TechNote

Alcatel-Lucent OmniPCX Office R10.1

May 13, 2015

XCAPI
voiceoverIP

TE-SYSTEMS
competence in e-communications.
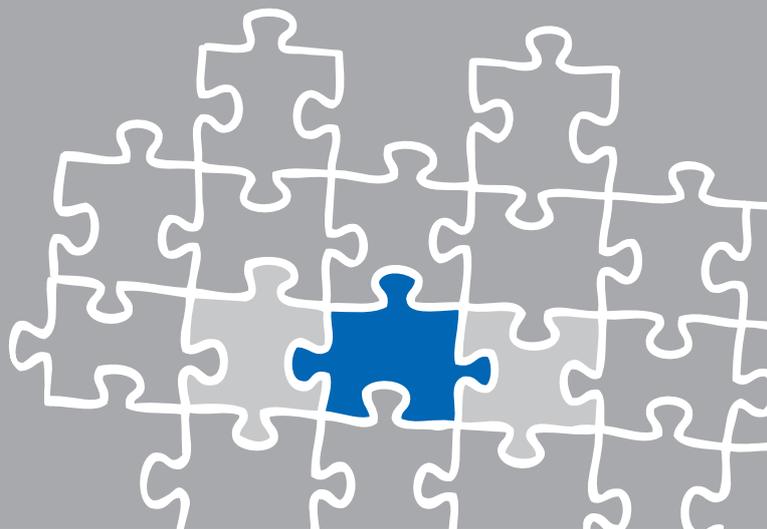
Introduction

This document is intended to support you with the integration of the XCAPI from version 3.5.46 into an existing environment of the Alcatel-Lucent OmniPCX Office series.

Though being based on the Alcatel-Lucent OmniPCX Office R10.1 series, it should be applicable to higher or lower versions, given a few adjustments.

In the following sections we describe the essential steps of configuration to allow for optimal cooperation of both the XCAPI and the Alcatel-Lucent OmniPCX Office. At this point we suppose that the third party environment (including PSTN access and required licenses for appropriate SIP trunking) is in operation and the XCAPI and CAPI applications are properly installed. For XCAPI basics please refer to the document **XCAPI TechNote (en) - Quick Start Guide.pdf**, which is available for registered users within our community download area. We also recommend to visit our YouTube channel for additional information and hints.

XCAPI Configuration

Please start up the XCAPI configuration to create a new controller that will be assigned to the Alcatel-Lucent OmniPCX Office. The XCAPI controller wizard will pop up automatically if you start the configuration tool for the first time, or no controller is present at all. Use the link **Click here to add a controller** for starting up the XCAPI controller wizard manually.

On the first page of the controller wizard please select **PBX or other VoIP System** and continue with the **Next** button.
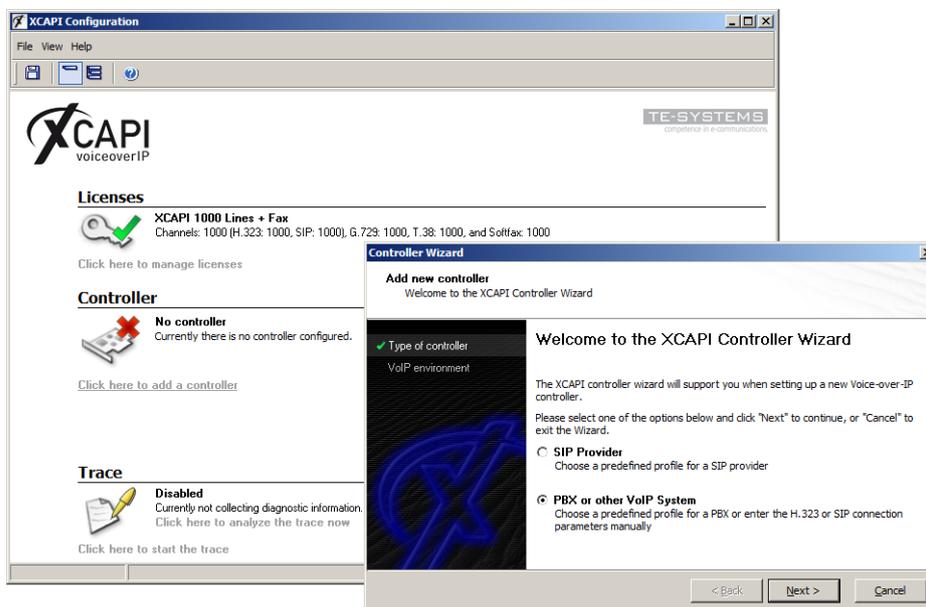
2.1 Voice-over-IP Environment

The next dialog 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.

2.2 Description and Channels

This dialog allows you to set a meaningful description for the controller you're going to create. It also allows setting up the number of channels that the new controller will be able to provide. Please enter how many simultaneous connections the XCAPI should handle when communicating with the Alcatel-Lucent OmniPCX Office.
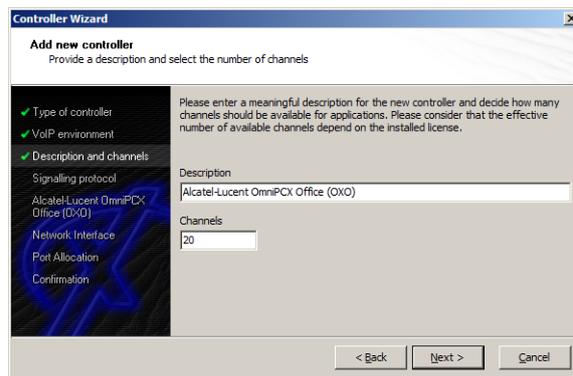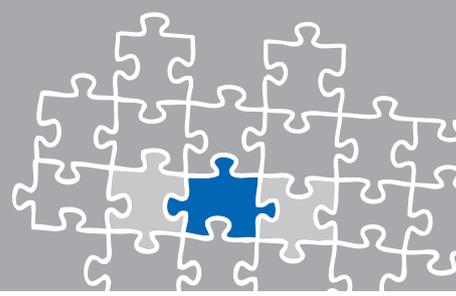
2.3 Voice-over-IP Signaling Protocol

Next, please select the appropriate signaling protocol used for this VoIP environment.
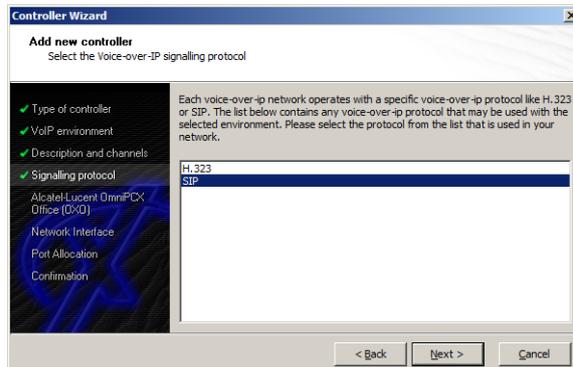
2.4 IP Address of the Alcatel-Lucent OmniPCX Office

Next, the remote address of the Alcatel-Lucent OmniPCX Office gateway device has to be set.
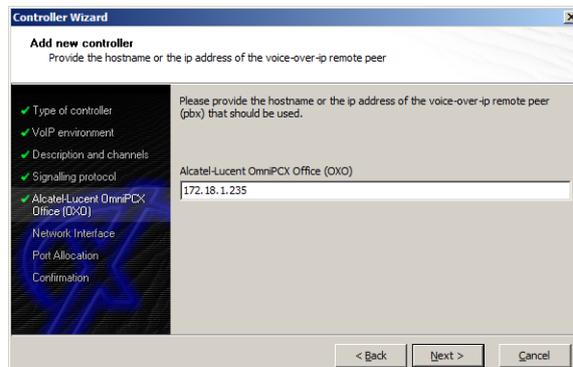
2.5 Network Interface

For this **XCAPI Controller Wizard** dialog the related network interface must be selected.
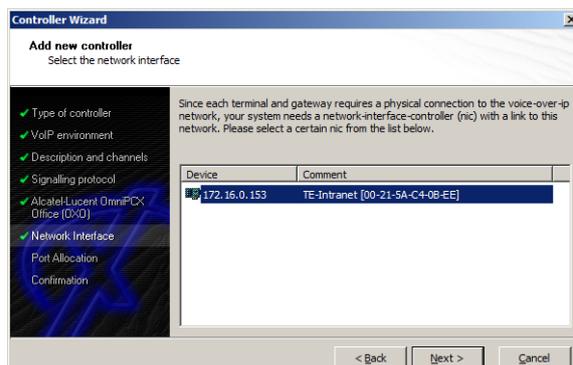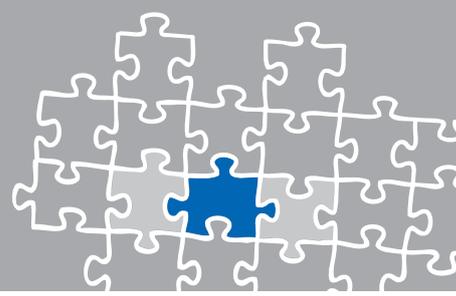
2.6 Port Allocation

On demand a UDP (RTP/T.38) port range can be set that will be used for inbound data.
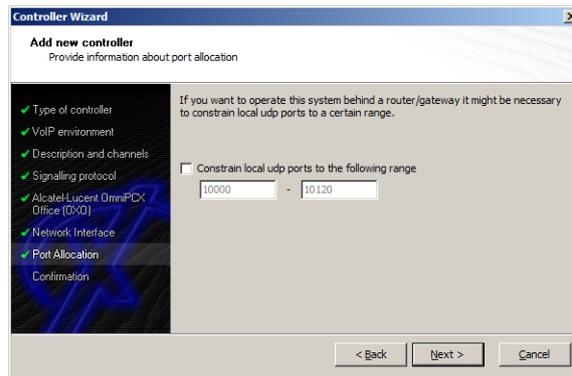
2.7 Confirmation

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.
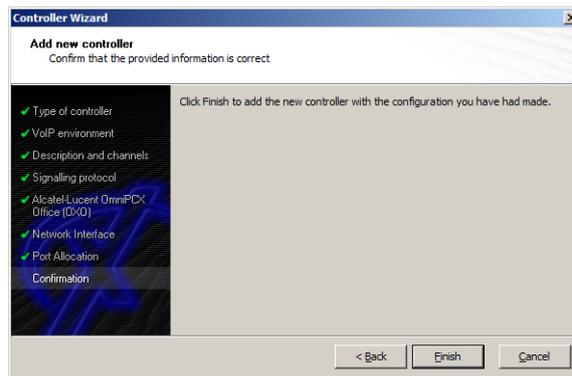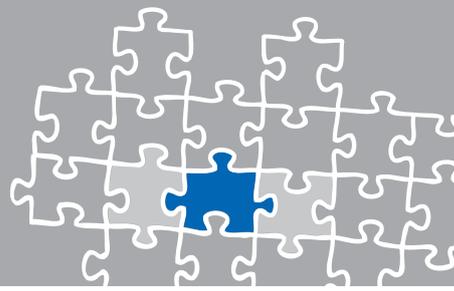
The controller you've just created now will appear on the main page of the XCAPI configuration. As we're now finished with all XCAPI related configuration tasks, please save the changes you've made and exit the configuration tool.

Please keep in mind that the XCAPI configuration changes will only take effect after saving its configuration, followed by a restart of the bound **CAPI** application. Restarting any XCAPI related services won't help at all. If enabled the XCAPI diagnostic monitor will pop-up with an notification on success.

Configuring the OmniPCX Office Gateway

In order to establish a connection between XCAPI and the Alcatel-Lucent OmniPCX Office gateway, you need to setup XCAPI as VoIP trunk with appropriate settings for using line and direction channels. Some **VoIP Channels** must be at least available as **Software Key Features** for appropriate SIP trunking.
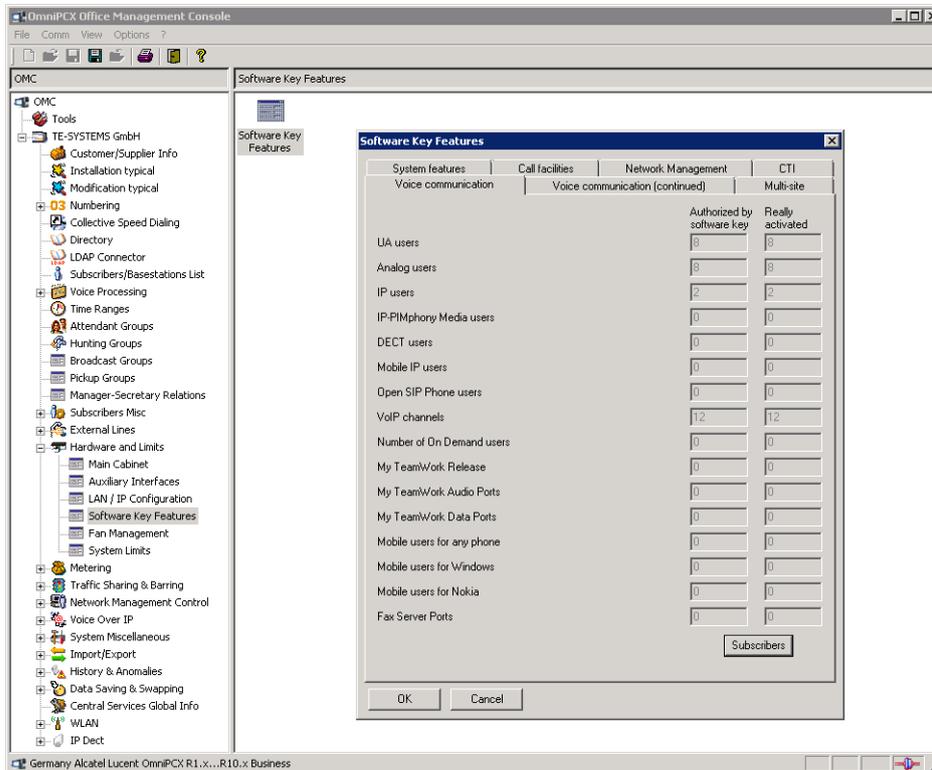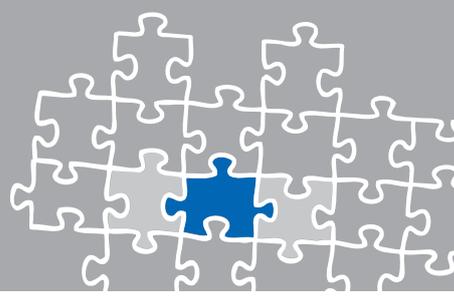
3.1 VoIP Parameters

The **VOIP: Parameters** will be configured beneath the OMCs **Voice Over IP** configuration node. For this example, the **General** configuration tab is used with the following settings:
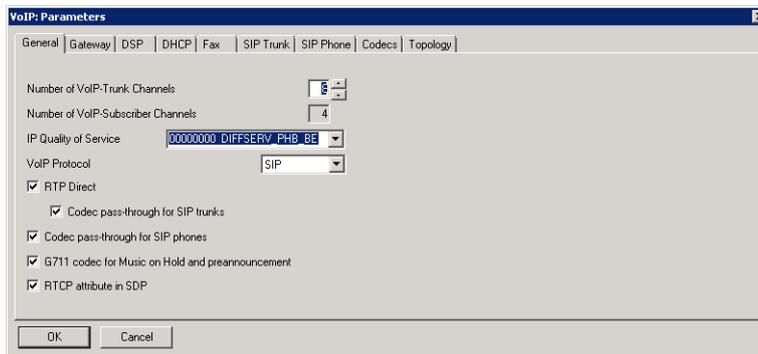
The **Gateway** configuration tab is used with the defaults. The default **SIP Trunk Signal Source Port** 5060 is also used by the XCAPI controller. Ensure that it's conform to the XCAPI controller configuration if you consider any changes here.
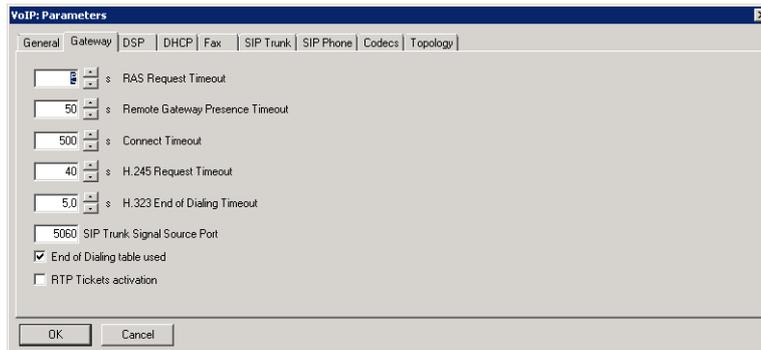
The **Echo Cancellation** and **Voice Activity Detection** within the **DSP** configurations are used as shown next.
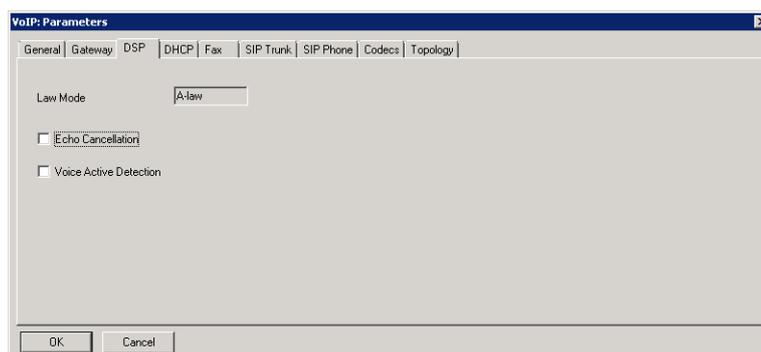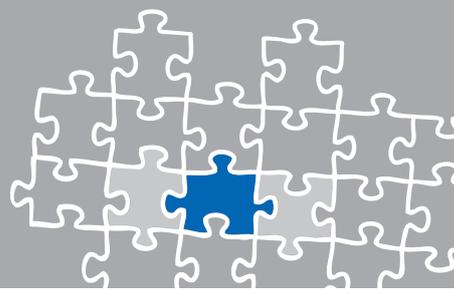
The parameters of the **Fax** configuration tab are also used with their defaults.
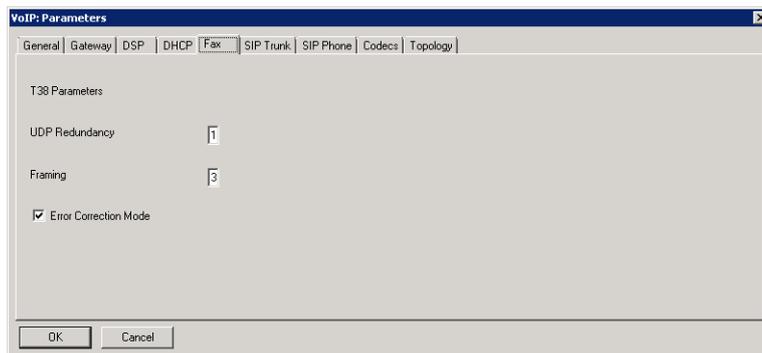
The **SIP Trunk** parameters are used as shown next.
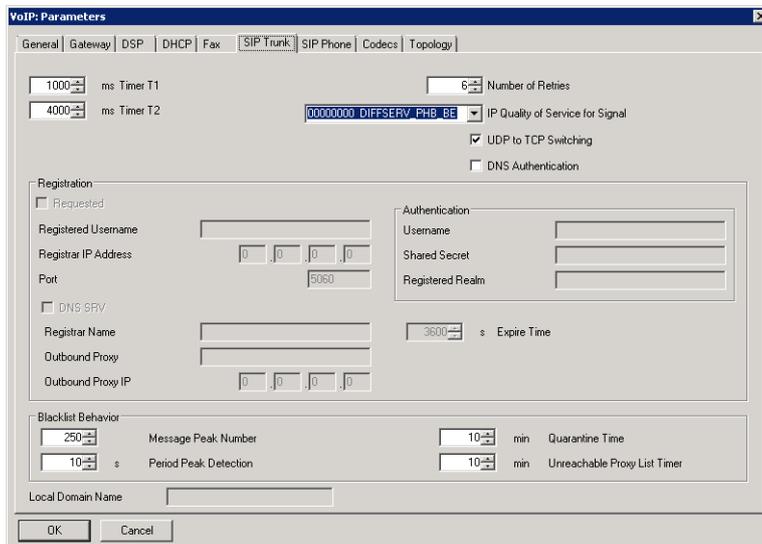
The **Default Codecs List** is here used with G.711.
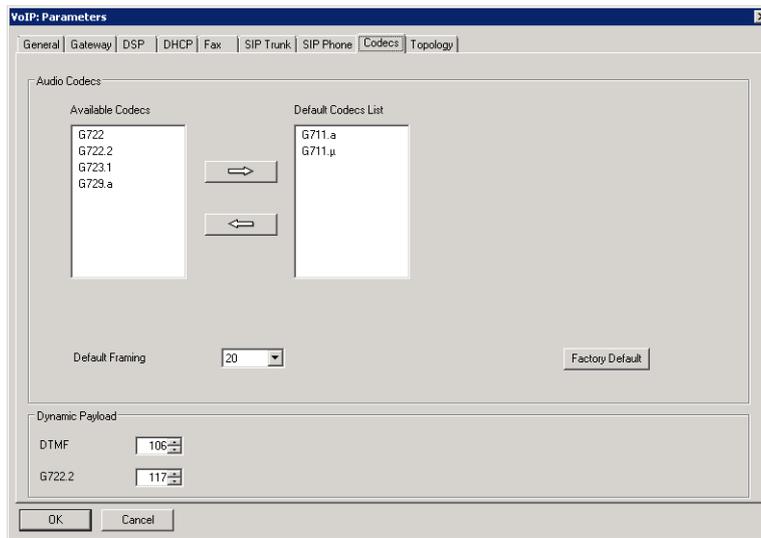
The configurations of the **Topology** tab is here used as shown next.
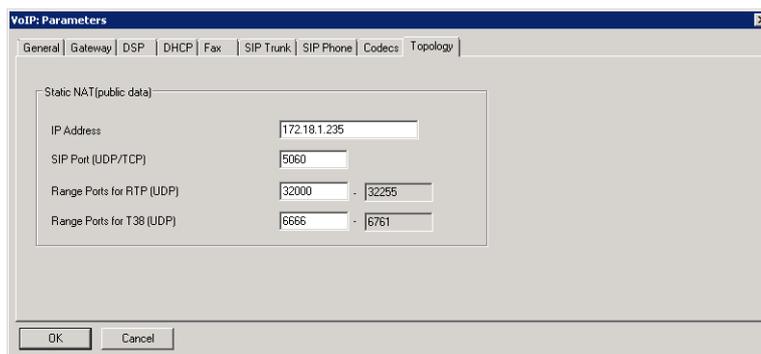
3.2   External Lines

The **External Lines** configuration is used for setting up external call signaling parameters. For this example we review and configure the **List of Accesses**, **List of Trunk Groups** and **Protocols** dialog. Additional configurations might be done for **Remote Substitution**, **Analog Protocol Selection** and **Incoming Call Handling** dialogs regarding to the local VoIP environment.

3.2.1   List of Accesses

The configuration dialog **List of Accesses** shows information about the available digital and VoIP devices with their indications, their physical addresses and their available channels. For each device the number of available b channels can be set and the type of access can be set to Private or Public. Further configurations have to be made for the trunk sub-dialogs Speed Dial, Call Distribution and Link Category. However, select the device and make the necessary changes within their details.

3.2.2   List of Trunk Groups

Within the **List of Trunk Groups**, the available trunks will be added and shown with their details. Here you can specify whether a cyclic or a sequential mode should be used, declaring a name or assigning the Link Category for each trunk in this list.

For this example Trunk number **0** is used for the public access while Trunk number **61** is used for SIP trunking, which is declared as Secondary Trunk Group in the Numbering Plan configuration dialog.

3.3 Numbering

The **Numbering** configuration dialog is used to configure the dial plan of the Alcatel-Lucent OmniPCX Office. The next chapter shows the relevant configuration parts for setting up a range of numbers to the XCAPI. The numbering plan has to match the global defined installation numbers. For this test environment the **Installation Numbers** were used as shown below. Of course this has to be adjusted for the local environment.

3.3.1 Numbering Plans

The configurations of the **Numbering Plans** consist of the Internal, Public, Restricted and Private Numbering Plan. The VoIP trunk has to be declared as Secondary Trunk Group. Depending on your numbering you may have to declare different rules for allowing inbound and outbound calls. However, this example uses the ARS related numbering range 300-399 for SIP trunking and numbering schemas as shown next. This example doesn't use any numbering plan restrictions. The Private Numbering Plan is used as shown next.

3.4 Automatic Route Selection

Within the **Automatic Route Selection** configuration dialog you have to add the trunk group for the Trunk Group Lists, setting up the prefix and the according values for the SIP trunking.

3.4.1 Trunk Groups Lists

In the **Trunk Group Lists** configuration dialog you have to specify the trunk which has to be used with the ARS mechanism. This list is related to the Lists of Trunk Groups and Numbering Plans configuration.
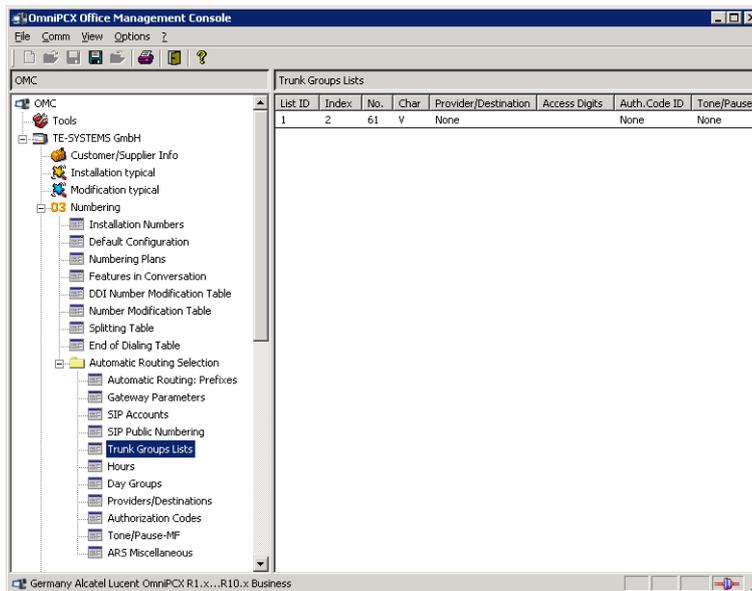
3.4.2 Automatic Routing: Prefixes

The range of dialing numbers, which we already described in the chapter **Numbering Plans** on page 13, has also to be configured as prefix in the **Automatic Routing: Prefixes** configuration dialog and is configured as shown on the next screenshot.

Please ensure that the destination is set up as SIP Gateway with the right IP address. The bandwidth should be selected adequately and the codec/framing should be conform to your VoIP environment.

3.4.3 Gateway Parameters

The **Gateway Parameters Index** of the XCAPI related ARS entry is used as shown next.
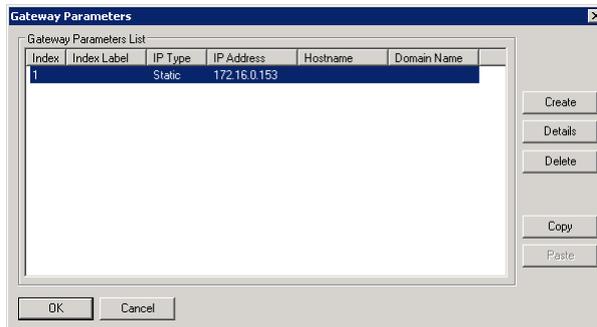
The **Domain Proxy** is related to the XCAPI controllers bound Ethernet Interface. Please ensure that those configurations (Remote Signaling Port, Default Transport Mode) are conform to the ones of the XCAPI controller.

The **Media / Fax** is here set to **G.711**. The **Codec/Framing** is set to **G711_20** which is also used by default from the XCAPI controller. The **Gateway Bandwidth** has to be set to the local requirements in meaning of the available and licensed VoIP channels. The **Identity** and **Protocol** configuration tabs are used with their defaults.
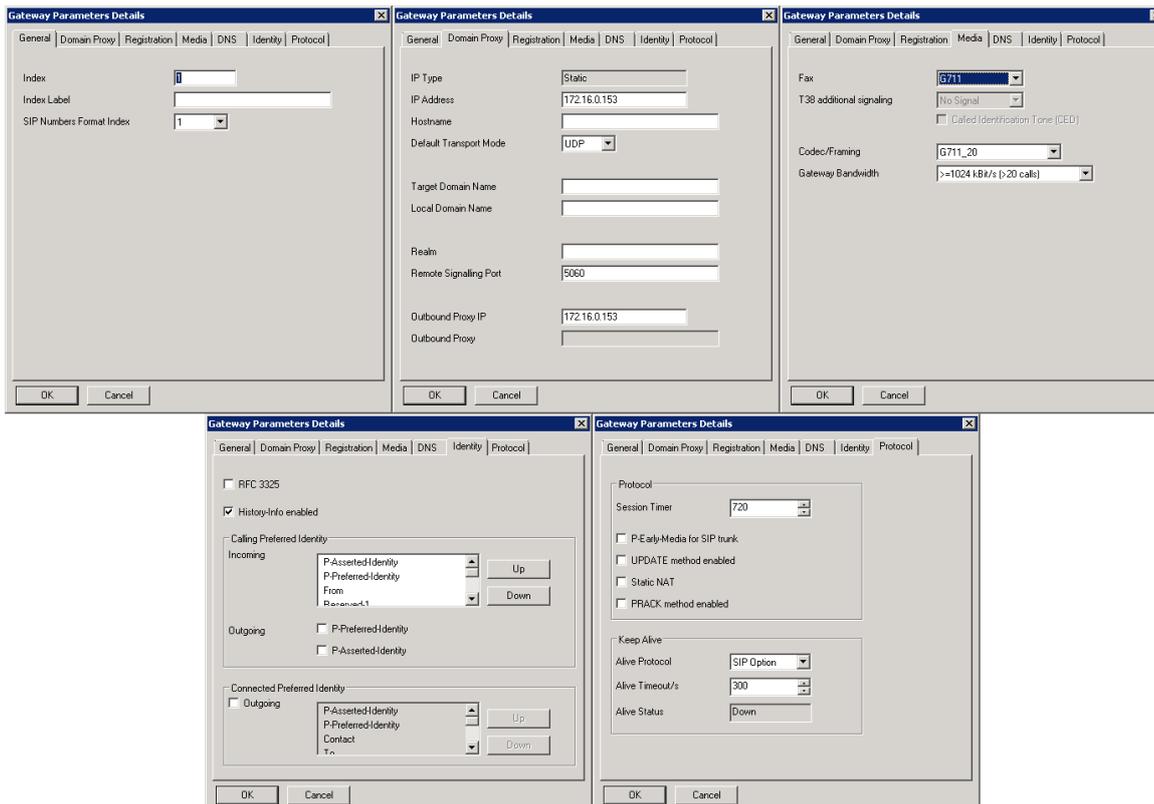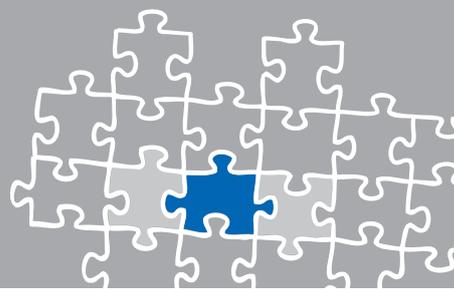
3.4.4 SIP Public Numbering

The **SIP Public Numbering** specifies the handling of the numbering format of the incoming and outgoing calls for private or public SIP numbers. For this environment the numbering is used as shown next.
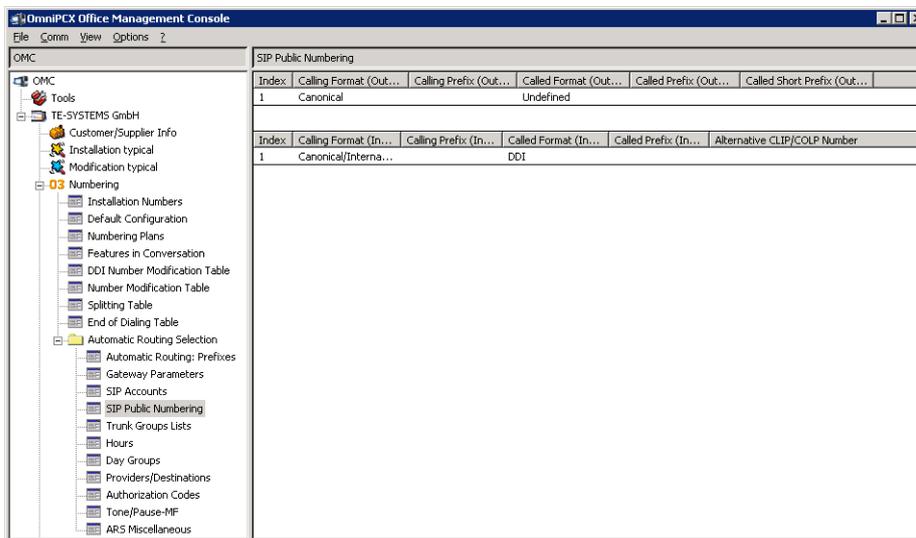
3.5 Subscribers/Basestations List

You may have to enable some phone features for allowing services like external call diversion or need to modify some traffic and/or barring categories.
However, here we just review the feature rights of an Alcatel 4029 terminal. Some additional information can be found in the chapter redirection number on .
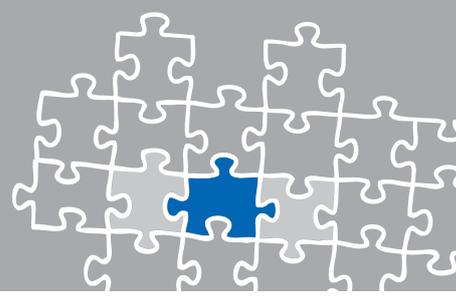
3.6   System Miscellaneous

This chapter is about **System Miscellaneous** configurations. Beside of this example used **Features Design** settings some hints about the noteworthy addresses will be given. For details please refer to the according OmniPCX Office administration and technical documentations.

3.6.1   Features Design

The **Features Design** configuration parts 1 and 2 are used as shown next. The omitted configuration tabs 3,4 and 5 are used with their defaults.
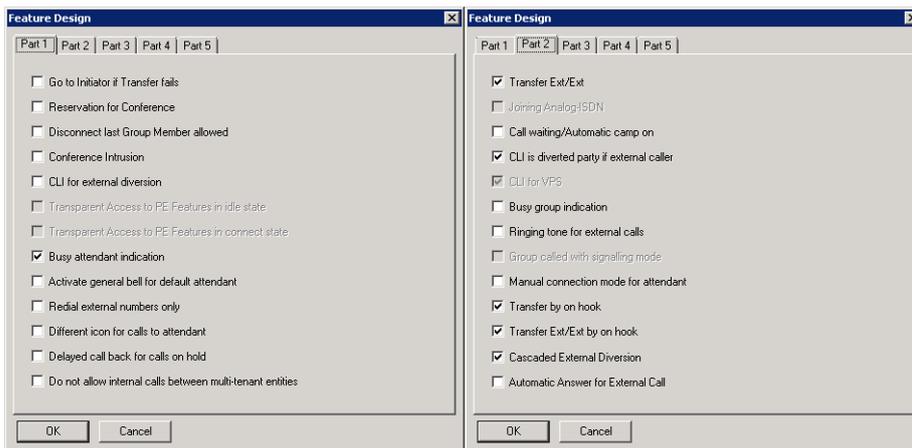
3.6.2   Noteworthy Addresses

For appropriate SIP signaling please ensure that the **SimConnImm ([System Miscellaneous]** - **[Memory Read/Write]** - **[Other Labels])** address is set to **0**. For some OmniPCX releases this is set to 1 by default and omit correct SIP signaling for busy lines.
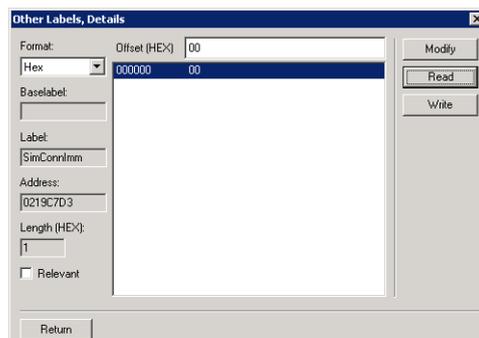
SoftFax (G.711 fax pass through)

In the **SoftFax** mode, the XCAPI simulates an analog Fax device by transmitting modulated Fax-signals modem-like via audio-channels.

Please ensure that the **Fax** method within the gateway parameters **Media** settings are set to **G.711**. For appropriate facsimile interworking, please ensure that those **Codec/Framing**, **Bandwidth** and **DTMF**, as shown in the chapter **Gateway Parameters** starting on page 16 are set conform to XCAPI controller configuration.
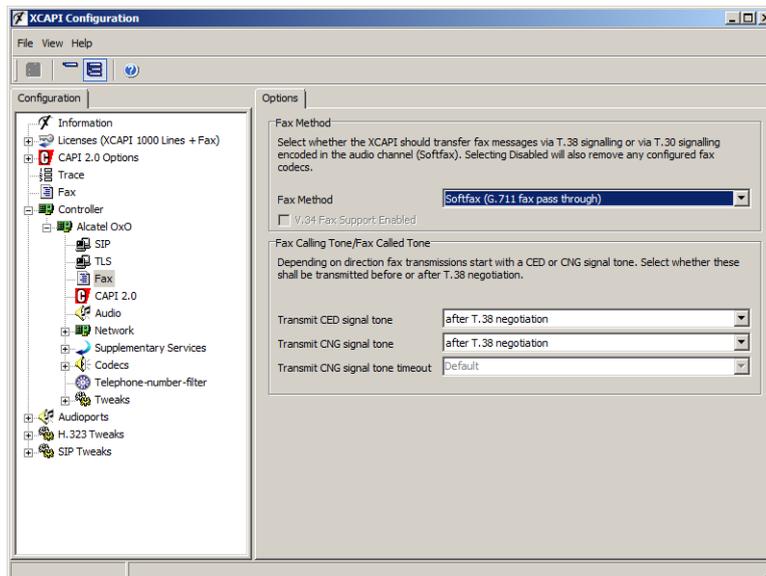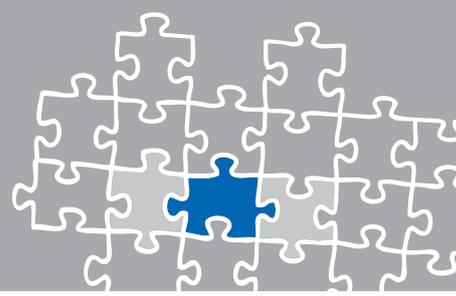
Call Transfer

For enabling call transfer via SIP refer **Simulated ECT by call-tromboning (line-interconnect)** has to be disabled within the XCAPI controller **Features** tab.
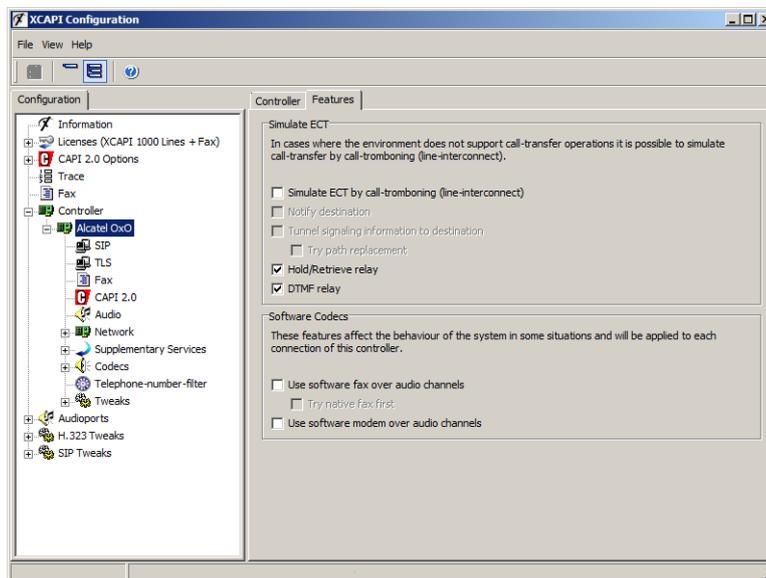
Redirecting Number

Some CAPI applications require redirecting numbers beside the origin calling number. For this, please review the OxO's feature design settings, as shown in the same named chapter starting on page 18. Ensure that **CLI for external diversion** is enabled and **CLI is diverted party if external caller** is disabled.

In accordance with your CAPI application you have to enable/disable the client(s) feature rights parameter **CLI is diverted party**.

Exclusion of Liability