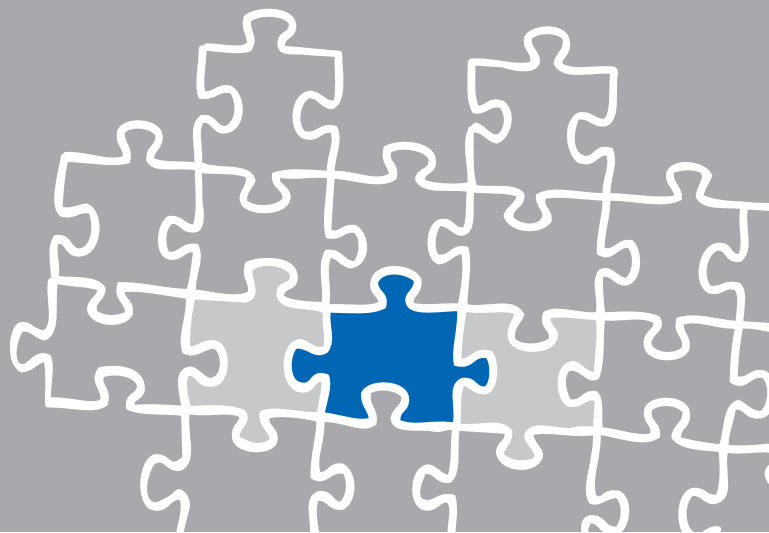


TechNote

Auerswald COMmander 6000

August 21, 2013





Introduction

This document is intended to support you with the integration of the XCAPI, Version 3.4.0, into an existing Auerswald COMmander 6000 environment. Though being based on version **5.8A** of the Auerswald COMmander 6000 it should be applicable to higher or lower versions or Auerswald PBX's using the same SIP stack, given a few adjustments.

In the following sections we describe some basic configuration to allow for optimal cooperation of both the XCAPI and the phone system. At this point we suppose that the PBX, the XCAPI, the PSTN gateway, the necessary applications and the hardware resources are already installed properly.

For additional information about Auerswald COMmander 6000 configuration procedures, please refer to the respective manuals.

For XCAPI basics, the documents **XCAPI Product Information.pdf** and **XCAPI TechNote (en) - Quick Start Guide** has to be reviewed. Additional XCAPI information and documents, e.g. regarding installation procedures, License on Demand, Fax Transmission or VMware Virtual Machines, are available at [XCAPI Website](#) within our community download section in the XCAPI TechNotes area.

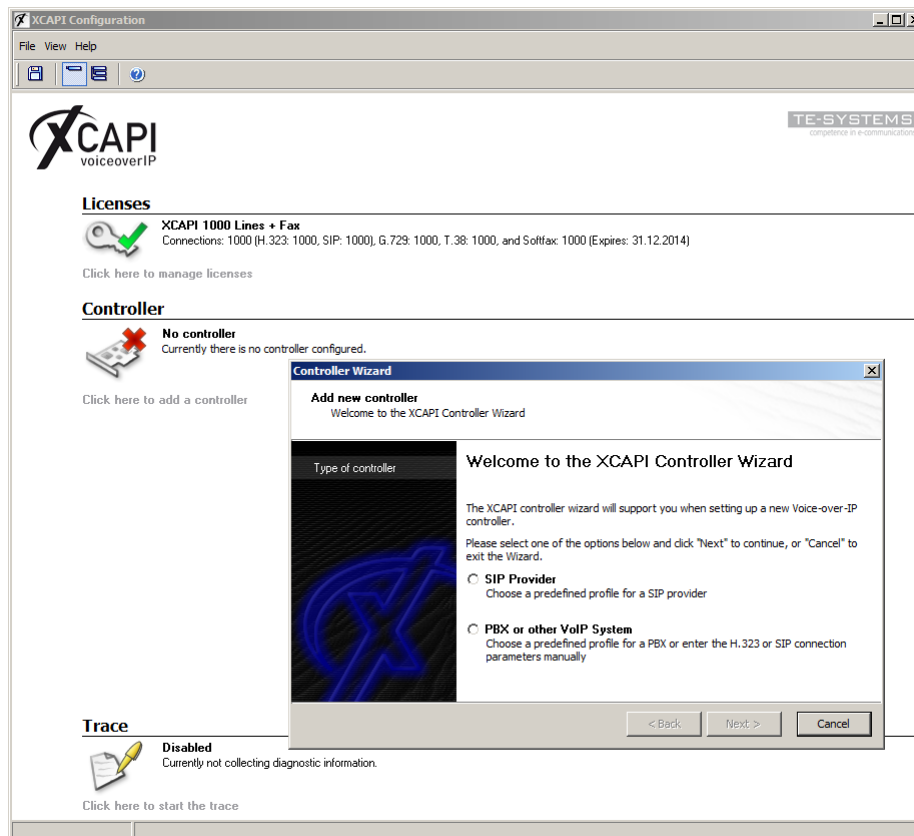




XCAPI Configuration

Please start up the XCAPI configuration to create a new SIP controller.

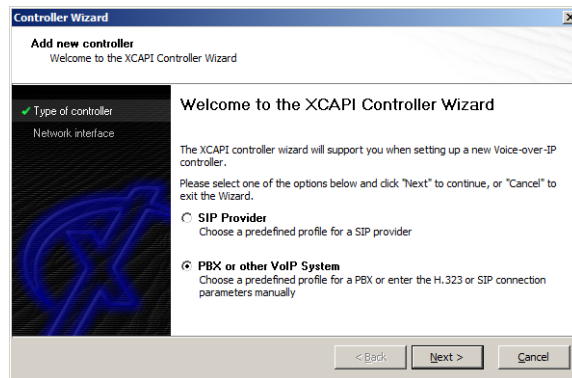
If you've just installed the XCAPI and start it for the first time, the **XCAPI Controller Wizard** will pop-up automatically. This will also happen if there's no controller configured at all. To start up the **XCAPI Controller Wizard** on your own, just click the hyperlink labeled **Click here to add a controller** on the main page of the XCAPI.





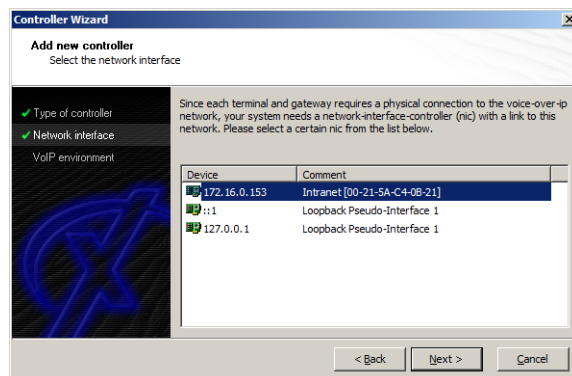
2.1 Type of Controller

On the first page of the controller wizard please select the **PBX or other VoIP System** and continue with the **Next** button.



2.2 Network Interface

On this page of the XCAPI controller wizard a network interface controller (nic) can be selected.

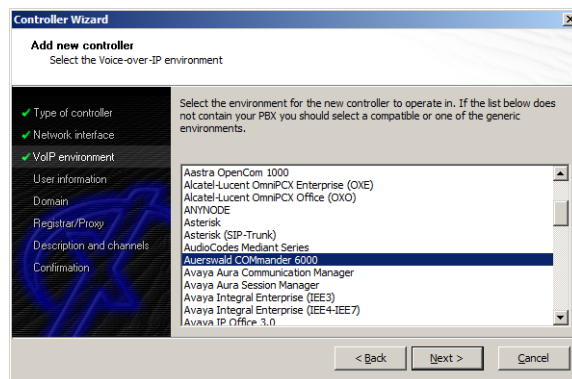




2.3 Voice-over-IP Environment

The next dialog of the configuration tool shows a list of some common Voice-over-IP environments. Selecting one of those will configure the XCAPI with a selection of near-optimal presets for the kind of environment you have, sparing you quite a lot of manual configuration.

Please note that the Auerswald COMmander 6000 entry will be selectable from XCAPI version 3.4.3.





2.4 SIP User Information

Next, please provide the SIP user information for the subscriber you are about to create in the following Auerswald COMmander 6000 configuration.

The screenshot shows the 'Controller Wizard' dialog box with the title 'Add new controller' and subtitle 'Provide SIP user information'. On the left, a list of steps is shown: 'Type of controller', 'Network interface', 'VoIP environment', 'User information', 'Domain', 'Registrar/Proxy', 'Description and channels', and 'Confirmation'. The 'User information' step is currently selected. The main area contains the following text: 'The remote device requires an user to authenticate herself. Thus please provide the appropriate user information. If you enter wrong information it probably won't be possible to communicate with the remote device.' Below this text are four input fields: 'Username (SIP-ID)' with the value '70', 'Password (SIP-PASSWORD)' with masked characters '*****', 'Displayname', and 'Organization'. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'.

2.5 SIP Domain

In this configuration dialog you have to declare the appropriate IP address or host name of the Auerswald COMmander 6000 system.

The screenshot shows the 'Controller Wizard' dialog box with the title 'Add new controller' and subtitle 'Provide the default and local SIP domain'. On the left, the same list of steps is shown, but 'Domain' is now selected. The main area contains the following text: 'Please enter the default SIP domain which is sometimes referred to as SIP realm. This field will be concatenated to any SIP address (i.e. phone-number) with missing domain-part to form a valid address (i.e. "1234" becomes "1234@example.com").' Below this text are two input fields: 'Default SIP domain' with the value '172.18.0.120' and 'Local SIP domain'. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'.



2.6 SIP Registrar and Proxy Information

Next, you have to enter the SIP registrar which is the IP address or host name of the Auerswald COMmander 6000 as well.

Controller Wizard
Add new controller
Provide information about the SIP registrar and proxy

If you want to use a SIP registrar and/or a SIP proxy please activate the respective checkbox and enter the hostname or IP address.

Registrar 172.18.0.120 Default

Proxy Default

< Back Next > Cancel

2.7 Description and Channels

The next-to-final dialog of the Controller Wizard allows you to configure a meaningful controller description. This dialog, however, also allows configuring the number of channels that the new controller will be able to provide.

Controller Wizard
Add new controller
Provide a description and select the number of channels

Please enter a meaningful description for the new controller and decide how many channels should be available for applications. Please consider that the effective number of available channels depend on the installed license.

Description Auerswald Commander 6000

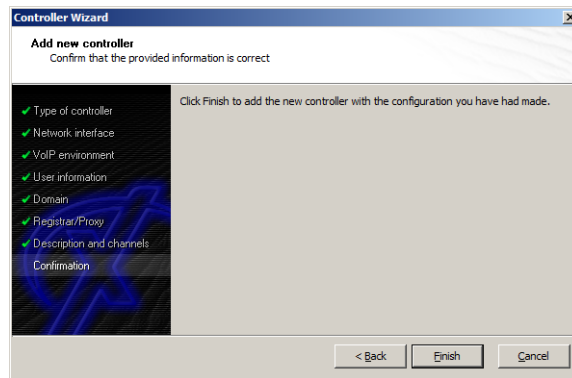
Channels 10

< Back Next > Cancel

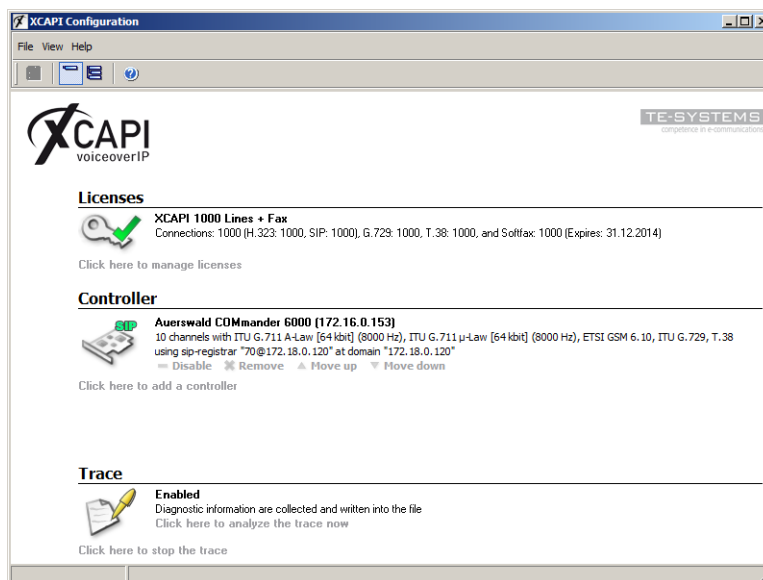


2.8 Confirmation

The final dialog of the Controller Wizard performs some checks on the configuration parameters you've made. If any errors are detected here, you can go back to the respective dialogs and correct the necessary input. If everything is correct please use the **Finish** button in order to finally create the new controller.



As we're now finished, please save the created controller and exit the configuration.



You always need to restart the bound CAPI application, in meaning of its services, for the changes to take effect.



Auerswald COMmancer 6000 Configuration

For SIP interworking the XCAPI must be configured as standard VoIP telephone in meaning of a subscriber.

3.1 Subscriber

According to this examples XCAPI controller configuration, the extension number **70** is used with its appropriate configurations. The configuration details have to be adjusted upon the local requirements. Some of the features might have to be restricted or couldn't be applicable at all. The following sub-chapters show the subscriber properties used for this example.

COMmancer 6000 Subscriber (scr.) - Telephone numbers



Version 5.8A - Build 000

Navigation | Admin logout | Overviews | Monitoring | Log files | Search search...

Telephone number	Name	PIN	Password	Sub-admin	Module	Port	Device type	Property
Filter: 70			Display passwords and PINs		unfiltered			
70	XCAPI	*****	*****	<input type="checkbox"/>	VoIP		Standard VoIP telepho	Configure

Navigation tree: Hardware, Public switched tel. networks, Subscriber (scr.), Telephone numbers, Profiles, COMfortel DECT, Function overview, Properties, Groups, Devices, Time control, Routing, Settings, Functions, User data, Administration.

3.1.1 Exchange line settings

The Exchange line settings are here used as shown on the screenshot below.

SUBSCRIBER | 70 - XCAPI

Exchange line settings | User settings | Authorizations | VoIP settings

Function	Property	Controlled by profil in configuration
Exchange line authorization	business: International (Expert)	not be controlled by a profile
	private: International (Expert)	not be controlled by a profile
Call restrictor	(outgoing) - business: <input type="checkbox"/> None	not be controlled by a profile
	(outgoing) - private: <input type="checkbox"/> None	not be controlled by a profile
Call deblocker	(outgoing) - business: <input type="checkbox"/> None	not be controlled by a profile
	(outgoing) - private: <input type="checkbox"/> None	not be controlled by a profile
Telephone book authorization	business: <input checked="" type="checkbox"/>	not be controlled by a profile
	private: <input checked="" type="checkbox"/>	not be controlled by a profile
Preferred exchange line	business: No preferred exchange line (Expert)	not be controlled by a profile
	private: No preferred exchange line (Expert)	not be controlled by a profile
Number presentation	(outgoing) - business: Standard (Expert)	not be controlled by a profile
	(outgoing) - private: Standard (Expert)	not be controlled by a profile
	(incoming): Standard (Expert)	not be controlled by a profile



3.1.2 User settings

The **User settings** are used as shown next.

SUBSCRIBER 70 - XCAPI

Function	Property	Controlled by profil in configuration
Call Waiting ? ?	<input checked="" type="checkbox"/>	(not profile-controlled)
Do-not-Disturb ? ?	<input type="checkbox"/>	(not profile-controlled)
Call deblocker incoming ? ?	<input type="checkbox"/> None	not be controlled by a profile
Call restrictor incoming ? ?	<input type="checkbox"/> None	not be controlled by a profile
Baby call (connection without dialling) ? ?	<input type="checkbox"/> Destination number: <input type="text"/>	not be controlled by a profile
Multi-path Call Forwarding ? ?	<input type="checkbox"/> Destination number: <input type="text"/>	not be controlled by a profile
Billing factor ? *	1.00 (0,1-9,99)	(not profile-controlled)
Follow me (internal/external) ? ?	Destination number: <input type="text"/>	(not profile-controlled)
Private exchange line access without PIN ? ?	<input checked="" type="checkbox"/>	(not profile-controlled)
RSS feed ?	Number of provided RSS feeds ? 0	(not profile-controlled)
	Selection of the boxes Box 1 --- Box 2 --- Box 3 --- Box 4 ---	(not profile-controlled)
	Subscribe to RSS feed ?	(not profile-controlled)
Call Forwarding Settings	<input type="checkbox"/> only external calls ? <input type="checkbox"/> Cascading ? <input type="checkbox"/> CF on group call ?	not be controlled by a profile
	CF immediately ? <input type="checkbox"/> Destination number: <input type="text"/>	not be controlled by a profile
	CF on busy <input type="checkbox"/> Destination number: <input type="text"/>	not be controlled by a profile
	CF on no reply <input type="checkbox"/> Destination number: <input type="text"/>	not be controlled by a profile
Signalization by tones		
Internal dial tone ? ?	3 x short	(not profile-controlled)
Busy tone at end of call ? ?	<input checked="" type="checkbox"/>	(not profile-controlled)
Special dial tone for CF, Do-not-Disturb, baby call/hotline ? ?	<input type="checkbox"/>	(not profile-controlled)
Special dial tone for filled call data memory ? ?	<input type="checkbox"/>	(not profile-controlled)
Special functions		
Direct Exchange Line Telephone ? ?	<input type="checkbox"/>	(not profile-controlled)
Call take-over ? ?	Global	(not profile-controlled)
InterCom permission (announcement / hands-free)* ? ?	<input type="checkbox"/>	(not profile-controlled)



3.1.3 Authorizations

Set the **Authorizations** configurations up on the local requirements.

SUBSCRIBER 70 - XC-API

Function	Property	Controlled by profil in configuration
Pick up ? ?	Global	(not profile-controlled)
Configuration switching ? ?	<input checked="" type="checkbox"/>	(not profile-controlled)
Speaker announcement ? ?	No	(not profile-controlled)
Switching of relay ? ?	<input checked="" type="checkbox"/>	not be controlled by a profile
Controlling of the PBX via telephone ? ?	<input type="checkbox"/>	not be controlled by a profile
Open door ? ?	No	not be controlled by a profile
Features to be configured by the network provider (CF, key pad) ? ?	<input checked="" type="checkbox"/>	not be controlled by a profile
Configuring CF (sub) to ext. number ? ?	<input checked="" type="checkbox"/>	not be controlled by a profile
Transfer of external calls to external ? ?	<input checked="" type="checkbox"/>	not be controlled by a profile
Delete list of single call records ? ?	<input checked="" type="checkbox"/>	(not profile-controlled)
CF (groups) / Follow me ? ?	<input checked="" type="checkbox"/>	not be controlled by a profile
Call Parking ? ?	<input checked="" type="checkbox"/>	(not profile-controlled)

3.1.4 VoIP settings

The **VoIP settings** are used with their defaults. If required, the jitter buffer value can be raised for compensation. Enabling QoS (Quality of Services) could additionally improve the VoIP quality.

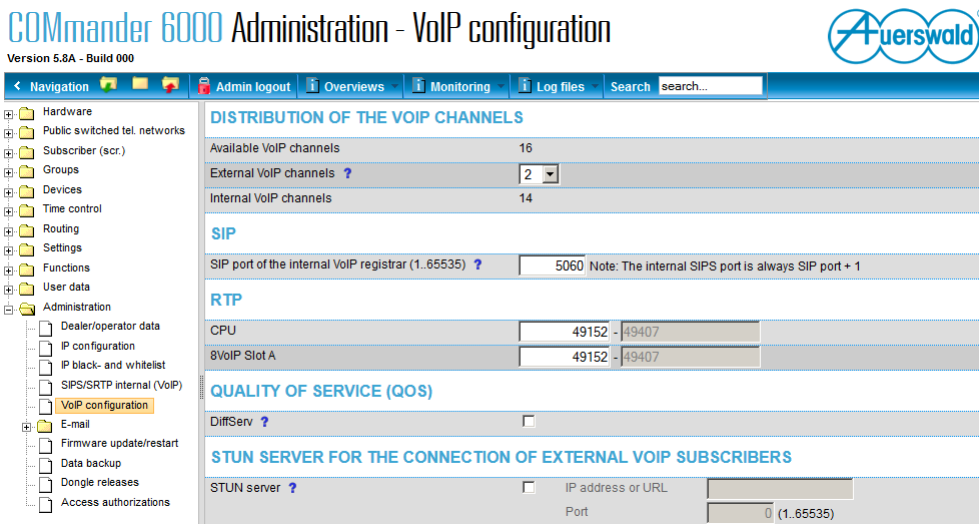
SUBSCRIBER 70 - XC-API

Function	Property	Controlled by profil in configuration
Jitter buffer (40..160) ? *	50 ms	(not profile-controlled)
Echo Cancellation ?	<input checked="" type="checkbox"/>	(not profile-controlled)



3.2 VoIP Configuration

Some global VoIP setting can be reviewed within the administrations **VoIP configuration** tab. If there are differences to the defaults, such as the SIP port for internal registrations, those have to conforming to the ones of the XC-API controller configuration.



COMmander 6000 Administration - VoIP configuration
Version 5.8A - Build 000

Navigation | Admin logout | Overviews | Monitoring | Log files | Search search...

- Hardware
 - Public switched tel. networks
 - Subscriber (scr.)
 - Groups
 - Devices
 - Time control
 - Routing
 - Settings
 - Functions
 - User data
 - Administration
 - Dealer/operator data
 - IP configuration
 - IP black- and whitelist
 - SIPS/SRTP internal (VoIP)
 - VoIP configuration**
 - E-mail
 - Firmware update/restart
 - Data backup
 - Dongle releases
 - Access authorizations

DISTRIBUTION OF THE VOIP CHANNELS

Available VoIP channels	16
External VoIP channels ?	2
Internal VoIP channels	14

SIP

SIP port of the internal VoIP registrar (1..65535) ? 5060 Note: The internal SIPS port is always SIP port + 1

RTP

CPU	49152	-	49407
8VoIP Slot A	49152	-	49407

QUALITY OF SERVICE (QOS)

DiffServ ?

STUN SERVER FOR THE CONNECTION OF EXTERNAL VOIP SUBSCRIBERS

STUN server ? IP address or URL
Port (1..65535)



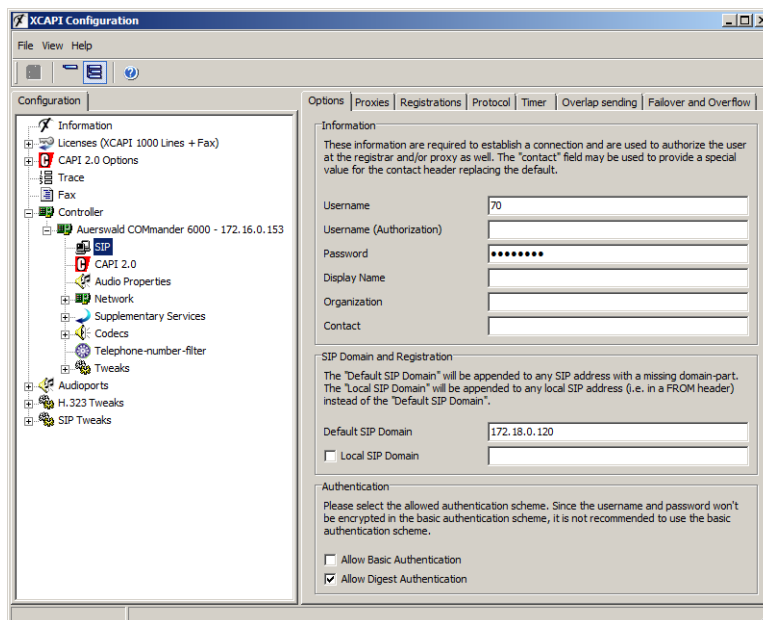
Configuration Notes

In these chapters you'll find some configuration hints and settings for supplementary services and configurations such as Softfax via G.711 codec or call transfer via SIP refer. Such services are enabled by default to the XCAPI controller configuration, at least if using the XCAPI controller wizard. Nevertheless those configurations should be reviewed just as the according gateway parameters for appropriate interworking.

4.1 SIP Options

172.18.0.120 is the domain that is used for this user group. In this example the VoIP gateway is listening at IP address **172.18.0.120**. This domain is set according the XCAPI controller wizard configuration.

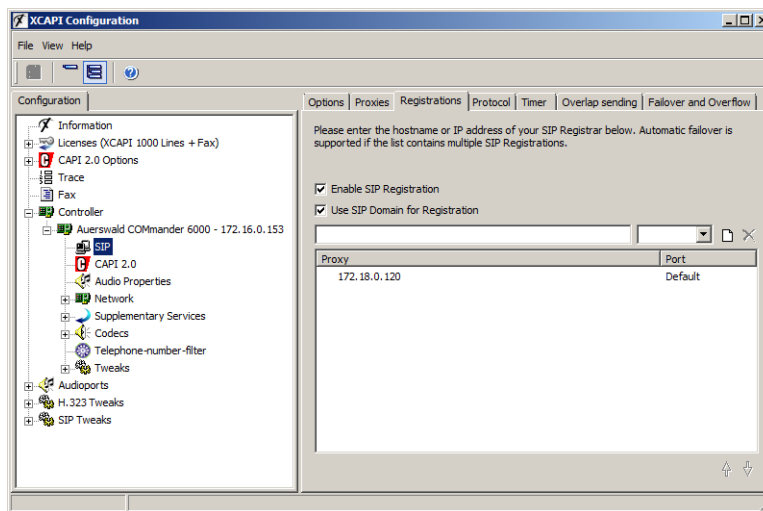
Allow Digest Authentication, which is required for the registration process, is enabled by default.





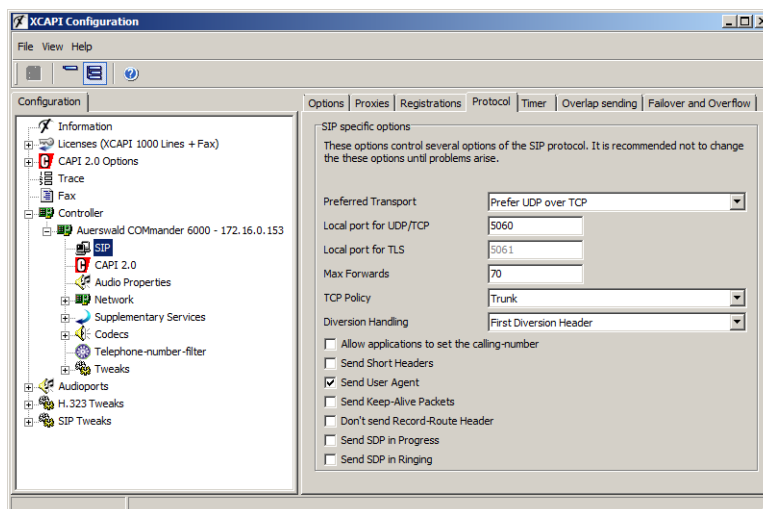
4.2 SIP Registrations

For initiating SIP register request **Enable SIP Registration** is set (default). The Auerswald COMmander 6000 SIP domain **172.18.0.120** is also specified for the SIP registration. Again the **Default** port value reflects **5060**.



4.3 SIP Protocol

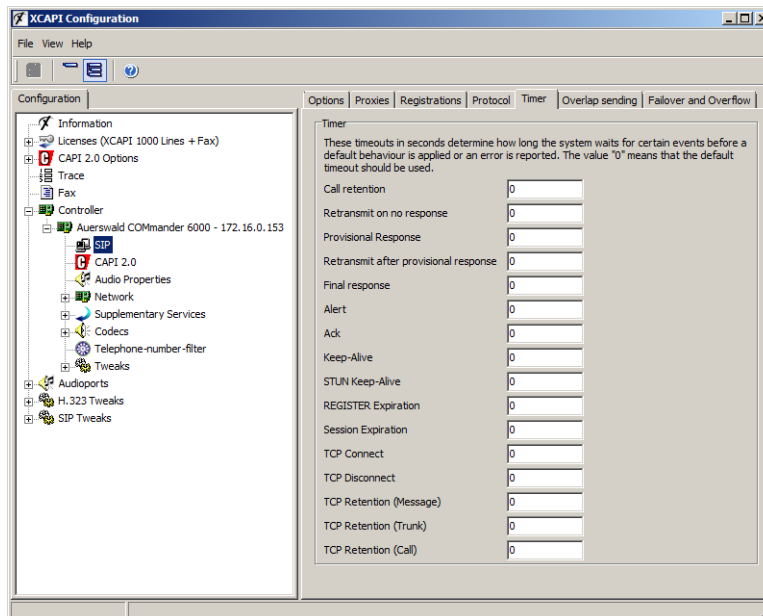
The protocol settings should be used with their provided default configurations. If required, adjust the local listening port.





4.4 SIP Timer

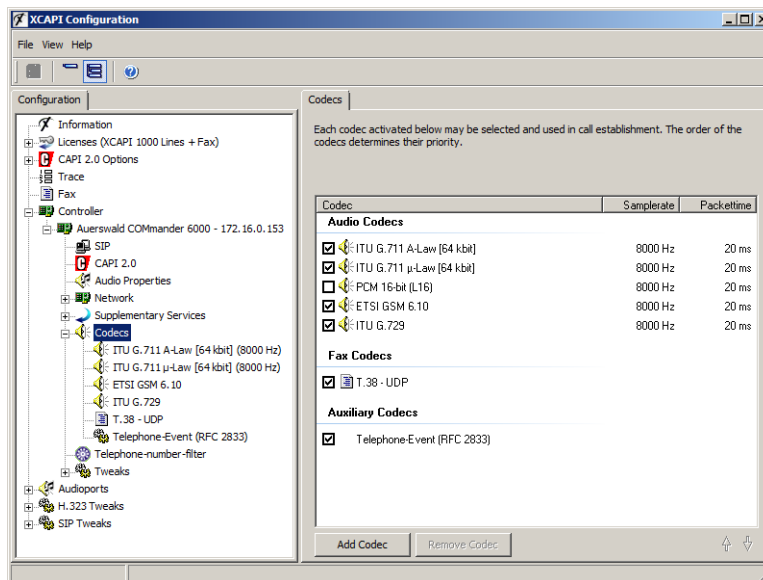
Please note that value 0 reflects specific timing values in seconds. Commonly those values doesn't need any adjustments and should only be changed upon request. Information about the timers can be reviewed in the document [XCAPI TechNote \(en\) - Default Timer Settings.pdf](#) that is available within our community download section. Nevertheless the default **Register** and **Session Expiration** values are **1200s** and **300s**.





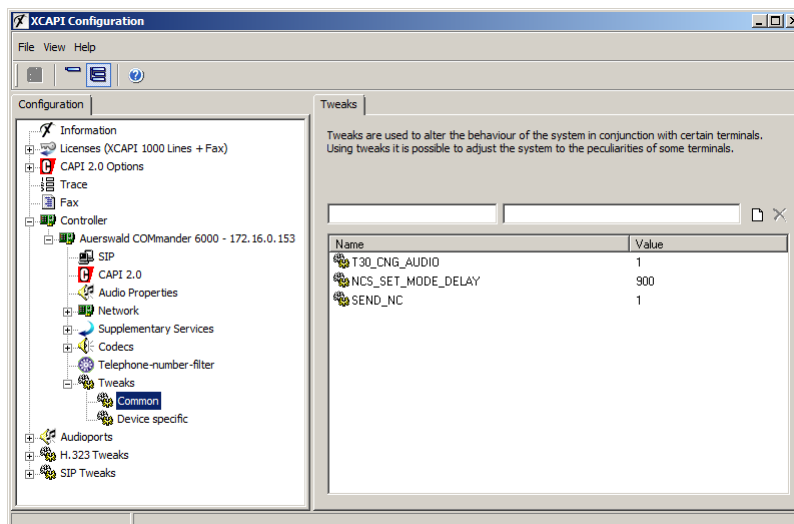
4.5 Codecs

By default the XCAPI controller provides various codecs. Any changes should only be made upon request. At a minimum the G.711 codecs and RFC2833 (used with payload-type 101) are required. Please review the chapter **Facsimile** starting on [page 17](#) for additional codec information and configurations.



4.6 Controller Tweaks

The default controller tweaks are set as shown on the screenshot below. Please contact the TE-SYSTEMS support team (support@te-systems.de) before changing any values.





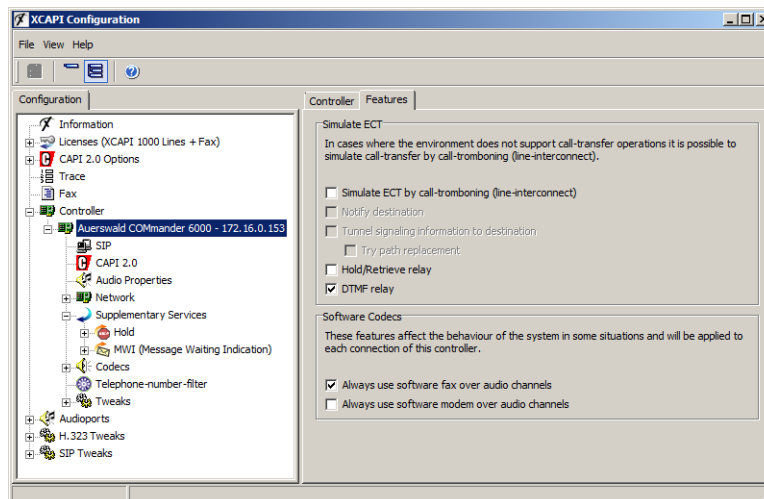
4.7 Facsimile

Facsimile via Softfax (G.711 codec) will be negotiated through SDP (Session Description Protocol).

4.7.1 Softfax

With the Softfax mode, the XCAPI simulates an analog facsimile device by transmitting modulated Fax-signals modem-like through the established G.711 audio channels.

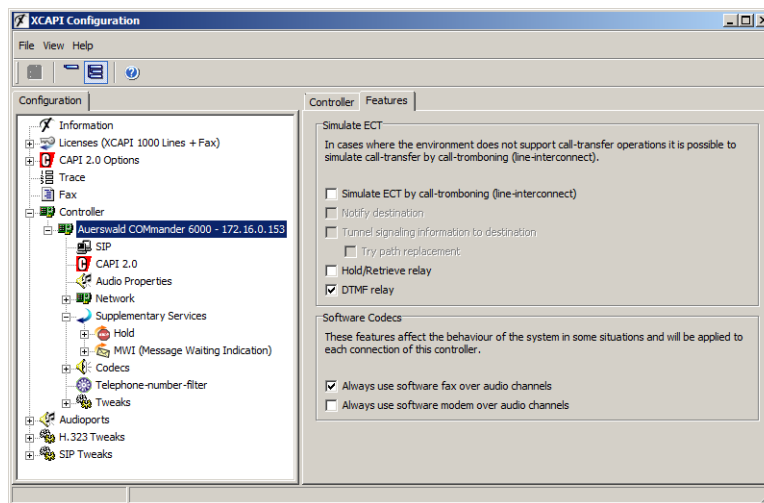
For this please review the XCAPI controller configuration tab labeled **Features** and ensure that the parameter **Always use software fax over audio channels** is enabled.





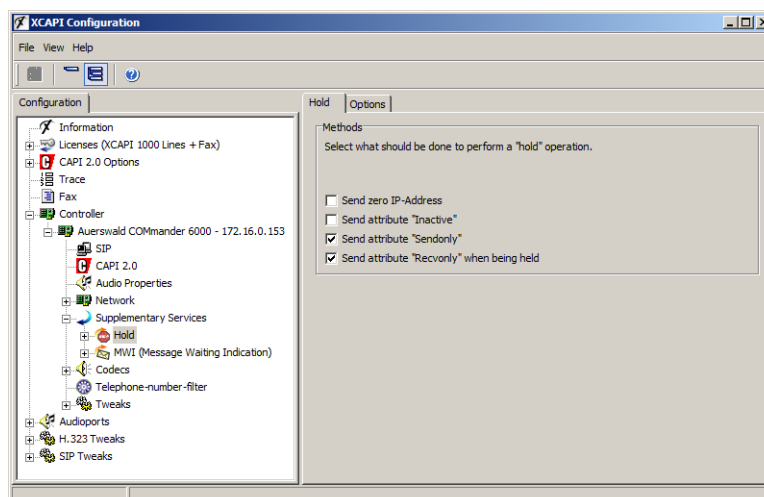
4.8 Call Transfer

Please ensure that **Simulate ECT by call-tromboning (line-interconnect)** is disabled (default) for allowing call transfers via SIP refer.



4.9 Hold

The SIP protocol allows various hold methods. The XCAPI controller is set by default to **Sendonly** and **Recvonly**. This method has to be adjusted upon local requirements and interoperability reasons with other validated Third-Party devices. The inactive hold method requires that the music on hold audio will be provided from Auerswald COMmander 6000. For this the according Auerswald COMmander 6000 group services and user call controls must be configured.





4.10 Network

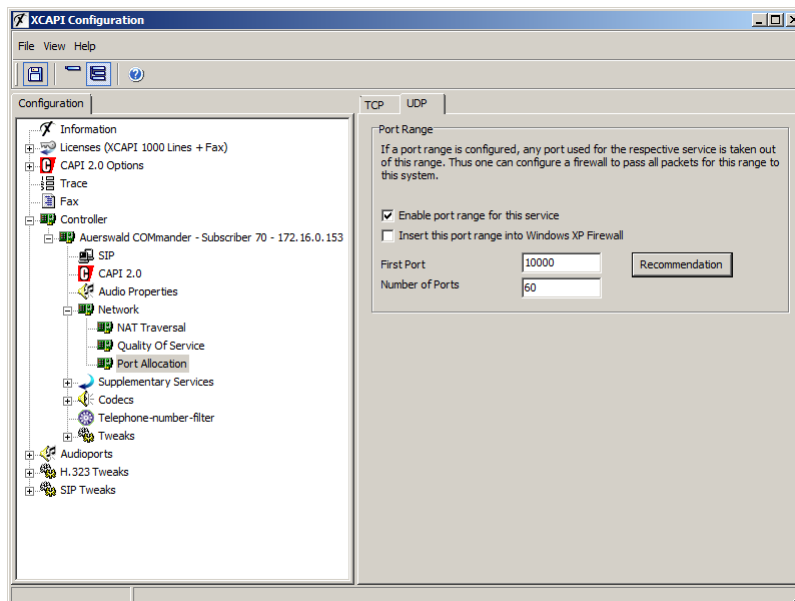
This chapter gives some brief information about network related configurations.

4.10.1 Quality of Service

Please review the document **XCAPI TechNote (en) - Quality of Service** (available for registered users within our community download section) for detailed information about QoS (Quality of Services).

4.10.2 Port Allocation

If required, please specify the local used port range for UDP / TCP.





4.11 Multiple Controller Usage

If using multiple XCAPI controllers (2 - 127) each controller must be related to unique local listening ports (**Local port for UDP/TCP**). Nevertheless, same local listening ports can be used if different nic's or different IP addresses for the same nic are related to the XCAPI controllers.

Ensure that multiple controller usage must be capable from the bound CAPI 2.0 application.

Both examples will be briefly shown in the following sub-chapters.

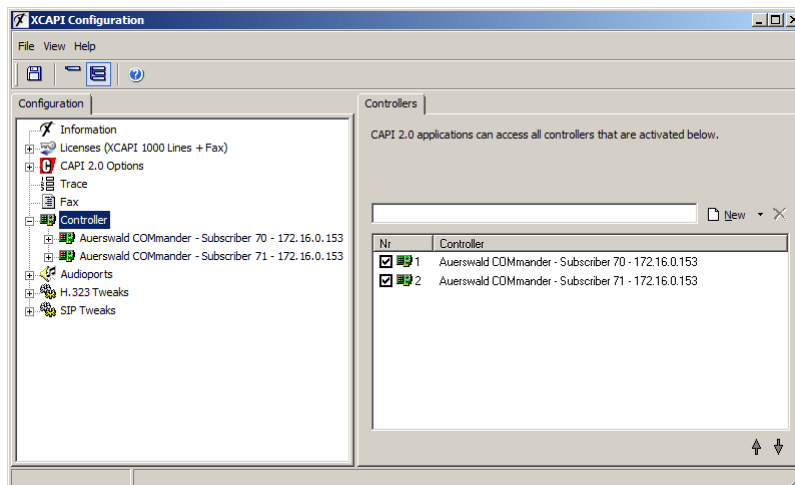
The screenshot shows the administration interface for XCAPI. On the left is a navigation tree with categories like Hardware, Subscriber (scr.), Telephone numbers, Profiles, COMfortel DECT, Function overview, Properties, Groups, Devices, Time control, Routing, Settings, Functions, User data, and Administration. The main area displays a table with the following data:

Telephone number	Name	PIN	Password	Sub-admin	Module	Port	Device type	Property
70	XCAPI	<input type="checkbox"/>	VoIP		Standard VoIP telepho	Configure
71	XCAPI	<input type="checkbox"/>	VoIP		Standard VoIP telepho	Configure

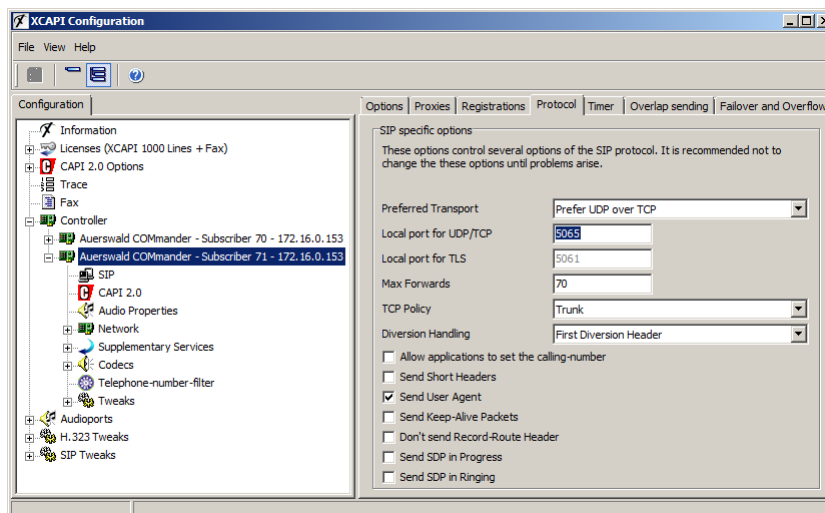


4.11.1 Multiple Controllers - Example #1

This example shows an XCAPI configuration using two controllers. Each controller is using the same nic interface and different local listening ports.



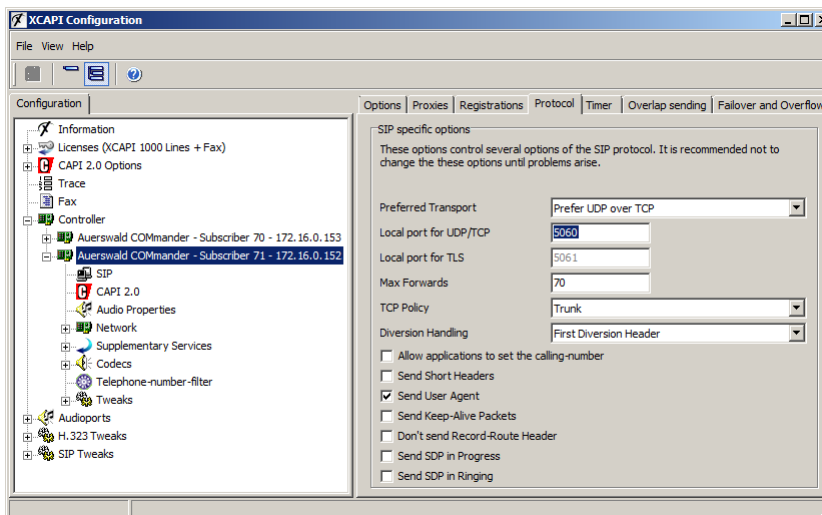
In this case, **Local Port for UDP/TCP** has to be unique for each controller. If there is a collision with another controller a warning will be shown on the top of the **Protocol** tab.





4.11.2 Multiple Controllers - Example #2

In this example each controller is using a different nic or at least a different IP address that is related for the same nic. A different nic allows using the same local listening port for UDP/TCP. In practise the first example for multiple controller usage is more applicable. Different nic's should be only used upon local requirements.





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