A MITEL
PRODUCT
GUIDE

# Unify OpenScape Alarm Response Professional

## OScAR-Pro V5 Classic Applications Server Configuration

Administrator Documentation
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Mitel

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# 1 Conventions and Operating Instructions

This chapter covers the notations and symbols that are used in this document as well as data protection and data security.

Contents

This chapter consists of the following sub-sections:



## 1.1 Target groups and requirements

This document is written for service technicians and engineers in charge of the OScAR Serverbasic configuration and start-up of the OScAR server.

To perform the tasks described in this document, the service technician or engineer must be properly trained on the OScAR system.

## 1.2 Overview of the chapters in this document

This document also contains the following chapters:

| Chapter | Description |
|---|---|
| Chapter 2, "Overview" | This chapter gives you an overview of the components and functions of OScAR-Pro 200/300 in the Version 8.x. |
| Chapter 3, "The Installation of the DAKS Server" | This chapter shows you how to install the OScAR-Server and how to connect the interfaces, the contacts, the DCF-77 receiver and printer, and how to carry out the function test. |
| Chapter 4, "The Service and Configuration Tool VCON" | This chapter shows you how to operate the service and configuration tool VCON for the basic configuration of the OScAR Server. |
| Chapter 5, "Basic Configuration of the DAKS Server" | This chapter shows you how to carry out the basic configuration of the OScAR server. This includes the TCP/IP access data and the parameters of the OScAR server, as well as its functionalities. |
| Chapter 6, "Configuration of the DAKS Processes via VCON" | This chapter shows you how to use VCON to configure the general parameters of the OScAR processes. This includes, among other things, the specific parameters of the interfaces and protocols as well as the operational parameters. |
| Chapter 7, "PBX Systems and Softswitches" | This chapter covers the configuration of the different PBX systems to operate in combination with one or several OScAR Servers. |
| Chapter 8, "Serial Data Interfaces" | This chapter covers the coupling of the OScAR Server to external systems via serial data interfaces. It describes the functionalities that are offered by the system components and shows you how these components are configured. |

Table 1-1 Overview of chapters

| Chapter | Description |
|---|---|
| Chapter 9, "Data Interfaces via LAN" | This chapter covers the special features that apply to the various connectable ESPA-X host systems, but also the functionality of the TR500 interface, including its protocol characteristics and parameterization. |
| Chapter 10, "SNMP Implementation" | This chapter covers the SNMP service of OScAR. It constitutes an SNMP agent that can be queried by SNMP managers. |
| Chapter 11, "The Gateway Function of DAKSpro for Mc800" | This chapter covers the subswitch/gateway functionality of the OScAR Server to connect Medicall 800 or EZ-Care to the telecommunications network. |
| Chapter 12, "Management of Certificates via VCON and TLS/MTLS" | This chapter covers the application of the Transport Layer Security (TLS) and the certificate within the OScAR server. The parameterization of TLS and the management of the certificate is carried out through the service tool VCON. |

Table 1-1 Overview of chapters

## 1.3 Notations and Symbols

### Conventions

The following definitions are used in this document:

| | |
|---|---|
| `Text` | Both the texts from the files described in this document and the entries made into them are output in the monospace **`font Cou`**rier. |
| The password 123456 ... | Details and instructions in the continuous text that are of particular importance or must be heeded are output in bold print. In the same way, buttons and menus are also in bold print. |
| The file `global.cfg` | `Files` and `directories` are in the monospace font `Courier`. |
| <Place holder> | Entries and outputs, both of which may vary depending on the individual situation in which they appear, are placed in <angle brackets> and are in italics. |
| [beginning of value range ... end of value range; default] or [X] | All default values and all value range details from data fields are placed in squared brackets. The [x] after an entry option of a database field indicates that this entry option is also the default value. |

Table 1-2 Conventions

### Symbols

The following symbols are used in this document:

Note:
The info "i" is used to indicate additional helpful information.

Caution!
The exclamation mark is used to indicate important information which the reader should treat with particular caution.

Warning!
The warning sign is used to alert you to a hazardous or high risk situation. It means that you are currently exposed to a risk or hazardous situation that may cause physical injury.
Before you start working with any apparatus, please always be aware of the risks that may arise in connection with the device's electric currents and follow the standard practices to avoid accidents.

## 1.4 Data Protection and Data Security

In order to comply with the legal provisions that apply when providing services, be it any service performed at the customers' sites or teleservice, we strongly urge all readers to follow the below-listed best practices.

This will not only help you protect the interests and concerns of customers and clients, but also avoid unwanted implications for yourself.

Please help ensure complete data protection and data security by being aware of these issues as you work:

- Always make sure that only authorized persons have access to your client and customer data.
- Assign passwords whenever you can. Do not grant unauthorized persons access to your passwords, for example by writing them down.
- Always make sure that no unauthorized persons can process (e. g. save, edit, transmit, block, or delete) or utilize customer data in any way.
- Always make sure that no unauthorized persons have access to data storage media, for example to backup disks or printouts of logfiles or reports. This applies both to service work provided directly at the customer and to the storage and transport of data carriers.
- Always make sure that every data storage medium that is no longer needed is properly and fully destroyed. Also be careful not to leave behind any papers that could become openly accessible to others.

Note:

We urge all readers to work together closely with the contact persons of your clients. This not only builds trust but also helps to reduce your own workload.

# 2 Overview

This chapter gives you an overview of the components and functions of OScAR-Pro 200/300 in the Version 8.x.

Contents

This chapter consists of the following sub-sections:



## 2.1 General

The core element of every OScAR system is the OScAR Server. It is this server that realizes all switching and transmission processes and jobs. This document covers the basic configuration and commissioning of the OScAR Server.

The OScAR Server supports both the classic TDM/ISDN telephony and Voice-over-IP (VoIP) on the basis of TCP/IP.

➤ see Section 7.1, "Basic information on the PBX interfaces of DAKS"

For more information on OScAR-Pro or OScAR-Pro = OpenScape Alarm Response Professional (hereafter abbreviated 'OScAR'), please also refer to these manuals:

- Hardware Service Manual
  The Hardware Service Manual covers the mechanical and electric properties of the OScAR Server and its boards, as well as the connector cables cords and the adapters that are needed in combination with external systems.
- Upgrade Instruction
  The Upgrade Instruction shows you how to upgrade the hard- and software to the latest version.
- OScAR-TT Installation Manual
  The OScAR-TT Installation Manual shows you how to install the various software components of the applications on the PC-side.
- OScAR-TT User Manual
  The OScAR-TT User Manual shows you how to administrate and operate the OScAR-TT software.
- User Manual OScAR-TT Data Import Tool
  The User Manual for the OScAR-TT Data Import Tool covers the functionality and configuration of the OScAR-TT Data Import Tool.
- DCO-Designer User Manual
  The DCO-Designer User Manual shows you how to create customized user interfaces (DCO = OScAR Customized Operator).
- Additional documentation to connect to Rauland Responder IV and 4000
  The supplementary documentation on the connection to Rauland Responder IV and 4000 covers the functionality and the link-up to both of the Rauland call systems.

## 2.2 External Components

The various interfaces of the OScAR Server offer connectivity for the following external components:

- TDM/ISDN-PBX Interfaces
  - $S_0$ trunks to the telecommunications network using different protocols, in particular QSIG and CorNet-NQ
  - $S_{2M}$ trunk(s) to the telecommunications network using different protocols, in particular QSIG and CorNet-NQ
- VoIP/SIP-based telecommunications interfaces via LAN
  - General VoIP/SIP trunks to the telecommunications network or to a subswitch, with SIP- or SIP-Q protocol
  - Direct connectivity for SIP phones or SIP loudspeaker/microphone units
  - Special SIP trunk to a Tyco Mc800 nurse call system, as subswitch
- Messaging-based telecommunications interfaces
  - OAP-Client
    Activation of the pager device (text message, softkeys) of an Ascom i75/i62 terminal, through the IMS server.
    ➤ see Section 6.10.11, "ASCOM: IMS control via OAP"
  - OAP-Client
    Activation of the pager device (text messages, softkeys) of a Unify WL3 terminal, through the WSG server
    ➤ see Section 6.10.12, "WSG: WL3 control via OAP"
  - OM-AXI
    Interface for the text-based communication with Mitel devices
    ➤ see Section 6.10.23, "OM-AXI server"
  - Cisco
    Interface for the text-based communication with end devices by CISCO or Spectralink Pivot in combination with the Cisco Unified Communications Manager
    ➤ see Section 6.10.24, "Cisco CM"
- LAN-based data interfaces
  - Process-Server
    Connection of OScAR-TT for the administration and transmission of process data
    ➤ see Section 6.10.3, "Process Server"
  - ESPA-X
    Connection of external host systems that control OScAR functions
    ➤ see Section 6.10.10, "ESPA-X"
  - xLink
    XML interface to connect external host systems that control OScAR functions
    ➤ see Section 6.10.7, "xLink-100e"
  - TR500
    Byte-oriented interface to connect external host systems that control OScAR functions
    ➤ see Chapter 9, "Data Interfaces via LAN"
  - DECT field strength inquiries from the HiPath Positioning System (HPS)
    ➤ see Section 6.10.6, "DECTPOS: Inquiry of field strength data via DAKS"
  - Positioning Server
    Positioning of end devices (DECT, WiFi) through a positioning server
    ➤ see Section 6.10.5, "LOCSRV: HiPath Positioning System (HPS)"

- Other external interfaces to various servers via LAN
  - Syslog
    Transmission of log messages (system and error messages) to a Syslog server
    ➤ see Section 6.10.13, "SYSLOG: Central logging"
  - SNMP
    Monitoring of the OScAR Server by an SNMP manager
    ➤ see Chapter 10, "SNMP Implementation"
  - DEKI for connectivity to EIB/KONNEX
    ➤ see Section 6.10.8, "DEKI: DAKS-EIB-Konnex interface"
  - SMTP
    Dispatch of e-mails
    ➤ see "OScAR-TT User Manual"
  - TNPP
    ➤ see Section 6.7.2, "VCON serial interfaces"
  - SALCOM
    ➤ see Section 6.7.2, "VCON serial interfaces"
  - TAP
    ➤ see Section 6.7.2, "VCON serial interfaces"
  - PRINTER
    ➤ see Section 6.7.2, "VCON serial interfaces"
- Contact I/Os
  - Contact inputs and contact outputs at the server
    (through the board DIO-41 for OScAR-Pro 300)
  - Contact inputs via Profibus-DP
    (through the board SIO-41 for OScAR-Pro 300)
  - Remote EIB/Konnex contact inputs via LAN with external
    OScAR EIB/Konnex Interface (DEKI)
  - USB Contact I/O modules
  - Via OScAR-Satellite systems connected via LAN
- Audio I/Os (via the board AIO-41 for OScAR-Pro 300)
- Serial data interfaces
  - ESPA protocol
    Connection of call systems
    ➤ see Section 8.3, "Nurse call interface with ESPA protocol"
    ➤ see Section 8.4, "PLC interface with ESPA protocol"
  - TAP protocol
    Connection of call systems
    ➤ see Section 6.7, "Configure serial interfaces and virtual serial interfaces"
  - FTI1 and VIT1 protocol
    Connection of nurse call systems
    ➤ see Section 8.5, "Nurse call interface with FTI1 and VIT1 protocol"
  - DUST protocol
    Connection of programmable logic controllers (PLC) with up to 704 contact inputs
    ➤ see Section 8.6, "PLC interface with DUST protocol"
  - GSM-SMS protocol
    Connection of a serial modem (V.24) to send SMS text messages
    ➤ see Section 6.8, "GSM-SMS"

- USB interfaces
  - DCF-77 clock
    Connection via the USB port of the CPC-41/CPH-42 board or using the SDU-42 its DCF-77 Port, to synchronize the OScAR Server with the standard time of the Physikalisch-Technische Bundesanstalt (national metrology institute for scientific and technical services) domiciled in Braunschweig/Germany
  - System printer
    Connection via the USB-Port of the CPC-41/CPH-42 or SDU-42 board to printout system and error messages
  - USB-Contact-I/O-Module
    Connection via the USB-Port of the CPH-42 or SDU-42 board
  - USB modem SMS protocol
    Connection via the USB port for the dispatch of SMS text messages
    ➤ see Section 6.8, "GSM-SMS"

## 2.3 Schematic overview

The below image shows shows the OScAR Server's connection to the telecommunications network and periphery components.

Schematic overview

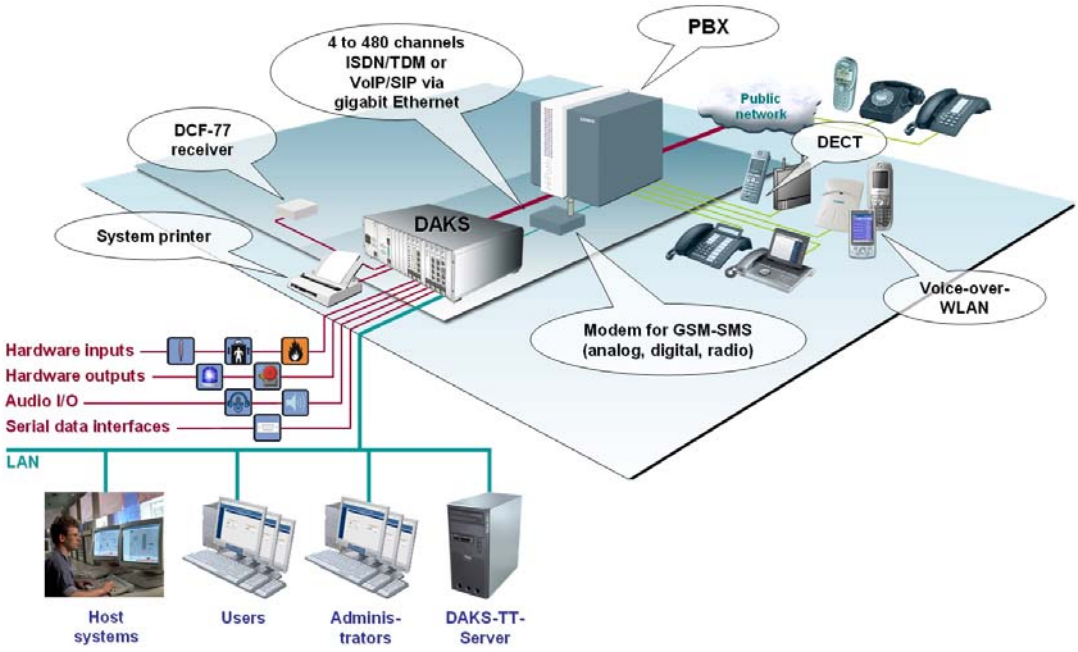



Image 2-1 Schematic overview

# 3 The Installation of the OScAR Server

Overview

This chapter shows you how to install the OScAR-Server and how to connect the interfaces, the contacts, the DCF-77 receiver and printer, and how to carry out the function test.

Warning!
Please be careful to always follow the safety instructions in the Hardware Service Manual.

Contents

This chapter consists of the following sub-sections:

## 3.1 Preparatory steps in the OScAR Server

To configure the OScAR Server, follow the below sections step by step.

Prepare the OScAR Server, step by step:

| No. | Task |
|---|---|
| 1. | Mount the OScAR Server<br>Use the OScAR Server either:<br>• as a tabletop or<br>• integrate it into a rack.<br>➤ see "Hardware Service Manual" |
| 2. | Connect to the power supply:<br>Connect the power supply cable cords; then connect all PSUs or DC/DC converters of the OScAR Server to the electric power supply.<br>➤ see "Hardware Service Manual" |
| 3. | Power on the OScAR Server |
| 4. | Configure the TCP/IP access data<br>Configure the TCP/IP access data to carry out the further administration of the OScAR Server and of the OScAR-Pro applications.<br>➤ see Section 5.1 "Configuration of TCP/IP access parameters" |
| 5. | Create the Ethernet connection<br>Run the Ethernet cable and connect the OScAR Server to the LAN using the port 'Ethernet A'.<br>➤ see Hardware Service Manual' |
| 6. | Install VCON<br>Install VCON.<br>➤ see Section 4.2.1 "The installation of VCON" |
| 7. | Connect VCON<br>Connect to the OScAR Server through VCON for the basic configuration of the OScAR Server.<br>➤ see Chapter 4, "The Service and Configuration Tool VCON" |

Table 3-1 OScAR Server preparatory steps

## 3.2 Install the OScAR-TT software

Note:
To install the OScAR-TT software follow the instructions in the tetronik manual.
➤ see "OScAR-TT Installation Manual, Version 8.1x"

Caution!
Do not continue with the installation until you have successfully tested the connection between the OScAR-TT software and the OScAR Server.

## 3.3 Connect the to the PBX

How to connect the OScAR Server to the PBX, step by step:

| No. | Task |
|---|---|
| 1. | Configuration of the PBX interfaces at the OScAR Server<br>Configure the PBX interfaces through VCON.<br>➤ see Section 5.3.1 "S0 /S2M interfaces: ISDN"<br>➤ see Section 5.3.2 "VoIP signaling protocol: SIP and SIP-Q" |
| 2. | Configuration of the certificates at the OScAR server<br>Use the service tool VCON to configure the certificates.<br>➤ see Section 6.14 "SSL"<br>Note:<br>This step is only needed if TLS/MTLS is used. |
| 3. | Configuration of the telecommunications interfaces at the telephone system<br>Configure the telecommunications interfaces at the telephone system.<br>➤ see Chapter 7, "PBX Systems and Softswitches" |
| 4. | Connect the $S_0$ digital trunks (if available)<br>Connect the PBX with the OScAR server.<br>Create the connections for every $S_0$ interface in the following order:<br>OScAR-Pro 300<br>• Within one card from top to bottom: '$S_0$ A', '$S_0$ B', '$S_0$ C', '$S_0$ D'<br>• If you are working with more than one card, follow the slot number in the ascending order (from right to left).<br>➤ see "OScAR Hardware Service Manual" (for OScAR-Pro 300)<br>OScAR-Pro 200<br>• from left to right: '$S_0$ A', '$S_0$ B', '$S_0$ C', '$S_0$ D'<br>➤ see "mOScAR Hardware Service Manual" (for OScAR-Pro 200) |

Table 3-2 Connect OScAR Server to PBX

| No. | Task |
|---|---|
| 5. | Create E1/T1 connections (if available)<br>Connect the PBX with the OScAR Server:<br>Create the connections for each E1/T1 interface in the following order:<br>OScAR-Pro 300<br>• Within one card from top to bottom: 'E1/T1 A', 'E1/T1 B', 'E1/T1 C', 'E1/T1 D'<br>• If you are working with more than one card, follow the slot number in the ascending order (from right to left).<br>➤ see "OScAR Hardware Service Manual" (for OScAR-Pro 300)<br>OScAR-Pro 200<br>• from left to right: 'E1/T1 A', 'E1/T1 B', 'E1/T1 C', 'E1/T1 D'<br>➤ see "mOScAR Hardware Service Manual" (for OScAR-Pro 200) |
| 6. | Create the VoIP connections (if available)<br>Configure the VoIP connection through VCON.<br>see Section 5.3.2 "VoIP signaling protocol: SIP and SIP-Q" |
| 7. | Check the connection<br>Make sure that the $S_0$ and $S_{2M}$ digital trunks operate properly.<br>Caution!<br>Only when the light emitting diode(s) a the $S_0$ or $S_{2M}$ interface light up green or start to blink is Layer 2 active, and you can proceed with the configuration.<br>➤ see "Hardware Service Manual" |

Table 3-2 Connect OScAR Server to PBX

## 3.4 Connect the serial interfaces and Profibus

Connect external components via the serial interface, step by step:

| No. | Task |
|---|---|
| 1. | Create serial connections and connect Profibus (if available)<br>You can make all other serial connections with/without line extensions as well as Profibus in any order to the interfaces 'COM A-D' (for OScAR-Pro 200: 'COM A-B').<br>➤ see "Hardware Service Manual" |
| 2. | Configure the serial interfaces and Profibus<br>Configure the serial interfaces using the terminal commands in the VCON terminal of the OScAR Server.<br>➤ see Chapter 6, "Configuration of the DAKS Processes via VCON" |

Table 3-3 Link-up external components via serial interface

## 3.5 Connect the Contact I/Os

Caution!
Be careful to heed the technical details, the slot allocation and the wiring plans.
➤ see "Hardware Service Manual"

## 3.6 Configure the messaging-based telecommunications interfaces

### 3.6.1 Configure the interface to the IMS server

| No. | Task |
|---|---|
| 1. | Configure the interface in the VCON terminal of the OScAR Server.<br>➤ see Section 6.10.11 "ASCOM: IMS control via OAP" |

### 3.6.2 Configure the interface to the WSG server

| No. | Task |
|---|---|
| 1. | Configure the interface in the VCON terminal of the OScAR Server.<br>➤ see Section 6.10.12 "WSG: WL3 control via OAP" |

### 3.6.3 Configure the interface to the OM-AXI server

| No. | Task |
|---|---|
| 1. | Configure the interface in the VCON terminal of the OScAR Server.<br>➤ see Section 6.10.23 "OM-AXI server" |

### 3.6.4 Configure the interface to the Cisco Unified Communications Manager

| No. | Task |
|---|---|
| 1. | Configure the interface in the VCON terminal of the OScAR Server.<br>➤ see Section 6.10.24 "Cisco CM" |

## 3.7 Configure the LAN-based data interfaces

### 3.7.1 Configure the ESPA-X interface to link-up external host systems

| No. | Task |
|---|---|
| 1. | Configure the interface in the VCON terminal of the OScAR Server.<br>➤ see Section 6.10.10 "ESPA-X" |

### 3.7.2 Configure the xLink interface to link-up external host systems

| No. | Task |
|---|---|
| 1. | Configure the interface in the VCON terminal of the OScAR Server.<br>➤ see Section 6.10.7 "xLink-100e" |

### 3.7.3 Configure the TR500 interface to external host systems

| No. | Task |
|---|---|
| 1. | Configure the interface in the VCON terminal of the OScAR Server.<br>➤ see Chapter 9, "TR500 Service" |

### 3.7.4 Configure the DECT field strength inquiries from the HiPath Positioning System (HPS)

| No. | Task |
|---|---|
| 1. | Configure the interface in the VCON terminal of the OScAR Server.<br>➤ see Section 6.10.6 "DECTPOS: Inquiry of field strength data via DAKS" |

### 3.7.5 Configure the positioning of communication devices through a positioning server

| No. | Task |
|---|---|
| 1. | Configure the interface in the VCON terminal of the OScAR Server.<br>➤ see Section 6.10.5 "LOCSRV: HiPath Positioning System (HPS)" |

### 3.7.6 Configure the interface to the Syslog server

| No. | Task |
|---|---|
| 1. | Configure the interface in the VCON terminal of the OScAR Server.<br>➤ see Section 6.10.13 "SYSLOG: Central logging" |

### 3.7.7 Configure the interface to the SNMP Manager

| No. | Task |
|---|---|
| 1. | Configure the interface in the VCON terminal of the OScAR Server.<br>➤ see Chapter 10, "SNMP Implementation" |

### 3.7.8 Configure the interface to EIB Bus

| No. | Task |
|---|---|
| 1. | Configure the interface in the VCON terminal of the OScAR Server.<br>➤ see Section 6.10.8 "DEKI: DAKS-EIB-Konnex interface" |

### 3.7.9 Configure the interface to the email server

| No. | Task |
|---|---|
| 1. | Configure the interface in the VCON terminal of the OScAR Server.<br>➤ see "OScAR-TT User Manual" |

### 3.7.10 Configure the interface to the system printer via LAN

| No. | Task |
|---|---|
| 1. | Configure the interface in the VCON terminal of the OScAR Server.<br>➤ see Section 6.10.22 "Printer" |

### 3.7.11 Configure the interface for the dispatch of text messages (SMS) via SMPP

| No. | Task |
|---|---|
| 1. | Configure the interface in the VCON terminal of the OScAR Server.<br>➤ see Section 6.10.27 "SMPP" |

## 3.8 Configure the LAN-based interfaces with serial protocols

### 3.8.1 Configure the interface to the POGSAC pager via TNPP

| No. | Task |
|---|---|
| 1. | Configure the interface in the VCON terminal of the OScAR Server.<br>➤ see Section 6.7.2 "VCON serial interfaces" |

### 3.8.2 Configure the interface to call systems via TAP, SALCOM or PRINTER

| No. | Task |
|---|---|
| 1. | Configure the interface in the VCON terminal of the OScAR Server.<br>➤ see Section 6.7.2 "VCON serial interfaces" |

## 3.9 Connect the audio I/Os (only for OScAR-Pro 300)

Caution!
Be careful to heed the technical details and the slot allocation.
➤ see "Hardware Service Manual"

## 3.10 Connect the DCF-77 Receiver

Note:
Please observe the wiring plans to configure the DCF-77 Receiver.
➤ see "Hardware Service Manual"

## 3.11 Connect the Logging Printer

Note:
Make sure you always heed the wiring plans when connecting the logging printer with/without line extension.
➤ see "Hardware Service Manual"

## 3.12 Carry out a Function test

Note:
Enter the customized test data in the database and carry out a system function test.
➤ see "OScAR-TT User Manual"

# 4 The Service and Configuration Tool VCON

Overview

This chapter shows you how to operate the service and configuration tool VCON for the basic configuration of the OScAR Server.

Contents

This chapter consists of the following sub-sections:

# 4.1 Introduction

## 4.1.1 General

The VCON tool is used to configure and service the OScAR Server. The connection between OScAR Server and VCON is usually carried out via TCP using the LAN. In addition, you can configure a serial connection in VCON.

Described below are some of the various operations that you can carry out with VCON:

- Configuration of the TCP/IP access parameters

  In order to connect OScAR with the LAN, start by configuring the TCP/IP access parameters for the serial service interface first.

  This can be done via the VCON service tool or with any standard terminal emulation program.

  ➤ see Section 5.1 "Configuration of TCP/IP access parameters"

- Enable performance features

  Please note that to upgrade certain older OScAR Versions to OScARpro, you need to first remove the performance features of the old system and then activate these parameters in the new system.

  ➤ see Section 4.6 "Enter the activation code"

  ➤ see "OScAR Release 8 Upgrade Instruction"

- Upload installations/upgrades

  The installation of software components (any) is carried out in form of files that are uploaded to the OScAR Server via VCON.

  This also includes a compatibility check of the new system component(s) for upload with the already installed software.

  ➤ see Section 4.7 "Upload installation, update and license files"

- Upload License files

  New License files are imported in form of a file that is uploaded to the OScAR Server through VCON.

  ➤ see Section 4.7 "Upload installation, update and license files"

- Tracing (error logging)

  You can activate/deactivate monitoring outputs to trace the processes that run in the OScAR Server.

  These outputs are then output both in the Terminal windows of the individual processes and in a List window that offers various options for user-friendly evaluation,

  ➤ see Section 4.11 "The Terminal window"

  ➤ see Section 4.12 "The System logging window"

- Configure the OScAR-Pro applications

  The basic configuration of the OScAR-Pro applications is carried out via terminal commands which are entered through VCON.

  ➤ see Chapter 5, "Basic Configuration of the DAKS Server"

- Upload the Mc800 translation table

  Translation tables are uploaded to the OScAR Server in form of a file and via VCON.

  ➤ see Section 4.14 "Upload an Mc800 translation table"

### 4.1.2 User administration

Caution!
You can specify the access authorization to VCON in the TCP/IP access parameters of the OScAR Server.
In this process, you can also specify that the TCP/IP access via VCON is denied altogether.
➤ see Section 5.1 "Configuration of TCP/IP access parameters"

To logon to VCON you can use the following users, each with different permissions:

➤ see Section 4.3 "Start VCON"

- User
  - Login:
    - Login name: "user"
    - Initial password: "user"
  - Authorizations
    - Read access to all outputs in the terminal and logging windows
    - Read permission for all settings of the hardware boards
    - Read permission for all trace settings
- Service
  - Login:
    - Login name: "service"
    - Initial password: "service"
  - Authorizations:
    - Read permission for all outputs in the terminal and logging windows
    - Read and write permission for all settings of the hardware boards
    - Read and write permission for all trace settings
- Support
  Only the tetronik Support Team is authorized to log in as "Support".

Caution!
Bear in mind that the default passwords of the above-mentioned users 'User' and 'Service' must be changed after the initial login.
➤ see Section 4.5 "The window "Change password""

### 4.1.3 Logging

The messages of the OScAR Server are logged and shown in two different ways:

- Logging in the Terminal window
  Each process in the OScAR Server has a kin Terminal window in which the process outputs messages.
  These messages in the Terminal window are unfiltered and can be saved in files when needed.
  ➤ see Section 4.11 "The Terminal window"
- Logging in the System logging window
  Messages that appear in a specific format are also registered and shown in the System logging window, and automatically saved in logfiles.
  ➤ see Section 4.12 "The System logging window"

## 4.2 Installation

### 4.2.1 The installation of VCON

How to install VCON, step by step:

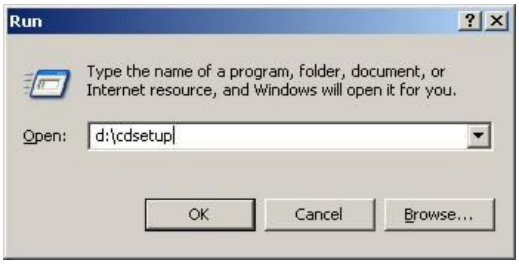
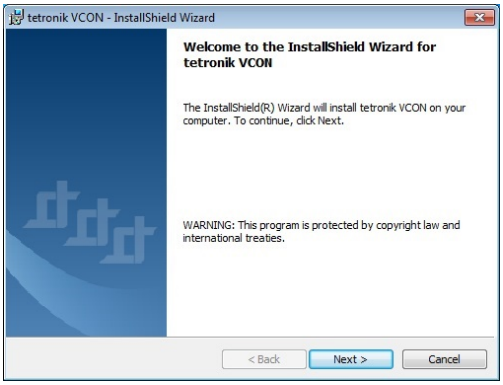
| No. | Task |
|---|---|
| 1. | Place the Installation CD in the CD-ROM drive of the PC.<br><br>If the installation software fails to start automatically, you can start the installation manually in Windows.<br><br>Select Start ➤ Run... .<br><br>Enter:<br>*<CD-Rom drive>*:\cdsetup<br><br>Confirm with Ok.<br><br>  |
| 2. | In the window "tetronik Setup" choose the menu item:<br>Install the Configuration Tool "VCON".<br><br>  |
| 3. | You can now begin with the installation.<br><br>Now click Next.<br><br>  |

Table 4-1 Install VCON

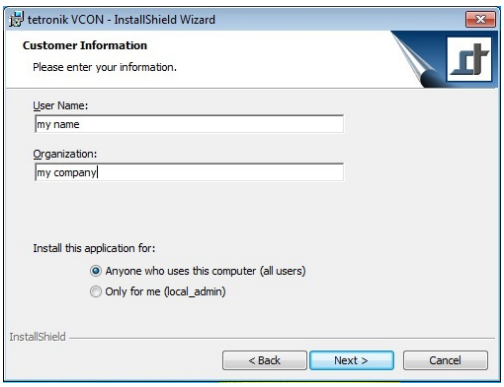
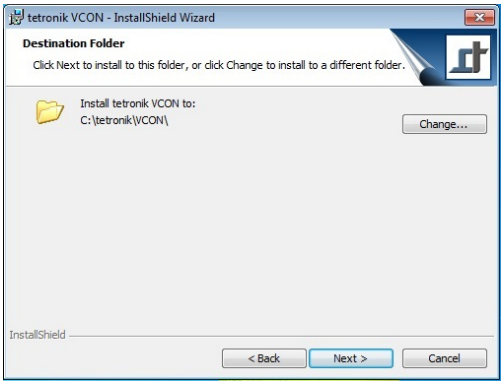
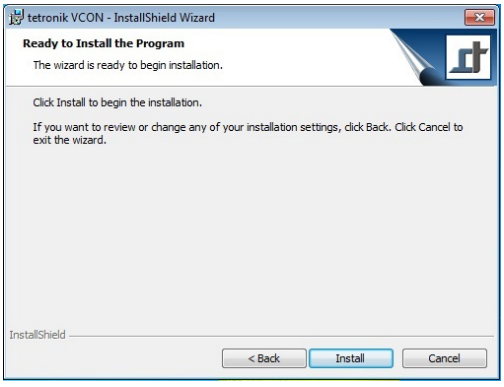
| No. | Task |
|---|---|
| 4. | Enter the user name and the name of the organization or company.<br>Specify if you want the software to be installed for all users of this PC, or only for you.<br><br>Now click Next.<br><br>  |
| 5. | To change the installation path, click the button Change....<br>Select the new path in the user window that will open next (not shown here).<br><br>Now click Next.<br><br>  |
| 6. | The settings for the installation have been entered with success.<br>You can now start with the installation.<br><br>Click Install.<br><br>  |

Table 4-1 Install VCON

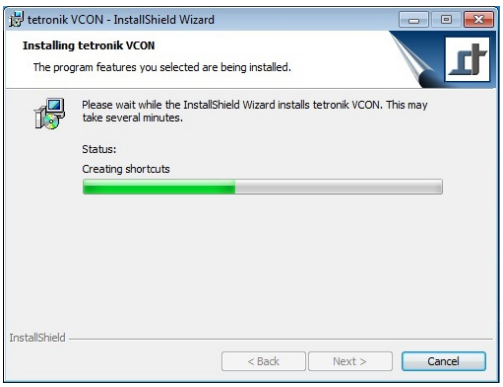
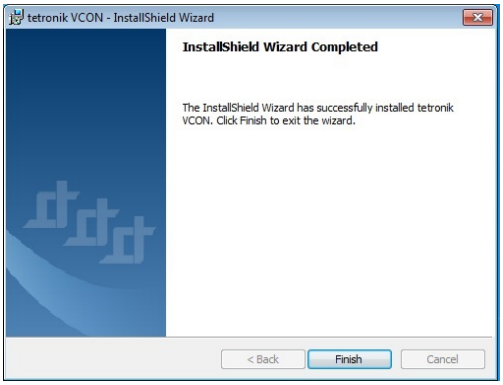
| No. | Task |
|---|---|
| 7. | The installation will now be carried out.<br>  |
| 8. | The installation has been completed with success.<br><br>To exit the InstallShield Wizard click Finish.<br>  |

Table 4-1 Install VCON

## 4.2.2 Uninstall VCON

How to uninstall VCON, step by step:

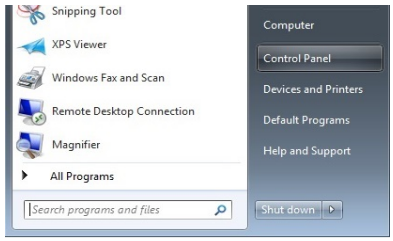
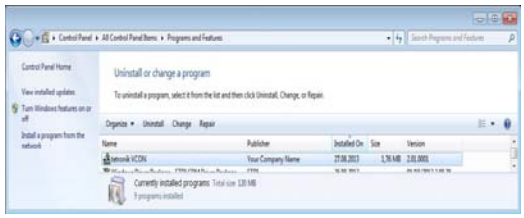
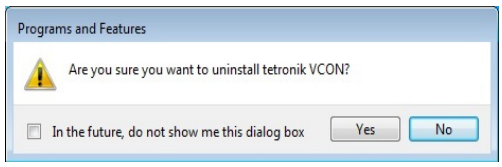
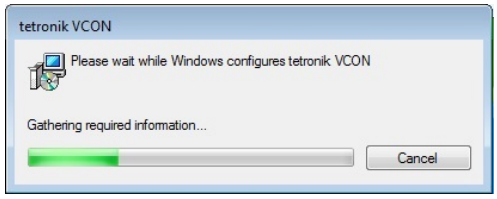
| No. | Task |
|---|---|
| 1. | Open the Windows Control Panel.   |
| 2. | Open "Programs and Features".   |
| 3. | Select the entry 'tetronik VCON'.<br><br>Click Uninstall.   |
| 4. | You can now begin with the removal of the tool.<br><br>Click Yes.   |
| 5. | The software will now be removed.   |

Table 4-2 Remove VCON

# 4.3 Start VCON

## 4.3.1 Connect with the OScAR Server

Step-by-step instruction to setup a connection between VCON and the OScAR Server:

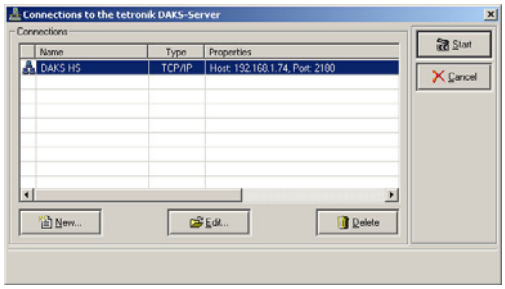
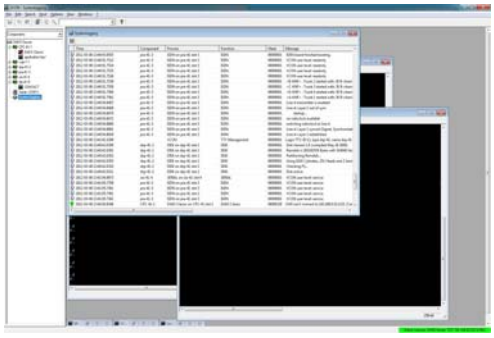
| No. | Task |
|---|---|
| 1. | Start the program 'VCON.exe' by doubleclicking the icon:<br>  <br>Or open the user dialog to connect with OScAR Server through the menu item:<br>File → Connect. |
| 2. | Choose the connection you want to use.<br>  <br>Click Start.<br><br>Note:<br>For more information how to configure or edit connection data:<br>➤ see Section 4.3.2 "Configure and edit a connection". |
| 3. | Enter your user details:<br>• User<br>• Password<br>  <br>Confirm with OK. |
| 4. | This will open the main VCON window.<br>  |

Table 4-3 Start VCON

## 4.3.2 Configure and edit a connection

Usually, the connection between the OScAR Server and VCON is established via TCP/IP using the LAN.

Optionally, a serial connection can be configured between the OScAR Server and VCON, e.g. to monitor or trace startup messages.

How to configure a connection to a OScAR Server, step by step (optional steps may not be required):

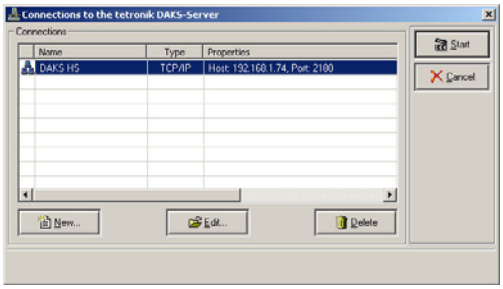
| Configure a LAN connection in VCON | |
|---|---|
| No. | Task |
| 1. | Start the program 'VCON.exe' by doubleclicking the icon:<br>  <br>Or open the user dialog to connect with OScAR Server through the menu item:<br>File → Connect. |
| 2. | The user dialog to administrate the connections to OScAR Servers enables you to do the following:<br>• Button New...<br>Use this button to add a new connection.<br>➤ Continue with Step 3<br>• Button Edit<br>Use this button to edit a connection.<br>➤ Continue with Step 3<br>• Button Delete<br>Use this button to remove a selected entry from the list of all connections, after confirming the security prompt.<br>➤ Continue with Step 2<br>• Button Start<br>Use this button to logon to tetronik OScAR Server.<br>➤ see Section 4.3.1 "Connect with the DAKS Server"<br>• Button Cancel<br>Use this button if you do not want to configure a connection to the OScAR Server<br>  |

Table 4-4 Configure and edit a serial connection in VCON

| Configure a LAN connection in VCON | |
|---|---|
| No. | Task |
| 3. | Enter the following parameters to configure the TCP/IP connection:<br>• Name<br>The name with which this connection appears in the selection list of the login window.<br>➤ see Step 1<br>• Interfaces<br>Select "TCP/IP".<br>Note:<br>If you select "TCP/IP + COM" (LAN+serial connection), additional settings will be required.<br>➤ see Step 4<br>• IP address<br>• TCP/IP port<br>Default port: 2180<br><br>Confirm with Ok.<br><br>Note:<br>For more details on the configuration of the OScAR Server and how to connect with VCON, see:<br>➤ Section 5.1 "Configuration of TCP/IP access parameters". |

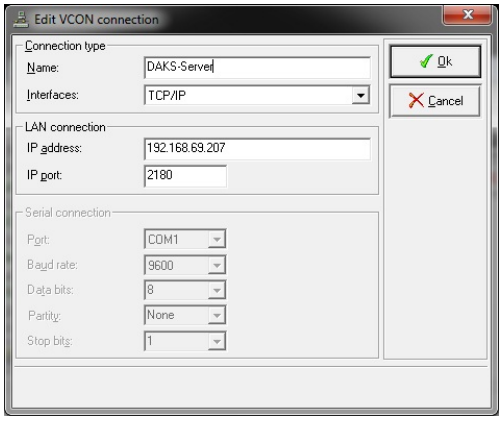



Table 4-4 Configure and edit a serial connection in VCON

| Configure a serial connection in VCON (optional) | |
|---|---|
| No. | Task |
| 4. | Use the following parameters to configure a serial connection in VCON:<br>• Interfaces<br>Select the connection "TCP/IP + COM".<br>• Port<br>Select the serial interface you want to use, e.g. "COM1".<br>• Baud rate<br>Select the wanted baud rate, e.g. "9600" (default).<br>• Data bits<br>Select the number of data bits that shall be used, e.g. "8" (default).<br>• Parity<br>Select the wanted parity , e.g. "none"(default).<br>• Stop bits<br>Select the number of stop bits, e.g. "1" (default).<br><br>Confirm with OK. |

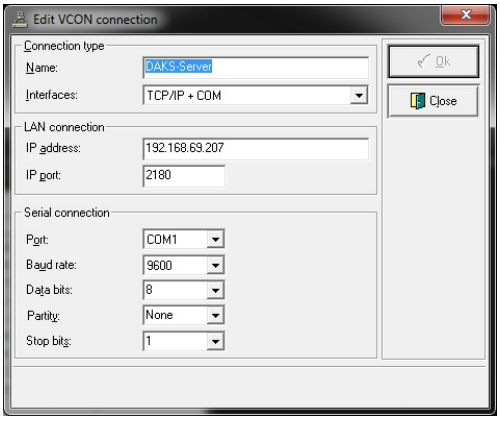



Table 4-5 Configure and edit a serial connection in VCON

## 4.4 Main view

The main view or root level (see below) contains the following areas:

- Menu bar
  ➤ see Section 4.4.1 "The menu bar, toolbar and keyboard shortcuts"
- Toolbar
  ➤ see Section 4.4.1 "The menu bar, toolbar and keyboard shortcuts"
- List of Processes
  List of all OScAR processes, output in form of a tree with child nodes, e.g. for boards, functions and process instances
  ➤ see Section 4.9 "List of Processes"
- Window area
  Output of Terminal windows and System logging windows
  ➤ see Section 4.11 "The Terminal window"
  ➤ see Section 4.12 "The System logging window"

The below image shows the main view of VCON with its operation controls:

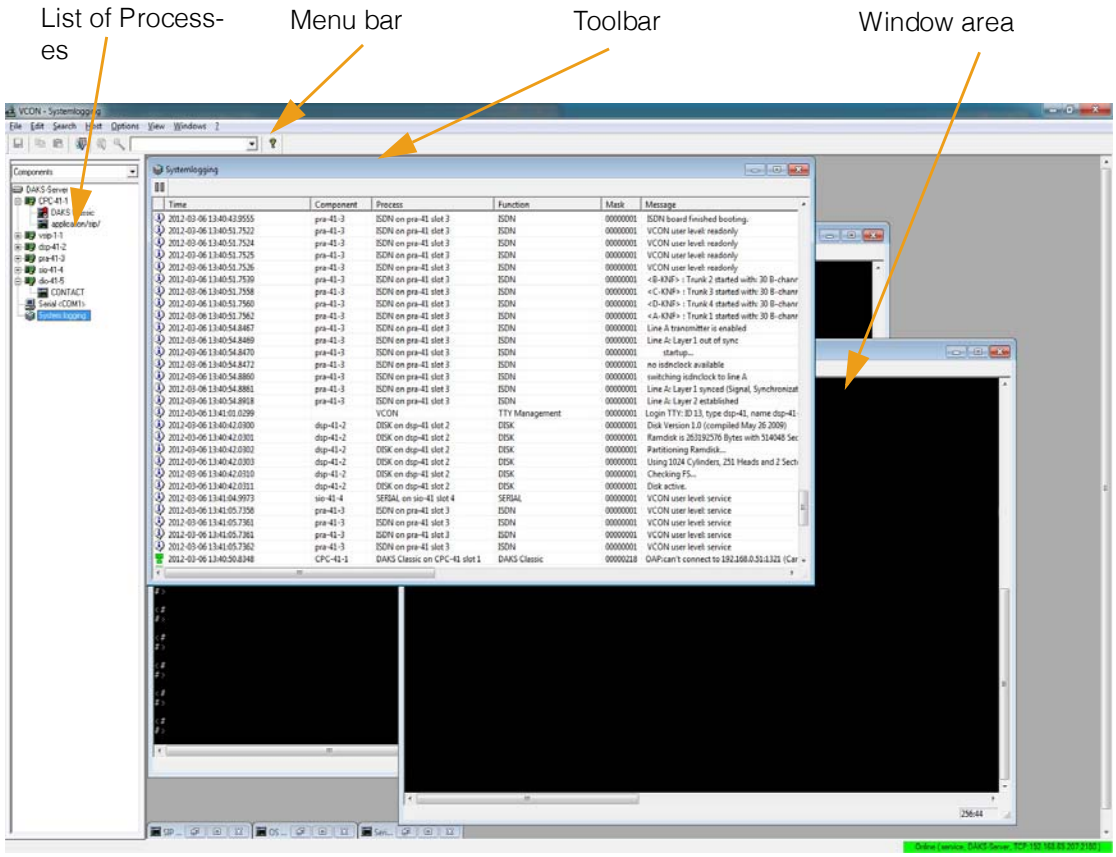



Image 4-1 VCON main view

## 4.4.1 The menu bar, toolbar and keyboard shortcuts

The below list gives you a full overview of all functions that can be reached through the menu bar, the toolbar or via a keyboard shortcut.

| Menu item | Terminal window | Sys. log. window | Description |
|---|---|---|---|
| Summary of the pull-down menu "File" | | | |
| Connect ... | X | X | Configure a connection between VCON and the OScAR Server<br>➤ see Section 4.3.1 "Connect with the DAKS Server" |
| Auto login | X | X | After a connection loss, VCON automatically reconnects with the OScAR Server using the latest connection data. |
| Save content...<br>  | X | | Save the contents of a Terminal window<br>➤ see Section 4.11.4 "Save" |
| End<br>`Alt+F4` | X | X | Exit VCON |
| Summary of the pull-down menu "Edit" | | | |
| Copy<br>`Ctrl+C`<br>  | | X | Copies content of the System logging window or other marked texts (except the Terminal window), and pastes it to the clipboard |
| Copy<br>`Shift+Ctrl+C`<br>  | X | | Copies contents of the Terminal window and paste them to the clipboard |
| Paste<br>`Shift+Ctrl+V`<br>  | X | | Pastes from the clipboard to the Terminal window, and inserts the content at the cursor's position or in an editable dialog box |
| Pause<br>`Ctrl+P`<br>  | | X | Writes no further outputs to the System logging window<br>➤ see Section 4.12.1 "General"<br>If you press the pause button again, all messages that have arrived in the meantime are shown automatically. |

Table 4-6 Menu items, icons and buttons of VCON

| Menu item | Terminal window | Sys. log. window | Description |
|---|---|---|---|
| Summary of the pull-down menu 'Search' | | | |
| Find marked text<br>`Ctrl+F3` | X | | Browse the Terminal window or System logging window for a selected (marked) text<br>➤ see Section 4.11.3 "Search for a text or term in the Terminal window", Section 4.12.2 "Browse the System logging window for a word or text" |
| Search for a marked text in the System logging window<br>`Shift+Ctrl+F3` | X | | Browse the System logging window for the text you selected in the Terminal window (only for Terminal window)<br>➤ see Section 4.11.3 "Search for a text or term in the Terminal window" |
| Find next similar message<br>`Ctrl+F3` | | X | Browse the System logging window to find the next similar messages, i.e. browse for messages that have the same type<br>➤ see Section 4.12.2 "Browse the System logging window for a word or text" |
| Find message in the matching terminal<br>`Shift+Ctrl+F3` | | X | Browse the Terminal window which corresponds to the System logging window to find a particular text that you selected in that System loggin window (only for System logging window)<br>➤ see Section 4.12.2 "Browse the System logging window for a word or text" |
| Filters...<br>  | | X | Filter System logging entries<br>➤ see Section 4.13 "Filter system messages" |
| Summary of the pull-down menu 'Process' | | | |
| Properties/settings...<br>Doubleclick the Process List | X | | Use this menu item for output of the process properties and to configure the process, provided the process has parameters that can be configured<br>➤ see Section 4.9.2 "Properties/settings" |
| Configure current monitoring... | X | | Use this menu item to configure the current monitoring output<br>The monitoring outputs will no longer be active after a system start of the OScAR Server.<br>➤ see Section 4.10.2 "Configure current monitoring" |
| Configure start-up monitoring... | X | | Use this menu item to open the window "Start-up monitoring configuration" and define the monitoring output<br>The monitoring output will be automatically activated after a system start of the OScAR Server.<br>➤ see Section 4.10.3 "Configuration of the start-up monitoring" |
| Log terminal output temporarily | X | | Use this menu item to temporarily log terminal outputs, in log files<br>After a system start of the OScAR Server, this setting for Terminal outputs will no longer be active.<br>➤ see Section 4.11.2 "Logging" |

Table 4-6 Menu items, icons and buttons of VCON

| Menu item | Terminal window | Sys. log. window | Description |
|---|---|---|---|
| Log terminal output permanently | X | | Use this menu item to permanently log terminal outputs, in log files<br>The monitoring output are automatically activated after a system start of the OScAR Server.<br>➤ see Section 4.11.2 "Logging" |
| Process configuration Report... | X | | Use this menu item to open the window "Process configuration for..." of a process, with configuration details and information on the board and slot.<br>➤ see Section 4.9.3 "Output server and process configuration" |
| Print entire server configuration... | X | | use this menu item to open the configuration details of the entire server<br>➤ see Section 4.9.3 "Output server and process configuration" |
| Summary of the pull-down menu "Host" | | | |
| Upload VCON transfer file... | X | X | Use this menu item to upload installation, update or license files to the OScAR Server.<br>➤ see Section 4.7 "Upload installation, update and license files" |
| Create system backup... | X | X | Use this menu item to save the entire Compact-Flash card in a backup<br>➤ see Section 4.7.1 "Create a system backup" |
| Save configuration... | X | X | Use this menu item to save the OScAR configuration in a backup.<br>➤ see Section 4.7.2 "Save the configuration in a backup" |
| Upload configuration... | X | X | Use this menu item to upload the OScAR configuration from the backup<br>➤ see Section 4.7.3 "Upload configuration..." |
| Enter activation code... | X | X | Use this menu item to enter the activation code that is needed to upgrade a OScAR Release 6 Server to a OScAR Release 8 Server.<br>➤ see Section 4.7 "Upload installation, update and license files" |
| Change password... | X | X | Use this menu item to change the login data of the user who is currently logged in;<br>➤ see Section 4.7 "Upload installation, update and license files" |
| Summary of the pull-down-menu "Tyco" (is only shown in the Terminal window OScAR Classic) | | | |
| Upload the translation table | X | | Use this menu item to upload an Mc800 translation table to the OScAR Server |
| Summary of the pull-down menu "Options" | | | |
| Settings... | X | X | Configure the VCON settings;<br>➤ see Section 4.8 "Settings" |
| Languages | X | X | Use this menu item to choose the German or English user interface |

Table 4-6 Menu items, icons and buttons of VCON

| Menu item | Terminal window | Sys. log. window | Description |
|---|---|---|---|
| Summary of the pull-down menu "View" | | | |
| List of Processes<br>`Shift+Ctrl+Z` | X | X | Use this menu item to show/hide the List of Processes |
| Summary of the pull-down menu "Windows" | | | |
| Cascade | X | X | Cascade all windows in the main window |
| Tile horizontally | X | X | Use this menu item to tile all windows. |
| Summary of the pull-down menu "?" | | | |
| About tetronik VCON<br>  | X | X | Use this menu item to open the 'About VCON' window with the VCON version number, copyright information, the tetronik contact details and additional information on VCON.<br>➤ see Section 4.4.2 "About VCON" |
| Search and filter functions | | | |
|  | X | X | Use this icon to browse all saved system logging files for the search text that is entered, or to search for this text in the Terminal and System logging window that is currently open.<br>➤ see Section 4.11.3 "Search for a text or term in the Terminal window", Section 4.12.2 "Browse the System logging window for a word or text" |
|  | X | X | Word search for system messages<br>➤ see Section 4.13.2 "Use word search" |

Table 4-6 Menu items, icons and buttons of VCON

## 4.4.2 About VCON

Open the window 'About VCON' for details on VCON through the menu item:

? → About tetronik VCON...

The window "About tetronik VCON" gives you this information:

- Product name
- Version number
- the contact details of the producer, tetronik GmbH
- the copyright information and details
- Disclaimer

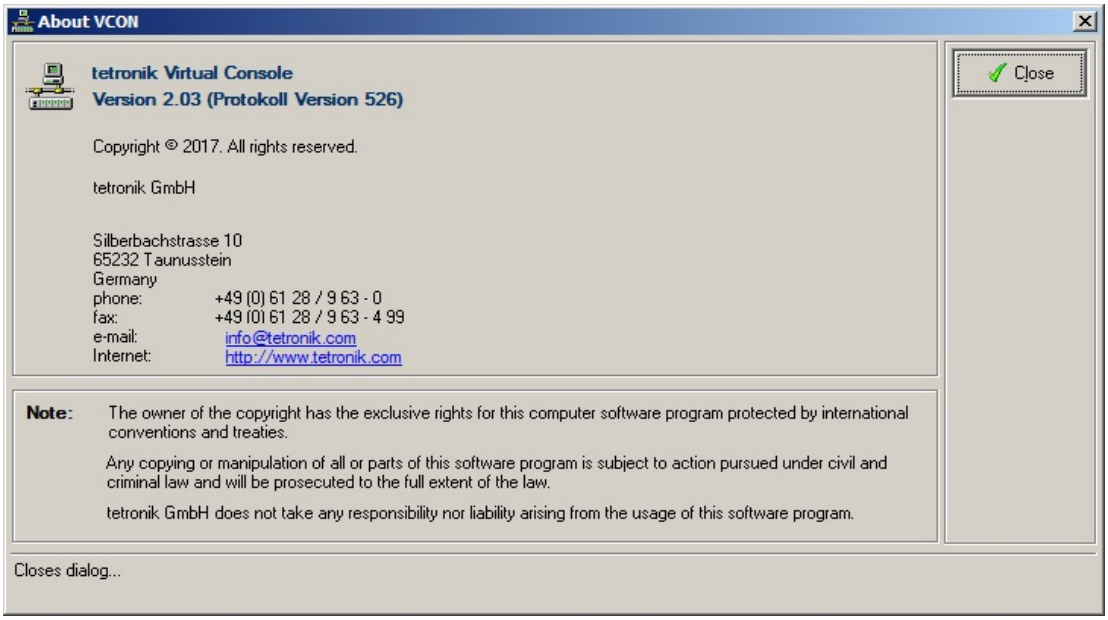


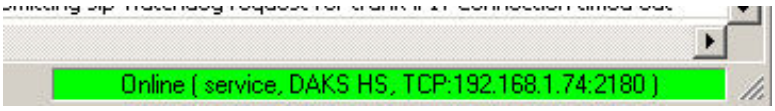

Image 4-2 About tetronik VCON

### 4.4.3 Status bar

The status bar signals the connection status between VCON and the OScAR Server.

These states are possible:

- Online
  VCON and the OScAR Server are properly connected with one another and all VCON functions are fully available.




- Offline
  VCON and the OScAR Server are not connected to one another. However, the function to filter and search for system messages is still available.
  If messages have already been received in any of the different Terminal windows, the search functions can also be applied to these windows.VCON.


Status bar

The messages in the status bar consist of the following elements:

<connection status>(<user name>, <connection status>, <connection type>:<connection parameters>)

The different elements stand for:

| | |
|---|---|
| • <connection status> | The state of the connection between VCON and the OScAR Server:<br>Online, Offline (see above) |
| • <user name> | The name of the user<br>➤ see Section 4.1.2 "User administration" |
| • <connection name> | The name of the connection to the OScAR Server<br>➤ see Section 4.3.2 "Configure and edit a connection" |
| • <connection type> | The type of the connection: TCP<br>➤ see Section 4.3.2 "Configure and edit a connection" |
| • <connection parameter> | The parameters of the connection: IP address and port<br>➤ see Section 4.3.2 "Configure and edit a connection" |

## 4.5 The window "Change password"

Open the window "Change password" with the menu item:

OScAR server ➤ Change password...

The logged-in user can change his/her own password in the next window.

The user cannot, however, change the password of another user.

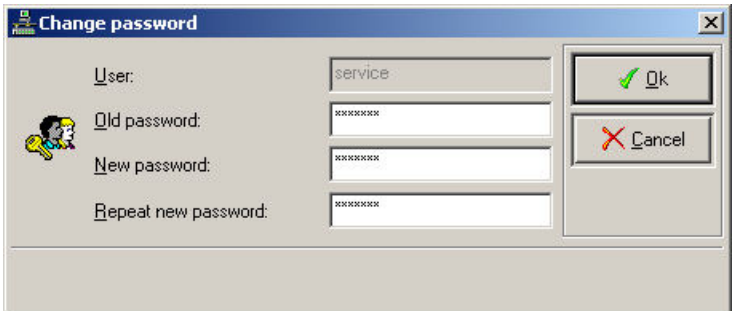



Image 4-3 Change password

Description of the fields in the window 'Change password'

| Menu bar/ button | Description |
|---|---|
| User | The user name (cannot be edited) is output as read-only. |
| Old password | Here, the logged-on user must enter his/her old password as authentication to ensure that no unauthorized user can change the password of another user. |
| New password | In the next step, enter the new password and confirm it to avoid erroneous entries that would lead to the loss of the password. |
| Repeat new password | |

Table 4-7 Change password

## 4.6 Enter the activation code

The activation code is used to upgrade Classic OScAR Servers of the Release 3E (versions with control computer SBC-31), 4, 5 or 6 to a OScAR-Pro Server Release 8.

To do so, the program "T-Load" generates a 16-digit activation code in the old OScAR Server.

Enter the code to activate the performance features in the new OScAR Server.

Open the window to enter the activation code through the menu item:

Host → Enter activation code...

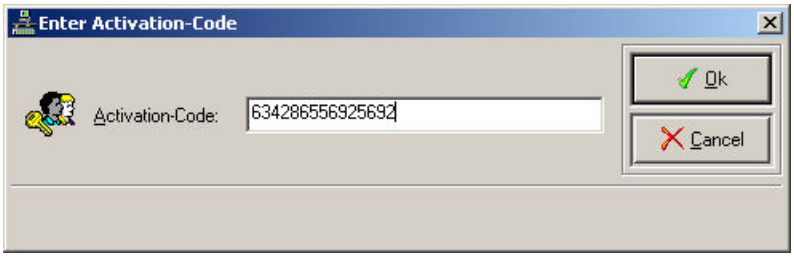



Image 4-4 The window "Enter Activation-Code"

Enter the activation code and click OK. The system will report back to you if the code was accepted or rejected.

This window only opens when the activation code was accepted:


Image 4-5 Activation code accepted

This window only opens when the activation code was rejected:


Image 4-6 Activation code not accepted

If you have already entered the activation code, the system will output the error message: "file already exists".

Caution!
For safety reasons, the OScAR Server will always automatically reboot after you enter the activation code.
If a false code was entered, the activation code must be entered again after the system restart.

## 4.7 Upload installation, update and license files

With VCON you can also install any system components of the OScAR Server by transferring so-called VCON transfer files (*.vtf) to the OScAR Server.

Every VCON transfer file contains the following data:

- The version of the file(s) you want to upload.
- The version of the system components that serves as the basis of the file you want to upload.
- The payload of the file(s) you want to upload.
- The type of the file(s) you want to upload.

The following types of VCON transfer files are available:

- The License file

  The license file contains the performance features of the OScAR Server, such as the number of TDM or VoIP channels of the enabled applications, e.g. the Info Telephone or Conferences.
- The Update

  The update contains one or several files of an application or of the basic system that have been modified compared to the full version.
- The Full version

  The full version contains all files, including the operating system, that are needed for a complete installation.
- The Customized version

  The customized version constitutes a project-specific version.
- The backup of the CompactFlash or SD card (= memory card)

  The backup of the CompactFlash or memory card contains a full copy and the entire process- and license data.

  Before uploading a backup to the OScAR Server, VCON automatically generates a backup of the memory card.

  As a rule, backups are always uploaded when the system is in the repair mode,

  ➤ see Section 5.2 "Activate the repair system"
- The bootstrap file for the stripped initial program loading of the CompactFlash or SD card (= memory card):

  The bootstrap file for the memory card contains a full copy of the OScAR Server operating system.

  Bootstrapping the CompactFlash is necessary if the OScAR Server is no longer able to boot with the CompactFlash and no backup is available.

  Usually, the bootstrap function is applied when commissioning a memory card from the RUAD spare parts case (e.g. when replacing a card due to a physical defect), in order to bring the new memory card to the customer-specific version of the operating system.

  You can find the bootstrap file to carry out the stripped initial program loading of the CompactFlash on the Installation CD. The file is uploaded when the system is in repair mode.

  ➤ see Section 5.2 "Activate the repair system"

Caution!

When you run the bootstrap file for the stripped initial program loading of the CompactFlash or SD memory card, the memory card is automatically reformatted.

During this process, both the customized data and configurations, and the process- and license information will be lost.

How to upload a VCON transfer file, step by step:

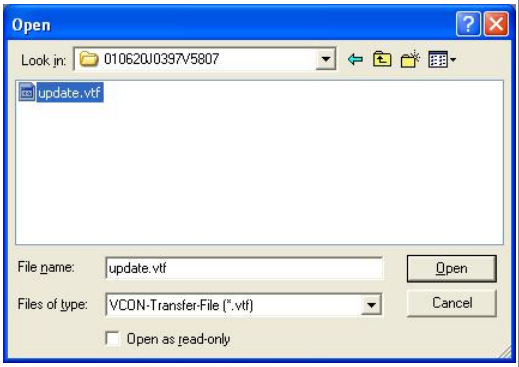
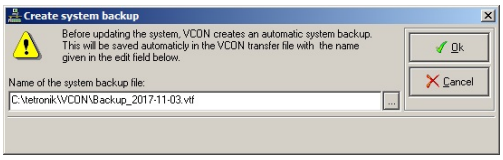
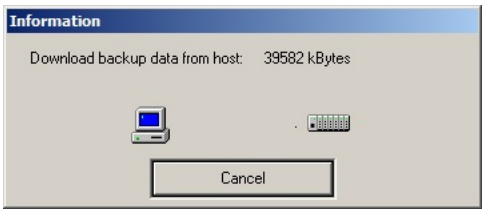
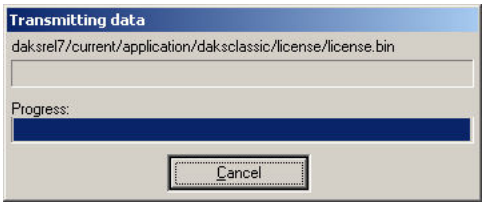
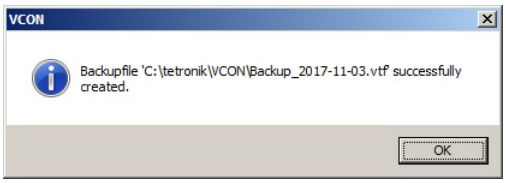
| No. | Task |
|---|---|
| 1. | Click the menu item:<br>Host ➤ Upload VCON transfer file... |
| 2. | Select the VCON transfer file you want to upload to the OScAR Server.<br><br>Next, click Open<br><br>• If the VCON transfer file is an update:<br>➤ continue with Step 3<br>• In all other cases:<br>➤ continue with Step 4<br><br>  |
| 3. | If the VCON transfer file is an upload, VCON will first run a backup of the CompactFlash card.<br><br>For this select the file name.<br><br>Confirm with Ok.<br><br>  |
| 3a. | During the upload of the update, the progress is shown in form of a progress bar.<br><br>  |
| 4. | The upload progress for the VCON transfer file is shown in form of a progress bar.<br><br>  |
| 5. | This message is sent as soon as the VCON transfer file has been successfully uploaded.<br><br>Confirm with Ok.<br><br>  |

Table 4-8 Upload a VCON transfer file

### 4.7.1 Create a system backup

Use this function to create a system backup of the CompactFlash card. During this process, VCON creates a so-called VCON transfer file that you can later upload as installation file.

➤ see Section 4.7 "Upload installation, update and license files"

How to create a system backup, step by step:

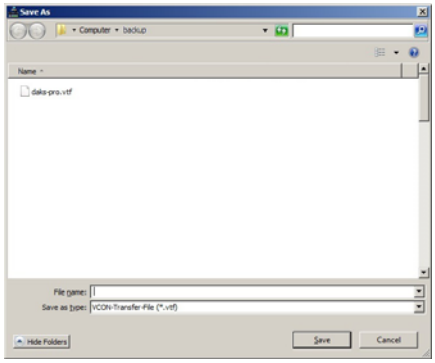
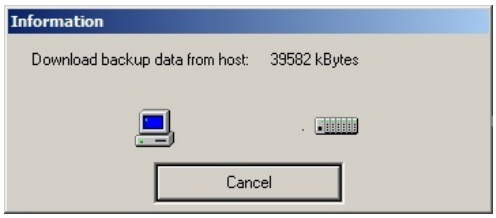
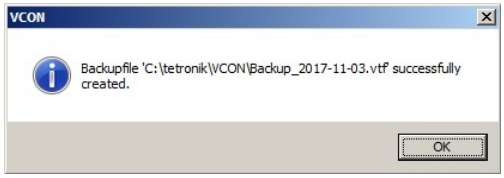
| No. | Task |
|---|---|
| 1. | Click the menu item:<br>Host ➤ Create system backup... |
| 2. | Assign a name to the backup file.<br><br>Next, click Save.<br><br>  |
| 3. | During the saving process, the progress is shown in form of a progress bar.<br>Please wait.<br>This process may take a few minutes.<br><br>  |
| 4. | After the system backup has been successfully saved, this message will appear.<br><br>Confirm with Ok.<br><br>  |

Table 4-9 Create system backup

## 4.7.2 Save the configuration in a backup

Use this function to save the entire configuration data of VCON in an XML file. You can upload the XML backup file at any time to the OScAR server to restore a specific system configuration.

➤ see Section 4.7.3 "Upload configuration..."

How to save the configuration in a backup, step by step:

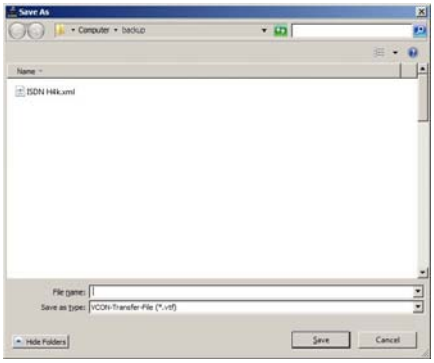
| No. | Task |
|---|---|
| 1. | Click the menu item:<br>Host ➤ Save configuration... |
| 2. | OScAR queries the configuration data of the individual processes in OScAR.<br><br>Please wait.<br><br>  |
| 3. | Assign a name to the backup file.<br><br>Next, click Save.<br><br>The backup file will now be saved under the entered name.<br><br>  |

Table 4-10 Save the configuration in a backup

### 4.7.3 Upload configuration...

Use this user-friendly function to upload configuration to OScAR that was saved through VCON. In this way, you can restore a previously defined system configuration quickly and easily at any time.

How to upload a configuration, step by step:

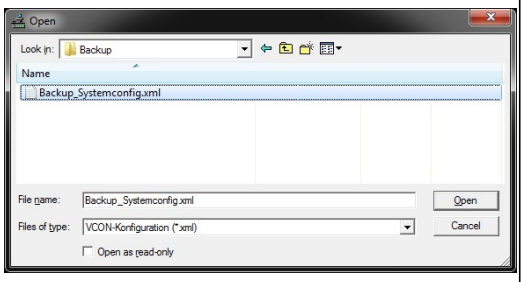
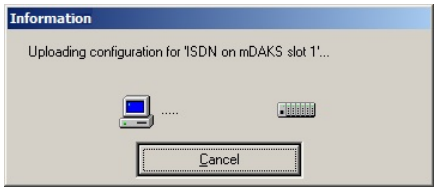
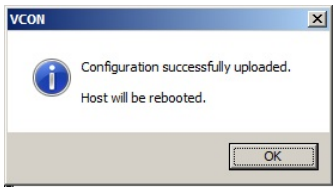
| No. | Task |
|---|---|
| 1. | Click the menu item:<br>Host ➤ Upload configuration... |
| 2. | Choose the name of the backup file (in this example: "Backup_Systemconfig.xml").<br><br>Next, click Open.<br><br>  |
| 3. | During the upload of the system configuration, the progress is shown in form of a progress bar.<br><br>Please wait.<br><br>  |
| 4. | The configuration data was uploaded successfully.<br><br>With OK, OScAR is automatically rebooted.<br><br>  |

Table 4-11 Upload a configuration

## 4.8 Settings

Open the user window to edit the VCON settings through the menu item:

Options ➤ Settings...

The user window 'Settings' has two tabs:

- Terminal
  ➤ see Section 4.8.1 "Terminal"
- Paths
  ➤ see Section 4.8.2 "Paths"

### 4.8.1 Terminal

The Terminal settings define the view of the Terminal windows.

➤ see Section 4.11 "The Terminal window"

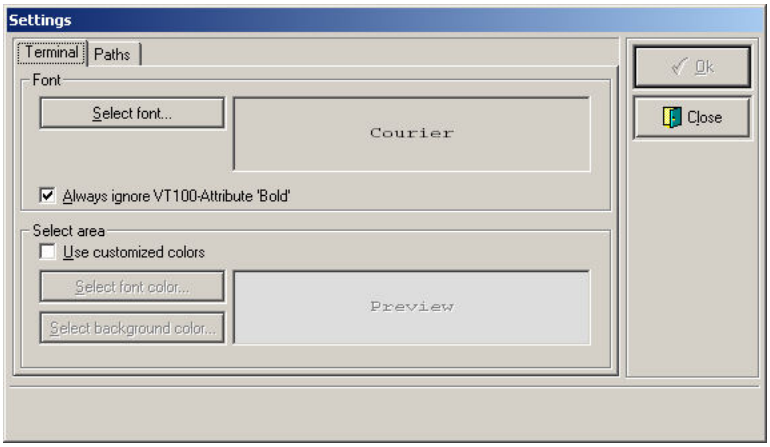



Image 4-7 VCON user window "Settings", tab Terminal

Summary of the fields in the window 'Settings'

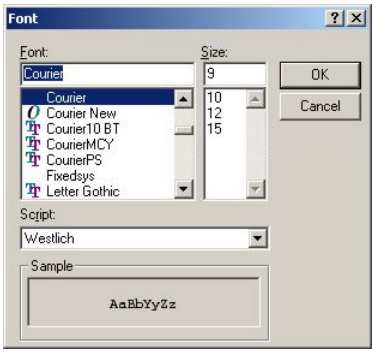
| Menu bar/ button | Description |
|---|---|
| Font | |
| Select font... | Use this menu item to open the standard window in Windows in which you can select a font:<br>  |

Table 4-12 VCON user window 'Settings' - Tab 'Terminal'

| Menu bar/ button | Description |
|---|---|
| Always ignore VT100-Attribute 'Bold' | Due to the fact that they utilize more pixels in width than normal characters, the output of bold characters in the Terminal window means a greater overall width than same-length messages that have no bold characters.<br>• yes<br>When this box is ticked, the VT100 attribute 'Bold' is ignored.<br>• no<br>When this box is ticked, the characters are output in 'Bold'.<br>[yes] |
| Select font color... | |
| Use customized colors | • yes<br>When this box is ticked, the colors that are chosen here will be used for texts that are marked in the Terminal window.<br>• no<br>When this box is ticked, the font color of texts that are marked in the Terminal window will be black against a light gray background.<br>[no] |
| Select font color...<br>Select background color... | Click either of these buttons to open the standard Windows user dialog to select a color:<br>  |

Table 4-12 VCON user window 'Settings' - Tab 'Terminal'

## 4.8.2 Paths

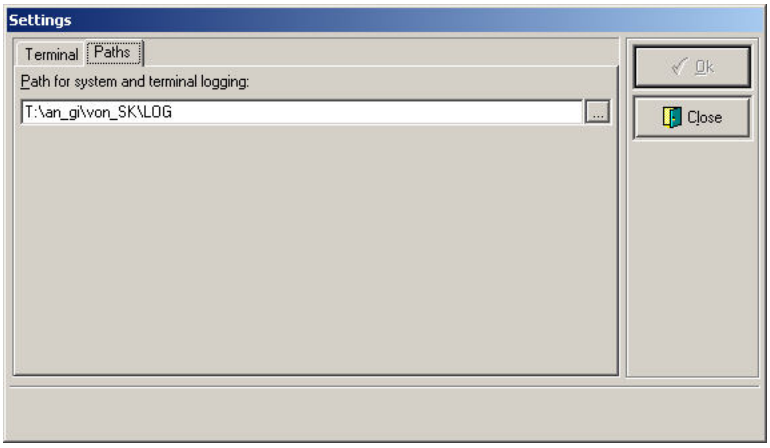



Image 4-8 VCON window 'Settings' - Tab 'Paths'

Summary of the fields in the window 'Settings'

| Menu bar/ button | Description |
|---|---|
| Path for system and terminal logging | The path to which all files are written that contain outputs of the Terminal and the System logging window.<br>[<Installation path>\LOG] |

Table 4-13 VCON user window 'Settings' - Tab 'Paths'

# 4.9 List of Processes

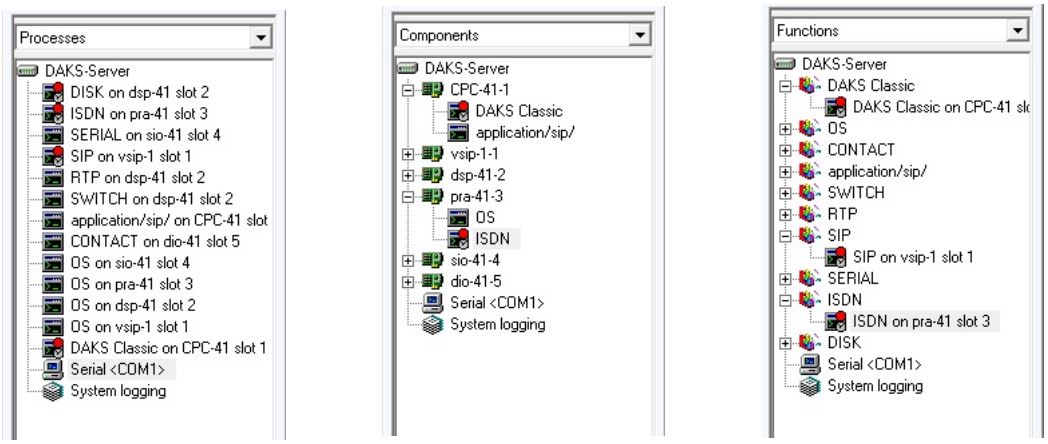
## 4.9.1 General

This section covers the way OScAR processes are shown in the VCON tree structure.

All processes that run in the OScAR server are characterized by the components and their specific function. Use the following criteria to sort the Processes list:

- Processes
  A process is precisely one instance of a particular function. It is determined by the function and the component.
- Components
  A component constitutes a logically or also a physically delimited area within OScAR.
  The top hierarchy node lists all components. The next lower child node lists all processes that run in the individual components.
- Functions
  The function of a process always describes its task. This includes e.g. the OScAR applications and the serial interface(s).
  The top hierarchy node lists all functions. The the next lower child node lists all processes that have this function.

Example view of a Processes list




a) b) c)

Image 4-9 The structure of the Processes list: a) Processes, b) Components, c) Functions

## 4.9.2 Properties/settings

Open the user window with the properties and settings of a process:

- via the menu bar: Process ➤ Properties/settings...
- via the context menu: Properties/settings...
- or with a direct double click on the process in the Processes list

Either of these commands will open the user window with the attributes and properties of the process and that can also be used to add changes.

➤ see Image 4-10 Properties of a process
➤ see Image 4-11 Settings of a process

For a complete list of all functions and their parameters, value ranges and descriptions:

➤ Section 5.3 "Boards and processes"

- Properties
  - function — The function of the process ➤ see Section 4.9.1 "General"
  - component name — The name of the component, consisting of the card type and the slot.
  - component type — The type of the component
  - serial number — The serial number of the board
  - slot number — The slot in which the board is currently inserted
  - PLD version — The version of the PLD programming
  - software version — The version of the process software
  - codec — The applied Codec

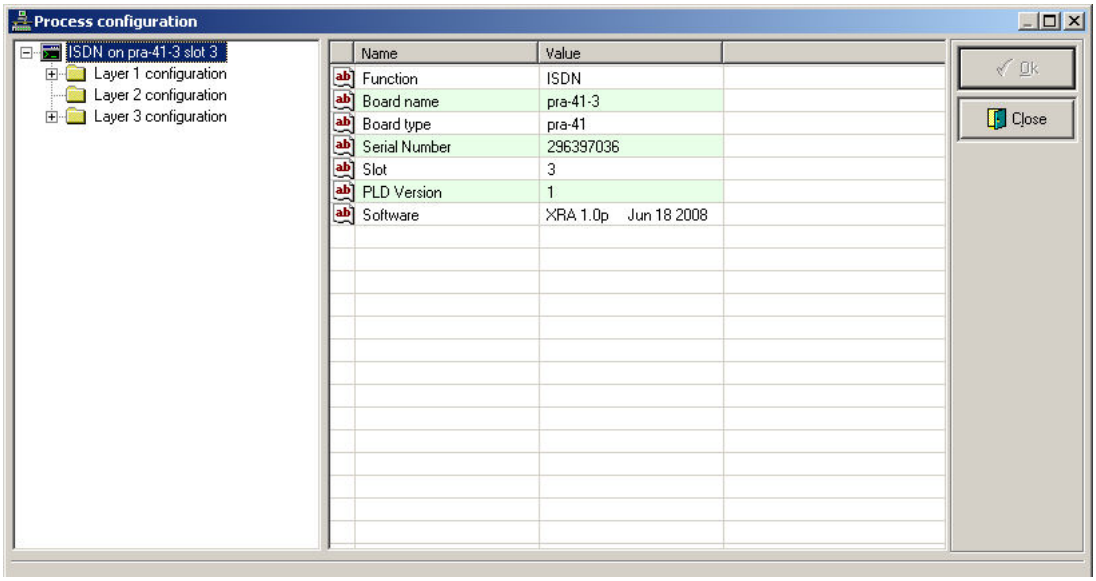



Image 4-10 Properties of a process

- Settings

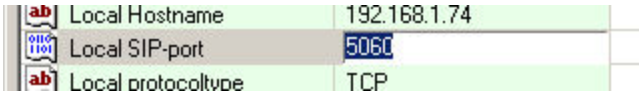
  Not every processes can be parameterized. If parameters can be set, they are shown in an edit dialog in form of a tree.

  ➤ see Image 4-11 Settings of a process

  For editing, the dialog offers the following edit fields depending on the parameter's data type:

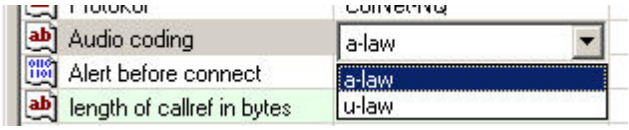
  – Edit field

    The edit fields are used for alphanumeric entries. The entries that are made in these fields are verified by the system once the user has proceeded to the next area. If the system detects that the supported value range of the edit field was exceeded, it will automatically send a corresponding message and reactivate its earlier entry.
    For example: "Local SIP-port" in the trunk configuration of the SIP process:




  – Selection field

    Selection fields have a drop-down combobox from which you can choose settings.
    For example: "Audio coding" in the configuration of the ISDN process:



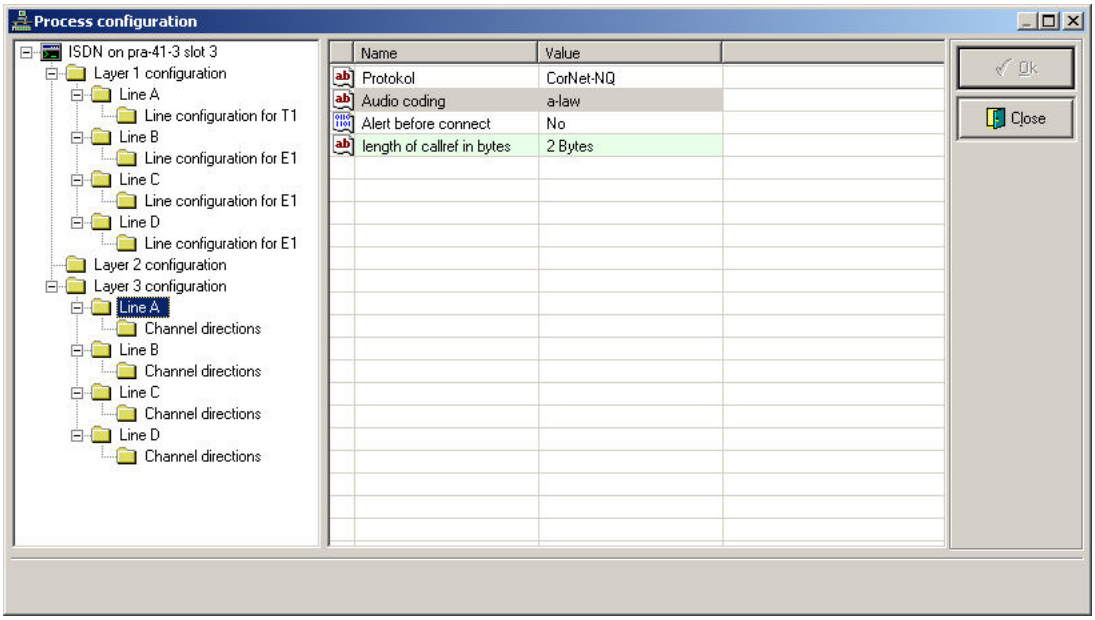




Image 4-11 Settings of a process

## 4.9.3 Output server and process configuration

When retrofitting the OScAR Server, especially when changing the hardware boards in the order of their slots or when adding new boards, we recommend you always save the configuration of the corresponding processes or of the entire server.

This makes sure that the previous values are still available in the subsequent system configuration.

To save the configuration proceed as follows:

- via the menu bar: Process ➤ Print entire server configuration...
- via the menu bar: Process ➤ Print current process configuration...

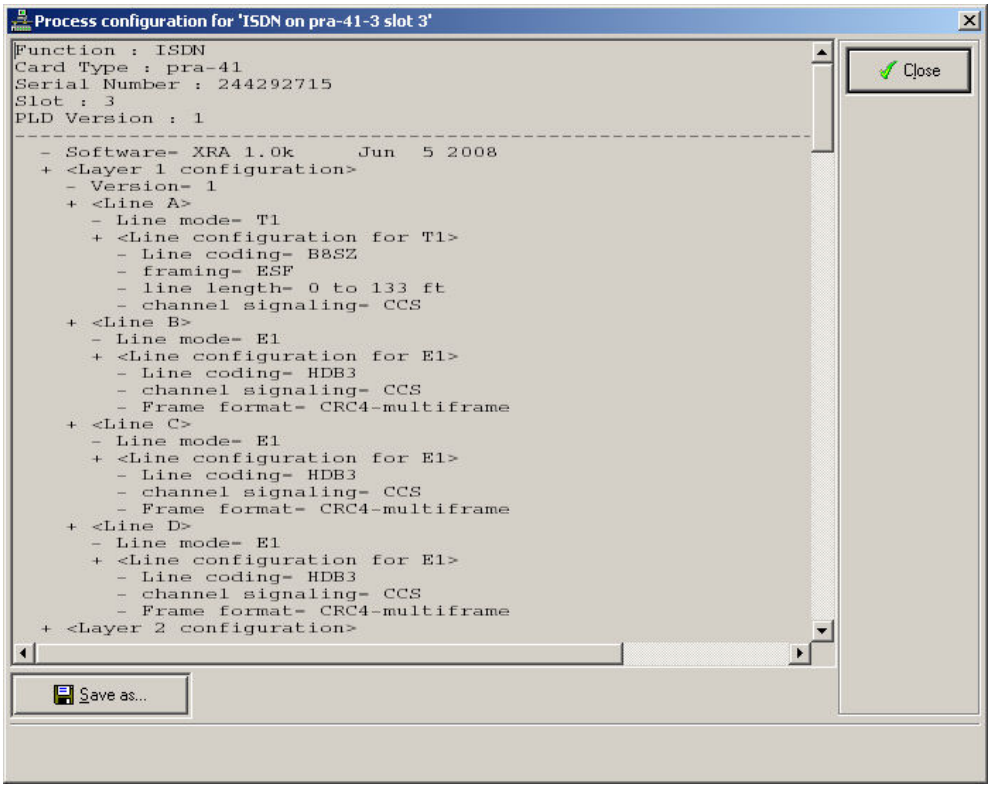



Image 4-12 Process configuration

This outputs the configuration of the selected process or of the entire OScAR Server in a tree.

➤ see Section 5.3 "Boards and processes"

To save, click Save as....

Next, the standard Windows dialog to save a file will pop up.

Enter the path where you want to save the file, and confirm you entry with OK.

# 4.10 Monitoring

## 4.10.1 General

Monitoring outputs in the Terminal window and/or in the System logging window enable you to trace processes in detail. Here you can control which outputs shall output by the OScAR Server. This includes the option to activate the monitoring outputs on a temporary or on a permanent basis. Outputs that are activated on a temporary basis are lost at the next system start, whereas monitoring outputs that are activated on a permanent basis are automatically re-activated by the OScAR Server after the next system start.

## 4.10.2 Configure current monitoring

Open the user window to read and edit the active monitoring of a process:

- via the menu bar: Process ➤ Configure current monitoring...
- via the context menu: Configure current monitoring...

Either of these options will open a user dialog in which you can configure temporary monitoring settings for traces.

➤ see Image 4-13 Configure current monitoring

The monitoring output appears in the matching Terminal windows of the processes and/or in the System logging window.

➤ see Section 4.11 "The Terminal window"

➤ see Section 4.12 "The System logging window"

Caution!

The monitoring settings that are made in this user window will not be lost with the next restart of the OScAR Server.

For further details on the activation of the permanent monitoring outputs:

➤ see Section 4.10.3 "Configuration of the start-up monitoring"

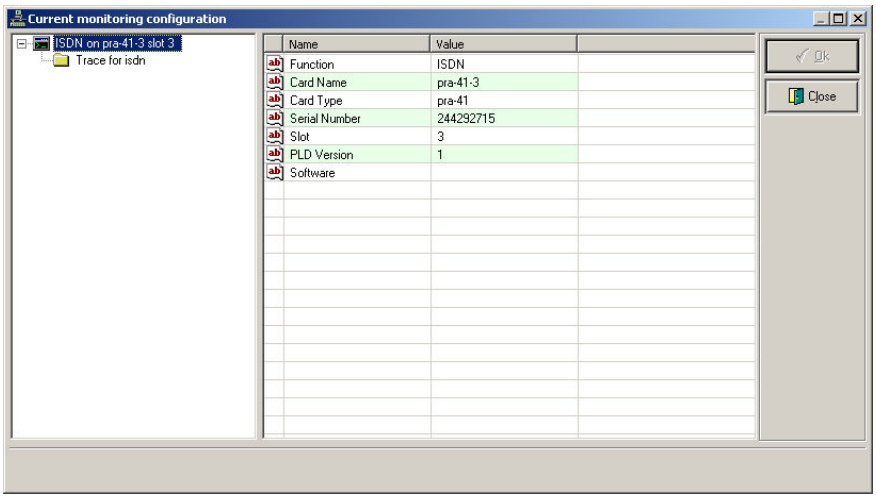
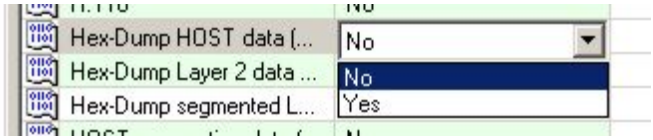



Image 4-13 Configure current monitoring

The individual monitoring outputs can be activated ("Yes") and deactivated ("No") with a selection list.



## 4.10.3 Configuration of the start-up monitoring

Open the user window to edit the Start-up configuration for the monitoring of a process:

- via the menu bar: Process ➤ Configure Start-up monitoring...
- or via the context menu: Configure start-up monitoring...

Either of these options will open a user dialog in which you can configure permanent monitoring settings for traces.

➤ see Image 4-13 Configure current monitoring

The monitoring output appears in the matching Terminal windows of the processes and/or in the System logging window.

➤ see Section 4.11 "The Terminal window"
➤ see Section 4.12 "The System logging window"

Caution!
The monitoring settings that are made in this user window will not be lost at the next restart of the OScAR Server.
Bear in mind that large amounts of data may be added to the hard disc drive when you save data via the Terminal and/or the System logging window.

For more details on the editing of the settings see:

➤ Section 4.10.2 "Configure current monitoring".

The user dialog to edit the settings is the same except for the header. It carries the title "Configure start-up monitoring"

# 4.11 The Terminal window

## 4.11.1 General

The individual processes in the OScAR Serverwrite their process- and error messages as well as their monitoring outputs to the Terminal windows.

Specially-formatted outputs are additionally shown in the System logging window.

➤ see Section 4.12 "The System logging window"

## 4.11.2 Logging

The outputs in the Terminal windows can be written into files. The logging of Terminal outputs in files can either be carried out on a temporary basis, or permanently:

- Activate temporary logging
  If the logging is activated on a temporary basis, all terminal outputs are written in a log file for as long as VCON is active. After the next new start, however, the terminal outputs are no longer written to the log file.
  Activate/deactivate the temporary logging:
  – via the menu bar: Process ➤ Log terminal output temporarily
  – via the context menu: Log terminal output temporarily
  – or via the toolbar: 
- Activate permanent logging
  If the logging is activated on a permanent basis, all terminal outputs will also be logged after a reboot of the OScAR Server.
  Activate/ deactivate the permanent logging:
  – via the menu bar: Process ➤ Log terminal output permanently
  – via the context menu: Log terminal output permanently
  – or via the toolbar: 

For each process VCON creates, in a directory that you determine freely, an individual subdirectory with the name of the respective process. It is here that the system then adds a new log file for every day, under the following file name:

- Format of the log file name: `yyyy-mm-dd.log`
  – `yyyy` year, 4 digits
  – `mm` month, 2 digits
  – `dd` day, 2 digits
  ➤ see Section 4.8.2 "Paths"

The following table is an example of a fog file.

Here, the activation of the logging triggered by VCON after a system reboot is earmarked separately.

| | |
|---|---|
| 2008-02-28 13:09:02.1776 ALD:evt=callstate P10 idx= 38<br>2008-02-28 13:09:02.2656 SYS:PRA-41-4 cidx=ffff tan=0a0a pc<br>2008-02-28 13:09:02.2658 ALD:evt=callstate P3 idx= 43<br>2008-02-28 13:09:02.2896 ALD:evt=playready idx= 52<br>2008-02-28 13:09:02.3176 SYS:PRA-41-4 cidx=ffff tan=0a0a pc<br>2008-02-28 13:09:02.3186 ALD:evt=callstate P10 idx= 43<br>2008-02-28 13:09:02.3297 ALD:evt=callstate P10 idx= 43<br>=> Logging started: 2008-02-28 12:02:39.0757<br>2008-02-28 13:09:02.4778 SYS:PRA-41-4 cidx=ffff tan=100b pc<br>2008-02-28 13:09:02.4780 ALD:evt=callstate P3 idx= 37<br>2008-02-28 13:09:02.5257 SYS:PRA-41-4 cidx=ffff tan=7001 pc<br>2008-02-28 13:09:02.5266 ALD:evt=callstate P12 idx= 31<br>2008-02-28 13:09:02.5778 SYS:PRA-41-4 cidx=ffff tan=1a0b pc<br>2008-02-28 13:09:02.5779 ALD:evt=callstate P3 idx= 39<br>2008-02-28 13:09:02.5976 SYS:PRA-41-4 DISC tan=<br>2008-02-28 13:09:02.5977 ALD:evt=timer idx= 31<br>2008-02-28 13:09:02.6576 ALD:evt=playready idx= 59<br>2008-02-28 13:09:02.6776 SYS:PRA-41-4 cidx=ffff tan=100b pc<br>2008-02-28 13:09:02.6778 ALD:evt=callstate P3 idx= 37<br>2008-02-28 13:09:02.7177 SYS:PRA-41-4 cidx=ffff tan=100b pc<br>2008-02-28 13:09:02.7187 ALD:evt=callstate P10 idx= 37<br>2008-02-28 13:09:02.7298 ALD:evt=callstate P10 idx= 37<br>2008-02-28 13:09:02.7776 SYS:PRA-41-4 cidx=ffff tan=1a0b pc<br>2008-02-28 13:09:02.7778 ALD:evt=callstate P3 idx= 39<br>2008-02-28 13:09:02.8056 ALD:evt=playready idx= 34 | VCON<br>new start |

Table 4-14 Log file of a Terminal window

## 4.11.3 Search for a text or term in the Terminal window

When you browse outputs in Terminal windows for texts or terms a hardcopy. When the search is met with positive results, they are automatically highlighted.

The search begins with the first character in the buffer of the Terminal window. Repeat the below-described search function to move to the next finding of your search text or search term.

In addition, you can also browse the System logging window for a text or for terms that your marked in the Terminal window.

### 4.11.3.1 Search for a word or term

How to browse the Terminal window for a text, step by step:

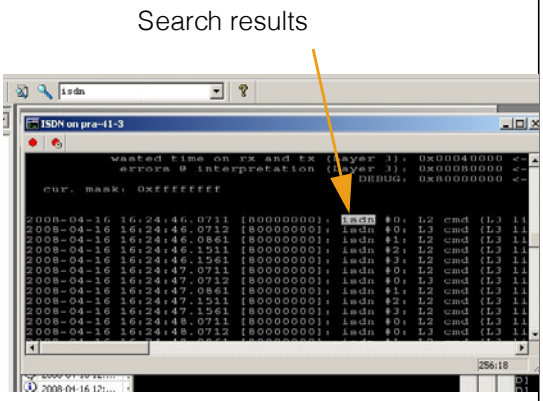
| No. | Task |
|---|---|
| 1. | Give the Terminal window in which you want to carry out the search the focus in either of these ways.<br>• Make a left mouse click on the Terminal window.<br>• Go to the Processes list and click the process that is currently active in the Terminal window. |
| 2. | In the toolbar, go to the search box and enter your search key (text or term).<br>  |
| 3. | Go to the toolbar and click the magnifying glass.<br>  |
| 4. | VCON will highlight the search results in the Terminal window.<br>  |
| 5. | Simply re-click the magnifying glass if you want to continue the search process to get more findings of your search term or text.<br>➤ see Step 3 |

Table 4-15 Browse Terminal window for word or term

### 4.11.3.2 Search for a marked text

How to browse the Terminal window for a marked text, step by step

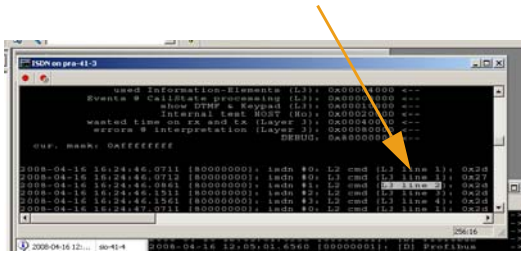
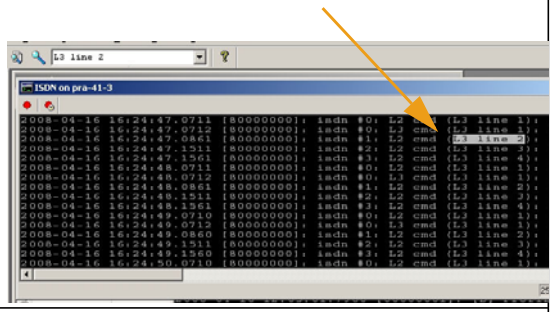
| No. | Task |
|---|---|
| 1. | In the Terminal window, select the wanted text.<br>Search key<br>  |
| 2. | Now start the search in either of these ways:<br>• via the menu bar: Search → Find marked text<br>• via the context menu: Find marked text<br>• via the keyboard shortcut: Ctrl+F3 |
| 3. | VCON will highlight the search results in the Terminal window.<br>Search results<br>  |
| 4. | Simply re-click the magnifying glass if you want to continue the search process to get more findings of your search term or text.<br>➤ see Step 2 |

Table 4-16 Search the Terminal window for a text

### 4.11.3.3 Also browse the System logging window for a marked text

This search function makes it possible to create a direct shortcut between the Terminal window and the System logging window and, by doing so, to also browse the System logging window for a message from the Terminal window.

How to search the System logging window for a text marked in the Terminal window, step by step:

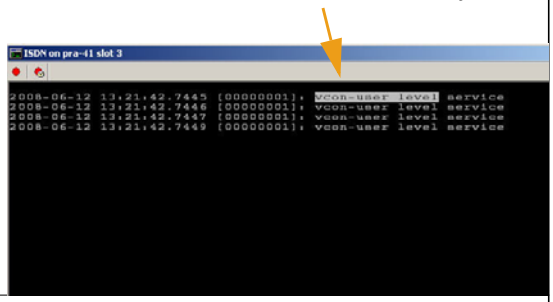
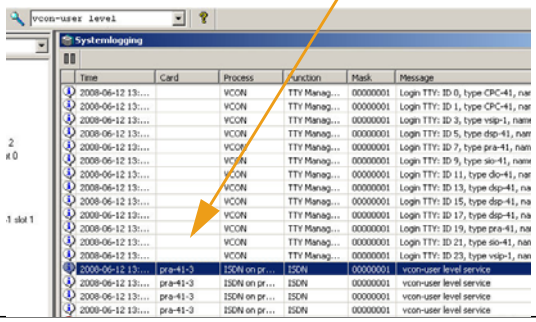
| No. | Task |
|---|---|
| 1. | In the Terminal window, select the wanted text.<br>Search key<br>  |
| 2. | Now start the search in either of these ways:<br>• via the menu bar: Search → Find selected text in system logging window<br>• via the context menu:Find selected text in System logging window<br>• via the keyboard shortcut:Ctrl+Shift+F3<br>• or via the toolbar:  |
| 3. | VCON will highlight the search results in the Terminal window.<br>Search results<br>  |

Table 4-17 Also search for a marked text in the System logging window

## 4.11.4 Save

Open the user dialog to save the contents of Terminal windows:

- via the menu bar: File ➤ Save content...
- or via the toolbar: 

Note:
The option to save the contents of Terminal windows gives you, apart from the permanent or temporary logging in a file, the chance to save the contents of Terminal windows spontaneously, i.e. ad hoc.

You can save the following contents:

- Save entire content of the window
  If no text is marked in the window, VCON automatically saves the entire content of the Terminal window in a text file, including the areas that only become visible when scrolling the window.
- Save marked text only
  If a text is marked in the window, the text will be written to a text file.

The standard Windows dialog "Save as..." will pop up. Use this window to select the location where and the file name under which you want to save the text file.

➤ see Image 4-14 Save the contents of a Terminal window

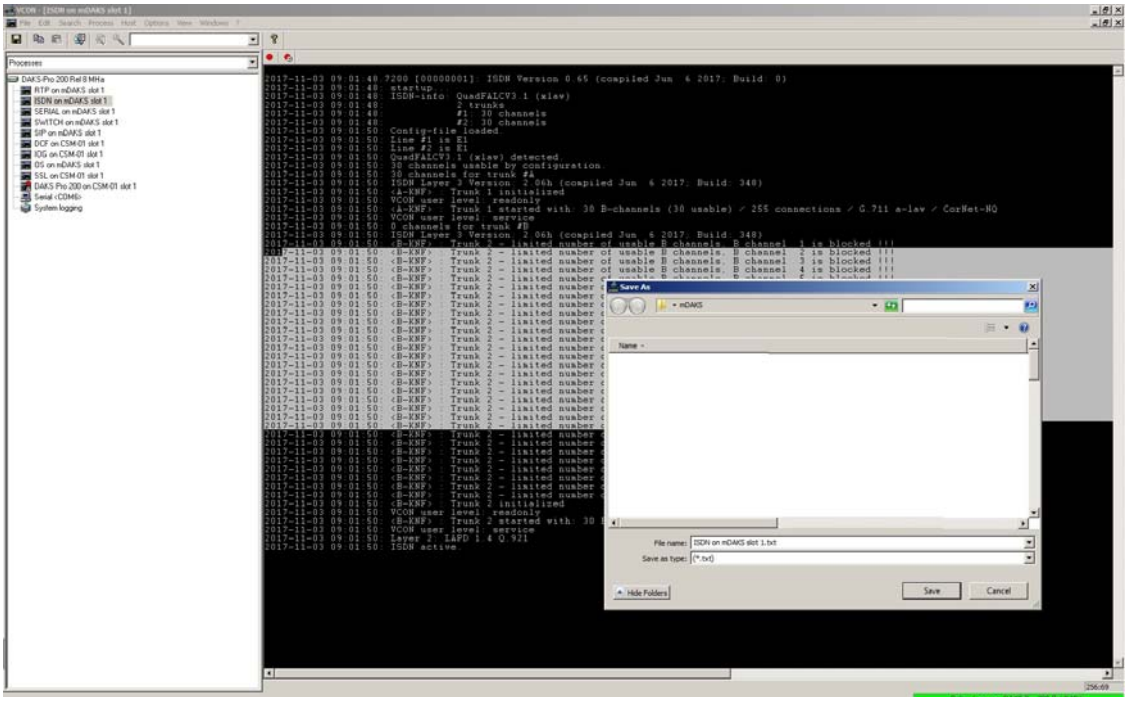



Image 4-14 Save the contents of a Terminal window

# 4.12 The System logging window

## 4.12.1 General

The System logging window outputs the following messages in one list:

- VCON system messages
  The VCON system messages include for example:
  - Activation messages
  - Messages on the connection status between the OScAR Server and VCON
- Process messages
  The individual processes first send their messages to their matching Terminal window.
  Next, VCON filters the messages that have the below format, also outputs them also in the System logging window, and finally saves them in log files:

```
yyyy-mm-dd HH:MM:SS.µµµµ [xxxxxxxx]: <text>
```

  - `yyyy` the year
  - `mm` the month
  - `dd` the day
  - `HH` the hour
  - `MM` the minute
  - `SS` the second
  - `µµµµ` the 100 µ seconds
  - `<text>` the message in plaintext

  The process messages include, for example:
  - Info messages:
    This is information generated from within the process
  - Error reporting:
    These are messages generated when there is an error or malfunction
  - Trace messages:
    This is information on the activation/deactivation of trace messages
    ➤ see Section 4.10.2 "Configure current monitoring"
    ➤ see Section 4.10.3 "Configuration of the start-up monitoring"

Due to the large amount of messages that are received, especially if the monitoring of outputs is activated, the analysis of the relevant information can be rather time consuming.

For this reason, VCON offers the option to search for system messages, both in the window that is currently open and in all log files that are stored on the hard disc drive, and to filter these messages.

➤ see Section 4.12.2 "Browse the System logging window for a word or text"
➤ see Section 4.13 "Filter system messages"

The following screenshot illustrates the System logging window:

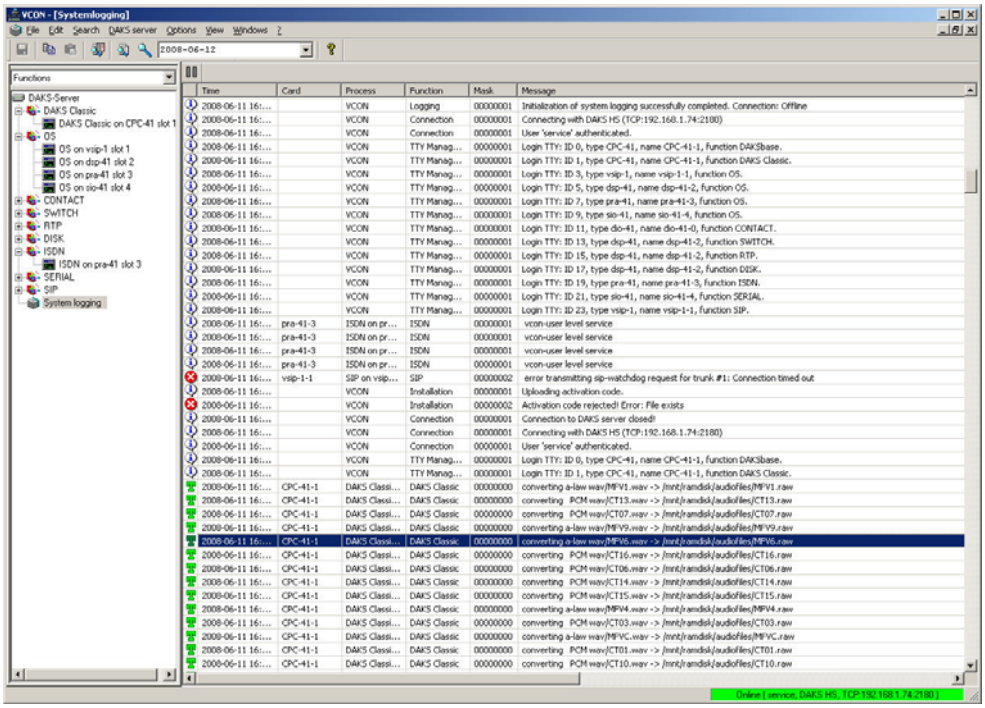


Image 4-15 The System logging window

Description of the columns and functions in the System logging window

| Menu bar/ button | Description |
|---|---|
| Symbol | • Process information<br>• Problem report<br>• Trace message<br>• Debug message |
| Time | The date and time when the message was generated (the time stamp is assigned automatically by the process) |
| Board | The board that generated the message |
| Process | The process that generated the message |
| Function | The function in which the message was generated |
| Mask | The monitoring mask of trace messages.<br>➤ see Section 4.9 "List of Processes" |
| Message | The message in plaintext. |
| | Activate/deactivate the pause mode<br>During the pause mode the system continues to write all messages into the log file.<br>After this mode is deactivated, the system reinstalls the window and additionally outputs all messages that were received in the meantime. |

Table 4-18 The System logging window

Note:
System messages can only be sorted by column during the pause mode.
To sort by column, make a left mouse click on the column header.

## 4.12.2 Browse the System logging window for a word or text

You can browse the outputs in System logging window both for search terms and for similar messages. In addition, you can also track a message from the System logging window in the actual Terminal window in which it originally appeared.

The search starts at the beginning of the list. Repeat the below-described search function to move to the next finding of your search text or search term.

## 4.12.3 Search for text

How to browse the System logging window for a text, step by step:

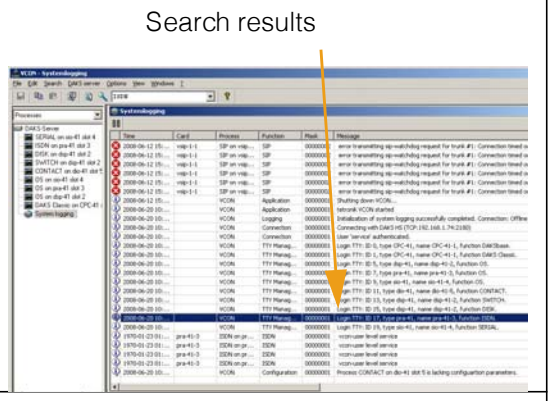
| No. | Task | |
|---|---|---|
| 1. | Place the focus on the System logging window in either of these ways:<br>• Make a left mouse click in the System logging window.<br>• Go to the process list and click 'System logging'. | |
| 2. | In the toolbar, go to the search box and enter your search key (text or term).<br><br>Note:<br>Bear in mind that the search terms are case sensitive. |  |
| 3. | Go to the toolbar and click the magnifying glass. |  |
| 4. | VCON will highlight the search results in the System logging window.<br><br>Here, the system always highlights the entire column in which the search term was found. |  |
| 5. | Simply re-click the magnifying glass if you want to continue the search process to get more findings of your search term or text.<br>➤ see Step 3 | |

Table 4-19 Browse the System logging window for a text

## 4.12.4 Find next similar message

With this search function, VCON uses the text of the message as the search criterion. Here, the system disregards the time, board, process, function, and mask.

How to browse the System logging window for the next similar message, step by step:

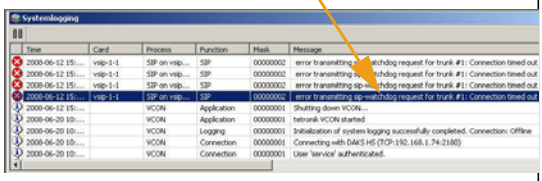
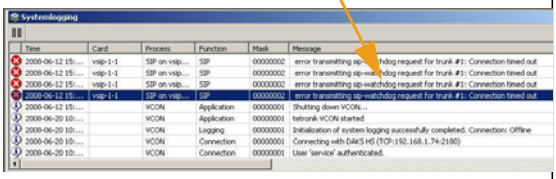
| No. | Task |
|---|---|
| 1. | Mark the message you are looking for in the System logging window.<br>Message for search<br>  |
| 2. | Now start the search in either of these ways:<br>• via the menu bar: Search → Find next similar message<br>• via the context menu: Find next similar message<br>• via the keyboard shortcut: Ctrl+F3 |
| 3. | VCON will highlight the search results in the System logging window.<br>Search results<br>  |
| 4. | You can continue looking for the term by re-activating the search process.<br>➤ see Step 2 |

Table 4-20 Browse the System logging window for the next similar message

## 4.12.5 Browse for the message also in the matching Terminal window

Use this search function to create a direct shortcut between the System logging window and the Terminal window, to directly browse the Terminal window for a message from the corresponding System logging window in which it originally appeared.

How to browse the corresponding Terminal window for a message marked in the System logging window:

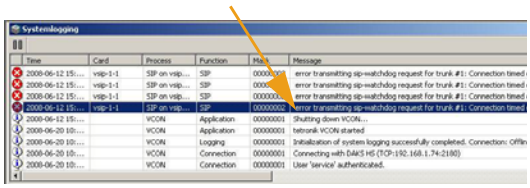
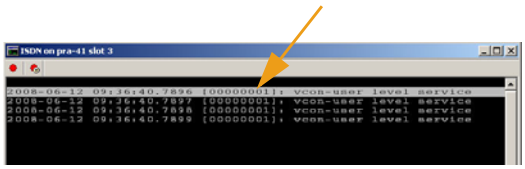
| No. | Task |
|---|---|
| 1. | Mark the message you are looking for in the System logging window.<br>Message for search<br>  |
| 2. | Now start the search in either of these ways:<br>• via the menu bar: Search → Find message in the matching terminal<br>• via the context menu:Find message in the matching terminal<br>• via the keyboard shortcut:Ctrl+Shift+F3 |
| 3. | VCON will highlight the search results in the Terminal window.<br>Search results<br>  |

Table 4-21 Also browse the Terminal window for messages

# 4.13 Filter system messages

## 4.13.1 General

The filter tool is an easy way to browse for relevant datasets in the System logging details.

The filter is applied to all messages that are output in the current System logging window as well as to all previous messages that have already been saved in the system logging files.

After a filter has been applied, the system will open a new System logging window with the filtered messages.

Note:

The filter continues its operation even while new messages arrive.

When the search criterion applies to any of these newly arrived messages, they are automatically added to the filter window.

Use the pause mode to deactivate the output of these new messages.

After the pause mode ends, the filter is reapplied to all system announcements, including to message that have already been saved.

➤ see Section 4.12.1 "General"

Caution!

Please bear in mind that when system logging information is saved on the hard disc drive over a longer period of time, the time response when using a filter can be rather long because of the large amount of data that must be filtered.

For long calculation periods, the system uses a progress bar and you can cancel the filter process.

## 4.13.2 Use word search

An easy way of filtering process is to search the System logging window for a specific word or text, and to have the search results output in form of a list.

How to use the text filter, step by step:

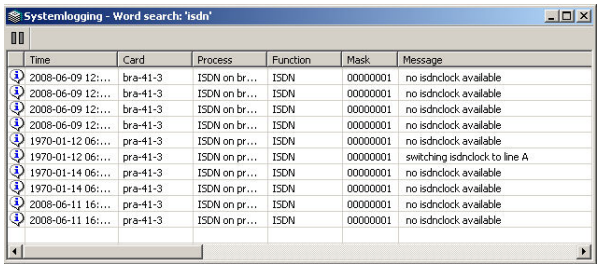
| No. | Task |
|---|---|
| 1. | In the toolbar, go to the search box and enter your search key (text or term).<br><br>Note:<br>Bear in mind that the search terms are case sensitive.  |
| 2. | Go to the toolbar and click the word search icon.  |
| 3. | VCON adds a separate System logging window with the filtered search results, and adds the results to the List of Processes, and there in form of a child node under the element 'System logging'.<br><br>This entry in the List of Processes makes it possible to move the window to the top.  |

Table 4-22 Use the text filter

## 4.13.3 Configure global filters

The configuring of global filters offers complex filtering options that far exceed the simple filtering for words.

With global filters you can apply search criteria such as specific time periods, but also process types or logic connections (AND, OR, NOT).

How to use a global filter, step by step:

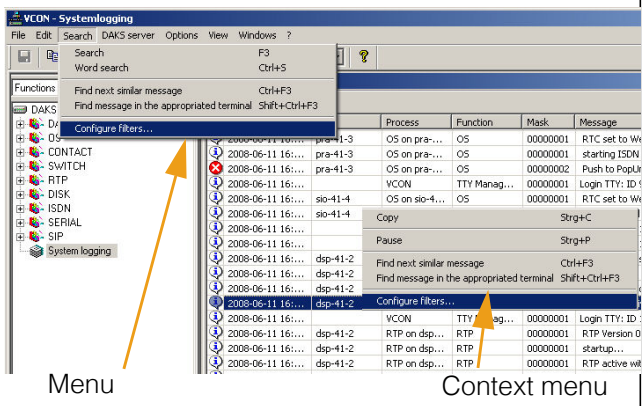
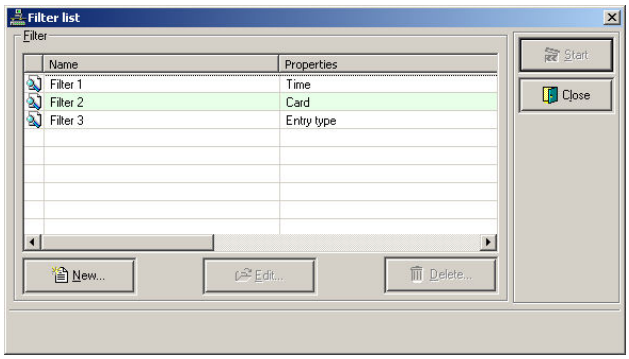
| No. | Task |
|---|---|
| 1. | Place the focus on the System logging window in either of these ways:<br>• Make a left mouse click in the System logging window.<br>• Go to the process list and click 'System logging'. |
| 2. | Open the filter list:<br>• via the menu bar:<br>Search ➤ Configure filters...<br>• via the context menu:<br>Configure filters...<br>• Toolbar:  <br>Note:<br>More information on how to enter or edit additional filters can be found here:<br>➤ see Section 4.13.4 "Filter list"<br>  |
| 3. | Mark the filter you want to apply to the list of system messages.<br>Click Start.<br>  |

Table 4-23 Apply global filters

| No. | Task |
|---|---|
| 4. | VCON adds a separate System logging window with the filtered search results, and adds the results to the List of Processes, and there in form of a child node under the element 'System logging'.<br><br>Use this entry in the List of Processes to bring the window to the top. |

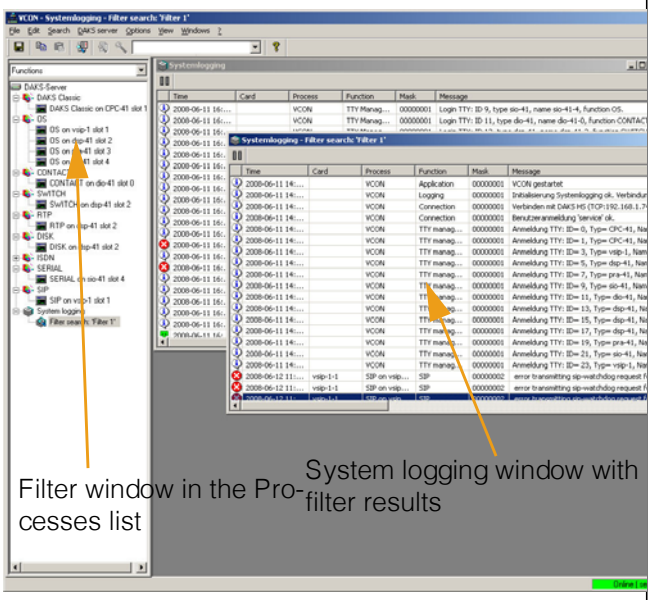



Table 4-23 Apply global filters

## 4.13.4 Filter list

Open the filter list in any of these ways:

- via the menu bar: Search ➤ Configure filters...
- via the context menu: Configure filters...
- or via the toolbar: 

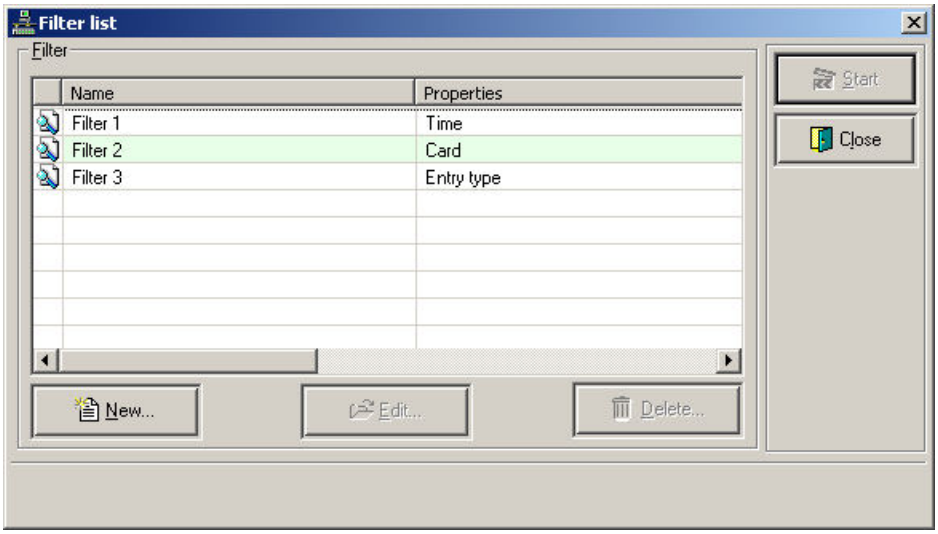



Image 4-16 Filter list

Summary of the fields in the window 'Filter list'

| Menu bar/ button | Description |
|---|---|
| New... | Use this button to add a new filter to the list.<br>➤ see Section 4.13.5 "Edit filter settings" |
| Edit... | Use this button to edit the settings of the selected filter.<br>➤ see Section 4.13.5 "Edit filter settings" |
| Delete | Use this button to delete the selected filter from the filter list. |
| Start | Use this button to activate the selected filter. |
| Cancel | Use this button in order not to apply a filter. |

Table 4-24 Filter list

## 4.13.5 Edit filter settings

Open the user window to edit the filter settings through the menu item:

Filter list → New... / Edit...

➤ see Section 4.13.4 "Filter list"

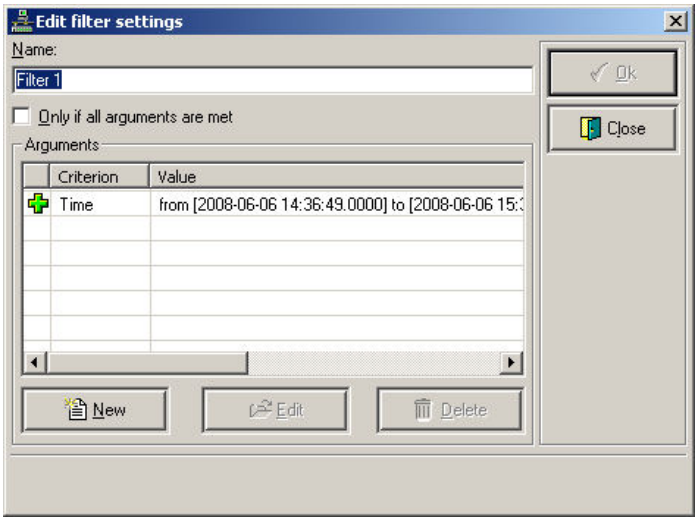



Image 4-17 Edit filter settings

Description of the fields in the window 'Edit filter settings'

| Menu bar/ button | Description |
|---|---|
| Name | The name with which this filter is output in the filter list. |
| Only if all arguments are met | • yes<br>This option corresponds to the logic conjunction "AND" of the below argument list.<br>• no<br>This option corresponds to the logic disjunction "OR" of the below argument list. |

Table 4-25 Edit filter settings

| Menu bar/ button | Description |
|---|---|
| Arguments | |
| List | List of all arguments that must be considered when this filter is applied |
| New | Create a new argument<br>➤ see Section 4.13.6 "Edit the argument of a filter" |
| Edit | Edit a selected argument<br>➤ see Section 4.13.6 "Edit the argument of a filter" |
| Delete | Delete a selected argument |
| OK | Save the filter settings |
| Close | Close Window |

Table 4-25 Edit filter settings

## 4.13.6 Edit the argument of a filter

Open the user dialog to edit the argument of a filter through the menu item:

Edit filter settings ➤ New... / Edit...

➤ see Section 4.13.5 "Edit filter settings"

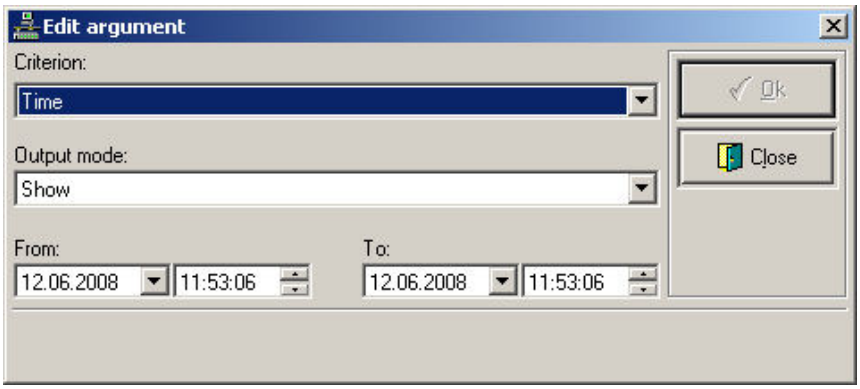



Image 4-18 Edit the argument of a filter

Description of the fields in the window "Edit argument"

| Menu bar/ button | Description |
|---|---|
| Criterion | Enter here the criterion that is searched by VCON in combination with the value specified below. |
| Output mode | • Show<br>With this option, the system will output the log entry that was found.<br>• Hide<br>With this option, the system will hide the entry that was found. This is equivalent to a negation of the argument itself. |
| Values and conditions | List of all conditions that must be considered when this filter is applied, e.g. 'Value' or 'From' ... 'To...' |
| OK | Save the argument settings |
| Close | Close Window |

Table 4-26 Edit the argument of a filter

## 4.14 Upload an Mc800 translation table

Instead of telephone numbers and registration procedures, the OScAR Server uses 'Identifier' and 'Domain' information from a translation table to communicate with Mc800.

You can upload this translation table to the OScAR Server through VCON.

Caution!
First, the translation table must be saved in a `.csv` or `.txt` file and must be in a specific format.
➤ see Section 11.3.1 "Translation table"

How to upload a translation table, step by step:

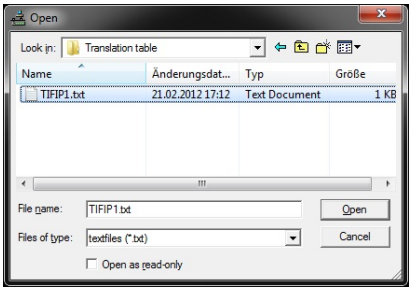
| No. | Task |
|---|---|
| 1. | Give the focus to the Terminal window "OScAR-Pro 200" or "OScAR-Pro 300".<br>To do so, go to the Processes list and click the process "OScAR-Pro 200" or "OScAR-Pro 300". |
| 2. | Click the menu item:<br>Tyco ➤ Upload the translation table... |
| 3. | Select the translation table you want to upload to the OScAR Server.<br><br>Next, click Open.<br>  |
| 4. | After the successful upload of the translation table this output will appear.<br><br>Confirm with OK.<br>  |

Table 4-27 Upload a translation table

# 5 Basic Configuration of the OScAR Server

Overview

This chapter shows you how to carry out the basic configuration of the OScAR server. This includes the TCP/IP access data and the parameters of the OScAR server, as well as its functionalities.

Contents

This chapter consists of the following sub-sections:

## 5.1 Configuration of TCP/IP access parameters

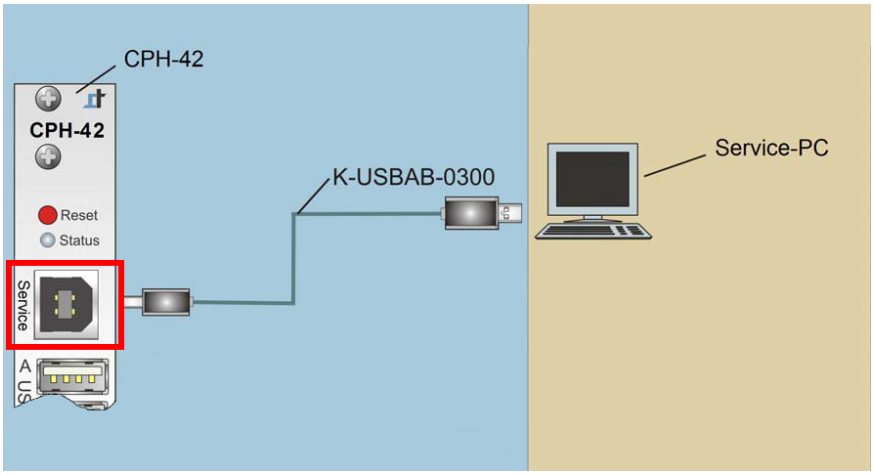
The following parameters can be set to carry out the basic configuration of the DAKS Server:

- IP address
- Subnet mask
- Gateway
- IP port to connect with VCON
  ➤ see Chapter 4, "The Service and Configuration Tool VCON"
- Authorization to access the OScAR Server server through VCON

Note:
The USB drivers for OScAR 200/300 must be installed before the USB cable is connected. The drivers can be found on the software CD.

How to carry out the basic configuration of the DAKS Server, step by step:

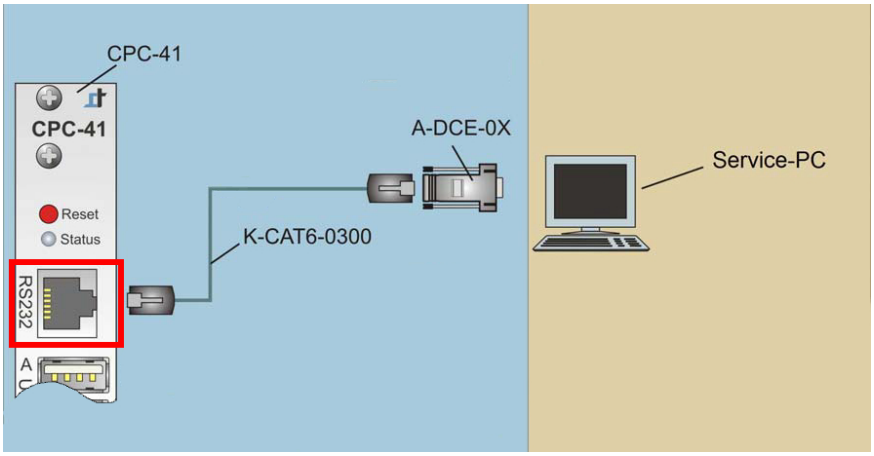
| No. | Task |
|---|---|
| 1a. | For OScAR-Pro 300A:<br>Connect a PC to the USB-Serviceinterface of the CPH-42 of the DAKS Server.<br>see also the "Hardware Service Manual" for OScARpro Release 8 |




- CPH-42 — This broad is the DAKS Server's main processor board
- K-USBAB-0300 — USB cable
- PC — PC as terminal to the DAKS Server

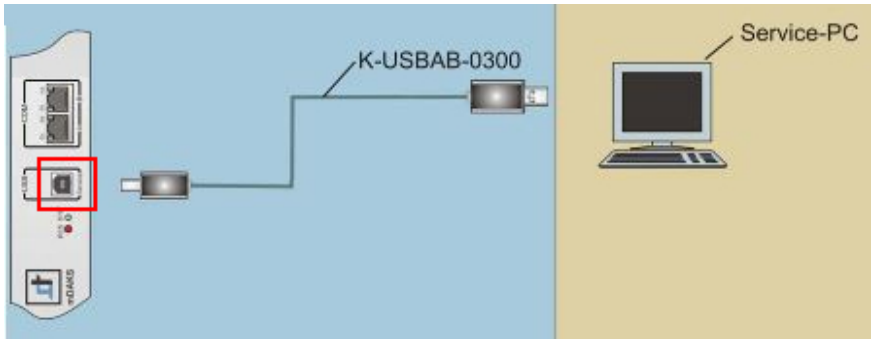
Table 5-1 DAKS ServerBasic configuration

| No. | Task |
|---|---|
| 1b. | For OScAR-Pro 300:<br>Connect a PC to the serial interface of the CPC-41 of the DAKS Server.<br>see also the "Hardware Service Manual" for OScAR Release 8 |




| | |
|---|---|
| • CPC-41 | This broad is the DAKS Server's main processor board |
| • K-CAT6-0300 | Patch cable |
| • A-DCE-0X | The adapter to connect the CPC-41 to a PC |
| • PC | PC as terminal to the DAKS Server |

| No. | Task |
|---|---|
| 1c. | For OScAR-Pro 200:<br>Connect a PC to the serial interface of the DAKS Server.<br>➤ see also the "Hardware Service Manual" for OScAR Release 8. |




| | |
|---|---|
| • USB | USB port of the DAKS Server |
| • K-USBAB-0300 | USB cable |
| • PC | PC as terminal to the DAKS Server |

Table 5-1 DAKS ServerBasic configuration

| No. | Task |
|---|---|
| 2. | Start VCON or a comparable terminal emulation program, e.g. Putty, and set up a connection with the below parameters.<br>• Baud rate 9600 baud<br>• Data bits 8<br>• Stop bits 1<br>• Parity none<br>Note:<br>If VCON is not yet installed on your service PC, please install VCON now.<br>➤ see Section 4.2.1 "The installation of VCON"<br>Next, set up a serial connection in VCON.<br>➤ see Section 4.3.2 "Configure and edit a connection" |
| 3. | Press the reset button at the OScAR server.<br>After the start (power-up) message, the following output will appear in the Terminal window:<br>`Restart at 27.03.2016 10:36:28`<br>`Enter config code:` |
| 4. | Enter the keyword `'config'` within 5 seconds and confirm with `<enter>`: |
| 5. | The following output will e.g. appear:<br>`OScAR base configuration`<br>`realtimeclock = 2016-05-11 15:26:07`<br>Enter the current date and time and confirm with `<enter>`, or use the time that is already entered with `<enter>`. |
| 6. | The following output will e.g. appear:<br>`Internet Addr = 192.168.0.56`<br>Enter the IP address and confirm with `<enter>`, or use the IP address that is already entered by pressing `<enter>`. |
| 7. | The following output will e.g. appear:<br>`Subnet Mask = 255.255.248.0`<br>Enter the subnet mask, confirm with enter `<enter>`, or apply the subnet mask that is entered by pressing `<enter>`. |
| 8. | The following output will e.g. appear:<br>`Gateway Addr = 192.168.0.254`<br>Enter the gateway address and confirm with `<enter>`, or use the gateway address that is already entered by pressing `<enter>`. |

Table 5-1 DAKS ServerBasic configuration

| No. | Task |
|---|---|
| 9. | The following output will e.g. appear:<br><br>`Access VCON LAN (none/user/service/support) = service`<br><br>Enter the access authorization of VCON and confirm with <enter>, or use the access authorization that is already entered and confirm with <enter><br>• none — no access via TCP/IP<br>• user — Allow access by user 'User'<br>- settings can't be changed<br>• service — Allow access by user 'User' and 'Service'<br>- settings and updates can be changed<br>• support — Allow access by user 'User', 'Service' and 'Support';<br>- full access for tetronik support (Level 3 Support)<br>➤ see Section 4.1.2 "User administration" |
| 10. | The following output will e.g. appear:<br><br>`VCON Port (0..65535) = 2180`<br><br>Enter the IP port for VCON access and confirm with <enter>, or use the port that is already entered by pressing <enter>. |
| 11. | The following output will e.g. appear:<br><br>`VCON Backup port (0..65535) = 2181`<br><br>Enter the IP port for VCON access (backup) and confirm with <enter>, or use the port that is already entered by pressing <enter>. |
| 12. | The following output will e.g. appear:<br><br>`VCON whitelist <n> = 192.168.10.100`<br><br>Enter the IP addresses for the whitelist entries n = 1 .. 10 that may access the OScAR server via VCON, and confirm your entry with <enter>, or save the addresses that are already included in the list or any empty fields by pressing <enter>.<br>If no entries are found in the list of IP addresses in the whitelist, any external IP address may access the OScAR server.<br>To delete a whitelist entry, click <Space> and confirm with <enter>. |
| 13. | The following output will appear:<br><br>`save changes (yes,no,temp)`<br><br>Complete the entry of TCP/IP parameters with 'yes', 'no' or 'temp' and confirm with <enter>:<br>• no — All entries are discarded<br>• yes — Save the entries<br>• temp — Use the selected settings only temporarily, until the next system reset |
| 14. | The DAKS Server will now start and go into operation. |

Table 5-1 DAKS ServerBasic configuration

## 5.2 Activate the repair system

If the DAKS Server is unable to boot correctly, e.g. because of a defect of the memory card, the DAKS Server can still be booted with the help of the internal repair system.

VCON can then re-connect with the DAKS Server and you can run a new installation of the system or upload a previous backup of the CompactFlash.

How to start the repair system, step by step:

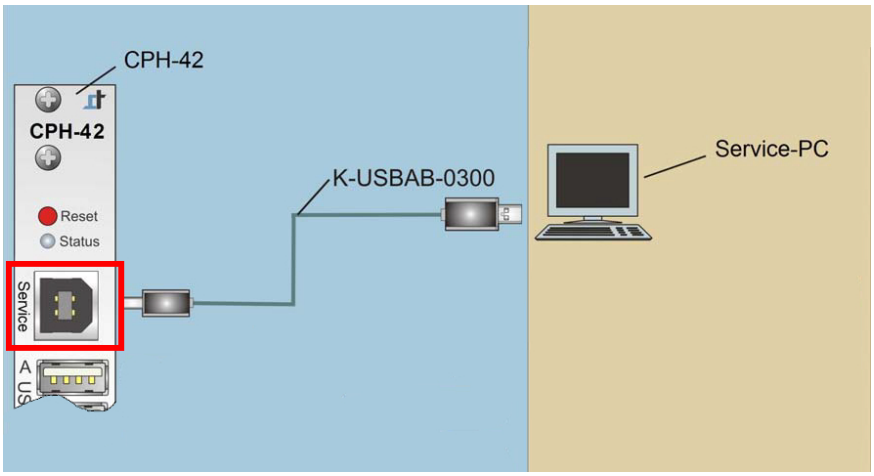
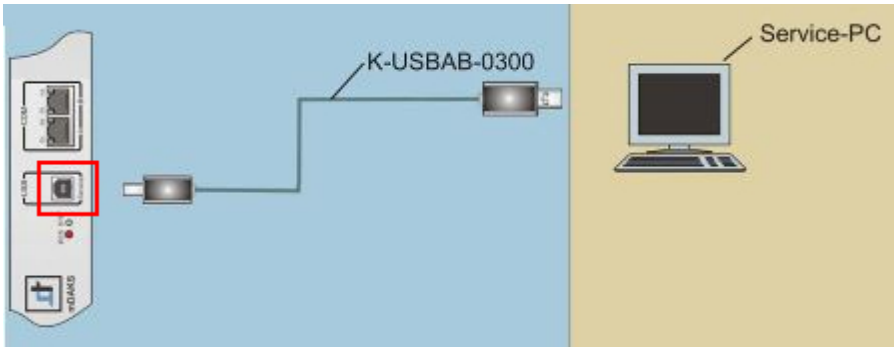
| No. | Task |
|---|---|
| 1a. | For OScAR-Pro 300:<br>Connect a PC to the USB-Serviceinterface of the CPH-42 of the DAKS Server.<br>see also the "Hardware Service Manual" for OScARpro Release 8<br>  <br><br>• CPH-42 — This broad is the DAKS Server's main processor board<br>• K-USBAB-0300 — USB cable<br>• PC — PC as terminal to the DAKS Server |
| 1b. | For OScAR-Pro 200:<br>Connect a PC to the serial interface of the DAKS Server.<br>➤ see also "Hardware Service Manual"<br>  <br><br>• USB — The USB port of the DAKS Server<br>• K-UBAB-0300 — The USB cable<br>• PC — PC as terminal to the DAKS Server |

Table 5-2 Start the repair system

| No. | Task |
|---|---|
| 2. | Start terminal emulation program of VCON or a comparable terminal emulation program, e.g. Putty, and set up a connection with the following parameters:<br>• Baud rate 9600 baud<br>• Data bits 8<br>• Stop bits 1<br>• Parity none<br>If VCON is not yet installed on your service PC, install VCON now.<br>➤ see Section 4.2.1 "The installation of VCON"<br>Next, set up a serial connection in VCON.<br>➤ see Section 4.3.2 "Configure and edit a connection" |
| 3. | Press the reset button at the OScAR server<br>After the start (power-up) message, the following output will appear in the Terminal window:<br>`Restart at 27.03.2008 10:36:28`<br>`Enter config code:` |
| 4. | Enter the keyword `repair` within 5 seconds and confirm your entry with `<enter>`. |
| 5. | The repair system will now start |
| 6. | Connect VCON with the DAKS Server.<br>Next, you can:<br>• upload a backup of the memory card<br>• re-install the DAKS Server software from the Installation CD<br>➤ see Section 4.7 "Upload installation, update and license files" |

Table 5-2 Start the repair system

## 5.3 Boards and processes

The configuration of the boards and individual processes is via VCON.

➤ see Section 4.9.2 "Properties/settings"

Note:
The lists of parameter below itemize the settings that are maximally available for each process. The number of parameters and their selection ranges vary depending on the individual board, the licenses that are enabled and parallel settings.

### 5.3.1 $S_0$ /$S_{2M}$ interfaces: ISDN

Description:

The ISDN process dispatches and receives data through the TDM ports. On the one hand it communicates with the switching network to process voice data and, on the other it communicates with the application to process signaling data.

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ ISDN Hardware | | |
| codec | [G7.11 a-law]<br><br>G 7.11 u-law | Digital encoding of the audio signals<br>• a-law e.g. in Europe<br>• u-law e.g. North America |
| Tree structure: Server ➤ Line A..D ➤ Layer 1 | | |
| mode | [E1]<br><br>T1 | Primarymultiplexconnection:<br>• E1 e.g. in Europe<br>• T1 e.g. North America |
| Tree structure: Server ➤ Line configuration for E1 | | |
| line coding 1)<br><br>1)= Can only be changed by the Support Team. | [HDB3], AMI | Line Coding |
| channel signaling 1) | CAS, [CCS] | Signaling |
| frame format 1) | double Frame, [CRC4 multiframe] | Frame format |
| Tree structure: Server ➤ Line configuration for T1 | | |
| line coding 1) | [B8SZ], AMI with ZCS | Line Coding |
| frame format 1) | F4, F12 D4, [ESF], F72 SLC96 | Frame format |
| | | |

Table 5-3 Settings $S_0$/$S_{2M}$ interfaces: ISDN

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| line length | [0 to 133 ft],<br>133 to 266 ft,<br>266 to 399 ft,<br>399 to 533 ft,<br>533 to 655 ft | Line length between the DAKS Server and the PBX:<br>0 to 133 ft 0 .. 40 m<br>133 to 266 ft 40 .. 81 m<br>266 to 399 ft 81 .. 122 m<br>399 to 533 ft 122 .. 162 m<br>533 to 655 ft 162 .. 200 m |
| channel signaling[1)] | CAS, [CCS] | Signaling |
| Tree structure: Server ➤ ISDN ➤ Line A..D ➤ Layer 2 configuration | | |
| line A-D mode [1)] | [slave], master | Definition the group's clock master. |
| Tree structure: Server ➤ ISDN ➤ Line A..D ➤ Layer 3 configuration | | |
| channel identification as on S2M | yes, [no] | Send channel identification for $S_0$ analog to $S_{2M}$, e.g. important for HiPath 3000 in combination with QSIG-ISO-Suppl.Serv. |
| protocol | DSS1 Network Side,<br>QSIG-ETSI-Basic-Call,<br>QSIG-ETSI-Suppl.Serv.<br>QSIG-ISO-Basic-Call,<br>QSIG-ISO-Sup-pl.Serv.,<br>NI-2, [CorNet-NQ] | D-channel protocol: |
| delay setup [ms][a)] | 1 .. 1000 ms [300 ms] | The minimum time between 2 setup commands in the direction of the PBX |
| delay disconnect [ms][1)] | 1 .. 1000 ms [200 ms] | The minimum time between 2 disconnect commands in the direction of the PBX. |
| delay data set [ms][1)] | 1 .. 200 ms [50 ms] | Delay of entire frames on the layer 2 level |
| prefix incoming | 20 digits [ ] | The length of the prefix that is cut by OScAR for incoming calls, from the top of the dialed phone number |
| prefix outgoing | 20 digits [ ] | The length of the prefix that is cut by OScAR for out-bound calls, from the top of the subscriber's phone number |
| alert before connect | yes,<br>[no] | For incoming calls, always send the status 'ALERT' to the caller:<br>• yes<br>"ALERT" required<br>• no<br>'ALERT' not required |

Table 5-3 Settings $S_0$/$S_{2M}$ interfaces: ISDN

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| national character set | [German],<br>Swedish,<br>7Bit US-ASCII | Utilization of special characters:<br>• German<br>Use German special characters<br>• Swedish<br>Use Swedish special characters<br>• 7 Bit US-ASCII<br>Substitute German special characters with a space |
| channel sequence | linear, [cyclic] | Cyclical or linear use of the channels |
| channel sequence direction | [forward], reverse | Use the channels in ascending or descending order |
| length of callref [Byte] | 1, [2] byte | Length of the call reference (identifier for a connection to the PBX): System and protocol-specific parameter |
| Connected no. with display messages | [anonymous; not provided]<br>generally '0'<br>last connected no. -> calling no. -> anonymous<br>last connected no. -> calling no. -> '0' | Feature for PBX systems that do not show any display text messages if the call number is not included in the call transfer command.<br>• anonymous; not provided<br>No number is prepended.<br>• generally '0'<br>Always prepend '0'.<br>• last connected no. -> calling no. -> anonymous<br>If possible, prepend the last Connected Number, otherwise prepend the Calling Number. In all other cases prepend 'anonymous'.<br>• last connected no. -> calling no. -> '0'<br>If possible, prepend the last Connected Number, otherwise prepend the Calling Number. In all other cases prepend '0'. |
| number of connections[1)] | [255], 500 | The maximum number of connections on the interface |
| number of display columns | 0 .. 24 [16] | The amount of characters per line that are available on the terminals displays in comb. with OScAR. |

Table 5-3 Settings $S_0$/$S_{2M}$ interfaces: ISDN

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| allow server mode | yes, [no] | Allow the server mode to enable a 2-line display output at the devices.<br>This feature is only supported in combination with OpenScape 4000 and must be deactivated for all other combinations (=no) |
| intrusion via QSIG | yes, [no] | Intrusion via QSIG, e.g. relevant with HiPath 3000 in comb. with CorNet-NQ |
| Prerequisit: 'protocol' = 'DSS1 Network-Side' | | |
| Suppress one-line-display | yes, [no] | Suppress one-line display outputs to outside line |
| send 'Calling-Name' as User-User Information at DSS1 | yes, [no] | Only shown for:<br>'protocol: DSS1 Network-Side'<br>Send Calling Name transparent to User |
| coding of 'Called Party Number'-> 'Type of Number' at DSS1[1)] | [default], Unknown, International, National, Network Specific, Subscriber, Abbreviated | Only shown for:<br>'protocol: DSS1 Network-Side'<br>Encoding of the 'Called Party Number' |
| Tree structure: Server ➤ ISDN ➤ Line A.. D ➤ Channel directions | | |
| channel 01-30 direction[1)] | only incoming,<br>only outgoing,<br>[bidirectional],<br>block channel | Directional control of the individual channels |
| | | |

Table 5-3 Settings $S_0/S_{2M}$ interfaces: ISDN

a. Can only be changed by the Support Team.

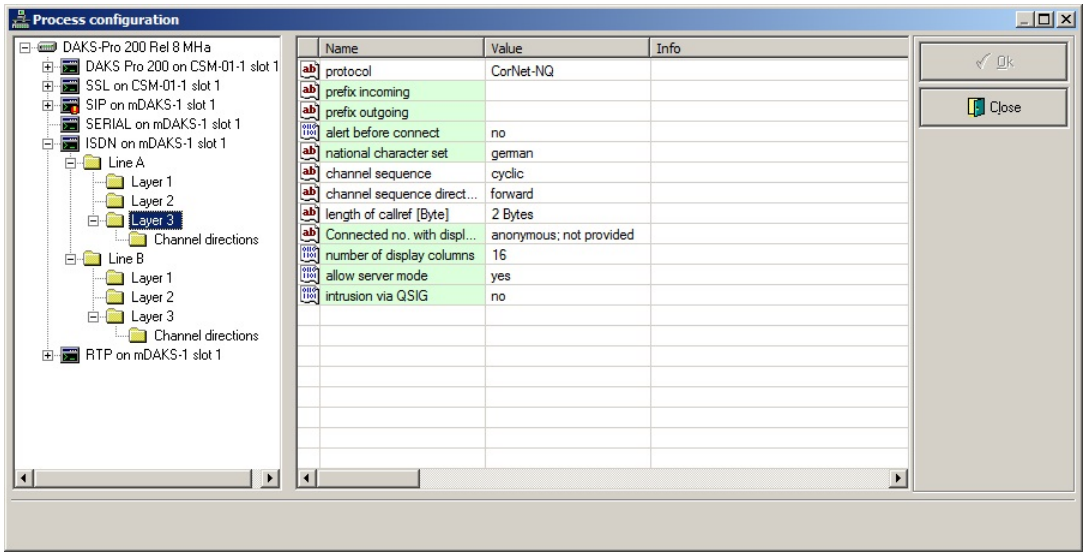



Image 5-1 Parameter $S_0/S_{2M}$ interfaces: ISDN

## 5.3.2 VoIP signaling protocol: SIP and SIP-Q

Description:

The SIP process processes the signaling data of VoIP connections.

### 5.3.2.1 Basic configuration

Use this area to configure:

- the IP address shared by all trunks for the RTP data traffic,
- the IP port that is shared as the basic port by all trunks for the RTP data traffic (voice data),
- the behavior when the trunk is inactive, and
- how many trunks in total shall be activated (PBX trunking or direct VoIP connection).

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ SIP | | |
| number of trunks | 1.. 4 [1] | The number of SIP trunks that can be configured |
| inactive trunk response | [no response]<br>SIP error code 503 | Behavior if trunk inactive (Hot Standby):<br>• no response<br>No responses to SIP data traffic<br>• SIP error code 503<br>OScAR responds to SIP data traffic with the SIP error code 503. |
| Tree structure: Server ➤ SIP ➤ RTP | | |
| DTMF mode | [RTP (RFC2833)]<br>SIP-INFO | The transmission type for DTMF signals:<br>• RTP (RFC2833)<br>within the RTP data stream to RFC2833<br>• SIP-INFO<br>In SIP as INFO message |
| RTP DTMF map | 96 .. 255 [101] | DTMF codec that is applied in the direction of the PBX system |
| INVITE delay [ms] | 0 .. 1000 ms [5 ms] | min. time between 2 INVITE or REINVITE commands |
| enable MLPP | yes, [no] | Activate/deactivate MLPP |

Table 5-4 Basic configuration of the SIP/SIP-Q parameters

### 5.3.2.2 General trunk parameters

Use this area to configure for each trunk:

- the trunk type (= SIP subprotocol, the trunk types that are possible depend on the license),
- the number of communications channels of the trunk (= RTP channels),
- the trunk's IP settings,
- where applicable the call number prefixes that are needed or that shall be truncated,
- the way in which DTMF information is transmitted,
- the delays (to prevent overload on the opposite side), and
- the MLPP activation (yes/no).

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ SIP ➤ SIP trunk #n (n = trunk number) | | |
| SIP subprotocol | [SIP] | Choose sub protocol:<br>• SIP<br>application of the default SIP protocol |
| | SIP-Q | • SIP-Q<br>transfer of the CorNet-NQ protocol via SIP |
| | SIP-Registrar | • SIP-Registrar<br>trunk operates as registrar |
| | SIP-Medicall 800 | • SIP-Medicall 800<br>special SIP interface to communicate with Mc800 |
| | SIP-Branch | • SIP-Branch<br>special SIP trunk to communicate with OpenScape Branch |
| | SIP-NFON | • SIP-NFON<br>special SIP trunk to communicate with NFON |
| RTP channels | 0 ... 480 [ ] | The number of RTP channels that are supported by this trunk |
| Disable Trunk | yes, [no] | Activate/deactivate the trunk |
| Remarks | 50 characters [ ] | Comment, for information purposes only |
| local SIP IP address | The IP address (selection field)<br>[own IP address] | IP address of OScAR for the SIP signaling<br>(Number of options to choose from corresponds to the number of administrated IP addresses) |
| local SIP IP port | IP port [5060] | IP port of OScAR for the SIP signaling<br>Note:<br>When using TLS, we recommend you set the port to the default (port 5061). |
| UAC Address Of Record | peer address,<br>[local address] | The transmission of the "peer address" or the "local address“ in the SIP header. |

Table 5-5 Configuration of the SIP trunk's general parameters

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| SDP on 200 OK | [according to RFC]<br>always send SDP on 200 OK | The time when the SDP data was transmitted<br>• RFC compliant<br>• For "200 OK" also: |
| Full SDP answer | [on], off | The of the SDP reply:<br>• on<br>All Codec inquiries are answered.<br>• off<br>The SDP reply only includes the Codec that was negotiated. |
| Only SAVP if TLS | on, [off] | Type of the code negotiation with or without encryption:<br>• on<br>Use only SAVP (encryption).<br>• off<br>Both SAVP and AVP can be used. |
| SDP offer: Prefer SAVP over AVP | [yes], no | Use encryption preferably. |
| Encoding of double quotes in quoted names | Replace with single quote,<br>Replace with space,<br>[RFC3261 (BSLASH DQUOTE)],<br>Escape with '%22' (non-RFC) | Output of double quote-symbols in the display text:<br>• Replace with single quote<br>is replaced with a single quote-symbol<br>• Replace with space<br>is replaced with a space<br>• RFC3261 (BSLASH DQUOTE)<br>is replaced with a backslash, quote-symbol (\')<br>• Escape with '%22' (non-RFC)<br>is replaced with '%22'<br>(% = Escape character,<br>22 = Hexadecimal value of ") |
| prefix incoming cut | 20 characters [ ] | The prefix which OScAR cuts off incoming calls on this trunk, from the received Called Number |
| prefix incoming add | 20 characters [ ] | The prefix which OScAR adds for incoming calls on this trunk, and prepends to the received Called Number. |
| prefix outgoing | 20 characters [ ] | The prefix which OScAR prepends for outgoing calls on this trunk, and prepends to the Calling Number and to the Connected Number. |
| DTMF Mode | [RTP (RFC 2833)]<br>SIP INFO | The transmission type for DTMF signals:<br>• RTP (RFC2833)<br>within the RTP data stream to RFC2833<br>• SIP-INFO<br>within SIP as INFO-Msg |

Table 5-5 Configuration of the SIP trunk's general parameters

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| INVITE delay [ms] | 0... 1000 ms [5 ms] | min. time between 2 INVITE or REINVITE commands |
| enable MLPP | yes, [no] | Activate/deactivate MLPP |
| Prerequisit: 'DTMF Mode' = 'RTP (RFC 2833)' | | |
| RTP DTMF map | 96 .. 255 [101] | DTMF-Codec |
| | | |

Table 5-5 Configuration of the SIP trunk's general parameters

5.3.2.3 SIP-Peer trunk settings (not required for direct VoIP connection)

Use this area to configure, for the PBX trunks, the number of peers to the PBX system, the softswitch or the softswitch cluster, i.e. to specify only one peer with/without monitoring or two peers with prioritization of peer 1.

This settings does not apply to the direct VoIP connection (SIP subprotocol = SIP-Registrar) because here, every end device registers individually at OScAR and communicates individually with OScAR as well.

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ SIP ➤ SIP trunk #n (n = trunk number) ➤ SIP peer<br>Prerequisit: 'protocol type' = 'SIP' | | |
| peer description | | Digital trunk... |
| | one peer no watchdog | • ... to a switch without monitoring |
| | [one peer] | • ... to a switch with monitoring (heartbeat every 10 s, timeout after 60 s) |
| | two peers prioritized | • ... prioritized, to a primary and secondary switch with monitoring (heartbeat every 10 seconds with automatic toggle between the primary and secondary server after a timeout of 60 s) |
| | DNS | • Domain Name Server of the PBX |
| | DNS-SRV | • ... to redundant softswitch installations with Geo separation |
| | no peer | • ... no SIP peer (only shown for: 'SIP subprotocol' = 'SIP-Branch') |
| Tree structure: Server ➤ SIP ➤ SIP trunk #n (n = trunk number) ➤ SIP peer<br>Prerequisit: 'peer description' = any, except for: 'DNS-SRV' | | |
| peer SIP IP address | IP address [0.0.0.0] | IP address, IP port and protocol of ...<br>• ... the SIP switch for a digital trunk with or without monitoring (watchdog)<br>• ... the primary SIP switch for prioritized digital trunks |
| peer SIP IP port | IP port [5060] | |
| peer protocol type | [any], TCP only, UDP Only, TLS | |

Table 5-6 Configuration of the SIP-Peer parameters

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| MTLS (only shown for: 'peer protocol type' = 'TLS') | [yes], no | Activate/deactivate MTLS |
| Tree structure: Server ➤ SIP ➤ SIP trunk #n (n = trunk number) ➤ SIP peer<br>Prerequisit: 'peer description' = 'two peers prioritized' | | |
| peer SIP IP address | IP address [0.0.0.0] | IP address, IP port and protocol of ...<br>• ... the SIP switch for a digital trunk with or without monitoring (watchdog)<br>• ... the primary SIP switch for prioritized digital trunks |
| peer SIP IP port | IP port [5060] | |
| peer protocol type | [any], TCP only, UDP Only, TLS | |
| OPTIONS TO SIP-Identity | 64 characters, [peer] | The name that is sent to the PBX for SIP option requests. |
| MTLS (only shown for: 'peer protocol type' = 'TLS') | [yes], no | Activate/deactivate MTLS |
| Tree structure: Server ➤ SIP ➤ SIP trunk #n (n = trunk number) ➤ SIP peer<br>Prerequisit: 'peer description' = 'DNS-SRV' | | |
| service name | [_service_name._tcp.domain_name] | Caution!<br>The service name entered here must be identical to the name stored in the DNS server.<br>For example: `_h8ka._tcp.aen.tetronik.com` |
| main dns | IP address [0.0.0.0] | IP address of the DNS server |
| alt dns | IP address [0.0.0.0] | IP address of the DNS server (alternative) |
| Tree structure: Server ➤ VoIP-Hardware ➤ SIP trunk #n ➤ SIP peer ➤ Authentication #1<br>Server ➤ VoIP-Hardware ➤ SIP trunk #n ➤ SIP peer ➤ Authentic. #2 (only for 2 peers)<br>Prerequisit: 'SIP subprotocol' = 'NFON' | | |
| realm | 256 characters [ ] | For the first and, where applicable, for the second peer:<br>The realm name that is verified in an authentication; when this field is empty there is no verification of the realm. |
| user | 256 characters [ ] | For the first and, if applicable, for the second peer:<br>The user name that is used by the OScAR server to register at the NFON PBX system |
| password | 256 characters [ ] | For the first and, if applicable, for the second peer:<br>User password used by the OScAR server to register at the NFON PBX system |
| Tree structure: Server ➤ VoIP Hardware ➤ SIP trunk #n ➤ SIP peer<br>Prerequisit: 'SIP subprotocol' = 'SIP Branch' | | |
| Branch SIP IP address | IP address [0.0.0.0] | IP address of the OpenScape Branch |

Table 5-6 Configuration of the SIP-Peer parameters

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Branch SIP IP port | IP port [5060] | The IP port for the SIP communication that is carried out via the IP address of the OpenScape-Branch |

Table 5-6 Configuration of the SIP-Peer parameters

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Branch protocol type | [any]<br>TCP only<br>UDP only<br>TLS | The type of the data transmission to the OpenScape Branch:<br>• any (must be defined by other side)<br>• TCP<br>• UDP<br>• TLS |
| MTLS (only shown for: 'Branch protocol type' = 'TLS') | [yes], no | Activate/deactivate MTLS |

Table 5-6 Configuration of the SIP-Peer parameters

5.3.2.4 SIP trunk parameters (not required for pure SIP-Q trunk)

Use this area to configure the for all trunk types with the exception of pure SIP-Q-trunks (SIP subprotocol = SIP-Q):

- if REINVITE datasets are allowed (yes/no),
- the display properties of connected end devices,
- the way in which the Connected Number is transmitted,
- if SIP-XT functions are activated (yes/no), and
- where applicable, the NFON-specific SIP parameters (applies only to SIP subprotocol = NFON)

**Parameters:**

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ SIP ➤ SIP protocols ➤ Plain SIP<br>Prerequisit: 'Services/SIP on vsip/SIP trunk #1..n/SIP subprotocol' = 'SIP'/'SIP-Branch' | | |
| REINVITE allowed | on<br>[off] | Display update when applying the SIP protocol:<br>• on<br>Display update with the command 're-invite'<br>• off<br>No display update |
| number of display columns | 0 .. 255 [16] | The number of lines and columns available in the display of the devices in combination with OScAR. |
| number of display rows | 0 .. 80 [1] | |

Table 5-7 Configuration of the trunk's SIP parameters

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Connected no. with display messages | | Feature for PBX systems that do not show any display text messages if the call number is not included in the call transfer command. |
| | generally '0' | • generally '0'<br>Always prepend '0'. |
| | last connected no. -> calling no. -> anonymous | • last connected no. -> calling no. -> anonymous<br>If possible, prepend the last Connected Number, otherwise prepend the Calling Number. |
| | anonymous; not provided | • anonymous; not provided<br>No number is prepended. |
| | [last connected no. -> calling no. -> '0'] | • last connected no. -> calling no. -> '0'<br>If possible, prepend the last Connected Number, otherwise prepend the Calling Number. In all other cases prepend '0'. |
| Default calling number | | Feature for PBX systems that do not show any display text messages if the call number is not included in the call transfer command. |
| | calling no. -> anonymous | • calling no. -> anonymous<br>If possible, prepend the Calling Number. |
| | anonymous; not provided | • anonymous; not provided<br>No number is prepended. |
| | calling no. -> Fixed Text | • calling no. -> Fixed Text<br>If possible, prepend the Calling Number, otherwise prepend the „Fixed Text“. |
| | Fixed Text | • Fixed Text<br>Always prepend „Fixed Text“. |
| Alert-Info | RFC7462,<br>[Bellcore],<br>SIP-T,<br>Proprietary | Setting for "Internal call", "Public call" and "Emergency call"<br>Note:<br>When you set "Alert-Info" to "Proprietary", the system maintains the settings that have already been made for "Internal call", "Public call" and "Emergency call" and offers you the option to change these settings as needed. |

Table 5-7 Configuration of the trunk's SIP parameters

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Internal call | [<urn:alert:source:internal>] | Conversion of a OScAR call signal to a telephone-side call signal.<br>Note:<br>Certain VoIP telephones (e.g. by SNOM) support the download of call signalings in form of wave files, from OScAR.<br>To the extent that these telephones, just like the OScAR Communicator devices, are properly and directly registered at OScAR, you can also upload the OScAR Communicator call signaling wave files to these telephones.<br>In this case, select the setting 'Proprietary'.<br>Enter:<br>• Internal call = <http://[IP address of OScAR]/OScAR_Communicator_V1/ [Name of the output profile]/[Name of the wave file];info=alert-internal<br>• Public call = <http://[IP address of OScAR]/OScAR_Communicator_V1/ [Name of the output profile]/[Name of the wave file];info=alert-external<br>• Emergency call = <http://[IP address of OScAR]/OScAR_Communicator_V1/ [Name of the output profile]/[Name of the wave file];info=alert-emergency |
| Public call | [<urn:alert:source:external>] | |
| Emergency call | [<urn:alert:source:external>], [<urn:alert:priority:high>], [<urn:alert:duration:long>] | |
| Tree structure: Server ➤ VoIP-Hardware ➤ SIP trunk #n ➤ Plain SIP ➤ SIP NFON<br>Prerequisit: 'SIP subprotocol' = 'NFON' | | |
| customer number | 256 characters [ ] | Customer number from NFON |
| expiration time [s] | 60..6000 [600] | Time offered by OScAR<br>The re-registration of OScAR is carried out after expiry of half of the time period that is confirmed by the NFON PBX. |
| Parallel call | prohibited, [allowed] | Performance feature from NFON "Allow parallel call to several devices", yes or no |

Table 5-7 Configuration of the trunk's SIP parameters

### 5.3.2.5 SIP-Q trunk parameters (only for SIP-Q trunks, where needed with OpenScape Branch)

Use this area to configure the below parameters for SIP-Q trunks (SIP subprotocol = SIP-Q) or for SIP-Q trunks incl. OpenScape Branch (SIP subprotocol = SIP-Branch):

- if SIP-Q v2 is used,
- prefixes,
- delays (to prevent overload on the opposite side),
- details regarding the connect acceptance,
- the national character set to use,
- the channel assignment mode,
- the length of the call reference, and
- the way in which the Connected Number is transmitted.

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ SIP ➤ SIP trunk #1.. #4 ➤ SIP-Q<br>Prerequisit: 'Services/SIP on vsip/SIP trunk #1..n/SIP subprotocol' = 'SIP-Q'/'SIP-Branch' | | |
| Enable SIP-Q v2 | [yes] | • yes<br>Use SIP-Q v2<br>(for HiPath 3000, OpenScape Business, OpenScape 8000, OpenScape Voice and OpenScape 4000) |
| | no | • no<br>Use SIP-Q v1 |
| Tree structure: Server ➤ SIP ➤ SIP trunk #1.. #4 ➤ SIP-Q ➤ Layer 3 | | |
| protocol | [CorNet-NQ] | Tunneled protocol: CorNet-NQ (not editable) |
| delay setup [ms][a)] | 1 .. 1000 ms [100 ms] | minimum time between 2 setup commands in the direction of the softswitch |
| delay disconnect [ms][1)] | 1 .. 1000 ms [50 ms] | Minimum time between 2 disconnect commands in the direction of the softswitch |
| delay data set [ms] [1)] | 0 .. 200 ms [0 ms] | Delay of entire frames on layer 2 level |
| prefix incoming | 20 digits [ ] | The prefix which, in the CorNet part, is cut off from the received Called Number, for incoming calls. |
| prefix outgoing | 20 digits [ ] | The prefix which, in the CorNet part, is prepended to the Calling Number and to the Connected Number, for outgoing calls. |
| alert before connect | yes, [no] | For incoming calls, always send/do not send the status 'ALERT' to the caller |
| national character set | 7Bit US-ASCII<br>[German]<br>Swedish | Utilization of the character set:<br>• 7Bit US-ASCII<br>• German<br>Use German special characters<br>• Swedish<br>Use Swedish special characters |

Table 5-8 Configuration of the SIP-Q parameters

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| channel sequence | [cyclic], linear | Utilization of channels:<br>cyclical or linear |
| channel sequence direction[1)] | [forward], reverse | Use the channels in ascending or descending order |
| length of callref [Byte] | 1 Byte, [2 Bytes] | Length of the call reference (identifier for a connection to the PBX); System and protocol-specific parameter |
| Channel Identification as on S2M | yes, [no] | Apply the S0 channel identification analogous to the S2M channel identification |
| Connected no. with display messages | | Feature for PBX systems that do not show any display text messages if the call number is not included in the call transfer command. |
| | generally '0' | • generally '0'<br>Always prepend '0'. |
| | last connected no. -> calling no. -> anonymous | • last connected no. -> calling no. -> anonymous<br>If possible, prepend the last Connected Number, otherwise prepend the Calling Number. In all other cases prepend 'anonymous'. |
| | [anonymous; not provided] | • anonymous; not provided<br>No number is prepended. |
| | last connected no. -> calling no. -> '0' | • last connected no. -> calling no. -> '0'<br>If possible, prepend the last Connected Number, otherwise prepend the Calling Number. In all other cases prepend '0'. |
| number of display columns | 5 .. 24 [16] | The number of columns that are available on the terminals' displays in combination with OScAR; the number of lines is determined automatically. |
| allow server mode | [yes], no | Allow the server mode to enable a 2-line display output at the devices.<br>This feature is only supported in combination with OpenScape 4000 and must be deactivated for all other combinations (=no) |
| intrusion via QSIG | yes, [no] | Intrude via QSIG, e.g. relevant with HiPath 3000 and OpenScape Business in comb. with CorNet-NQ |

Table 5-8 Configuration of the SIP-Q parameters

a. Can only be changed by the Support Team.

#### 5.3.2.6 MLPP trunk parameters (not required for pure SIP-Q trunks)

Use this area to configure - on condition the MLPP function was activated in the general trunk settings - the below parameters to specify the MLPP functionality:

- the required MLPP mode,
- the domain settings,
- whether Forced Release is sent as MLPP-Level, and if so the MLPP level,
- the default MLPP level incoming and outgoing, and
- the possible re-coding received/administrated MLPP levels at this trunk.

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ SIP ➤ SIP trunk #n (n = number of trunk) ➤ MLPP | | |
| mode/namespace | [DSN]<br>DRSN<br>DISA<br>Q.735<br>ETS<br>proprietary (e.g. for Cisco-CUCM coupling) | MLPP mode:<br>• DSN<br>• DRSN<br>• DISA<br>• Q.735<br>• ETS<br>• proprietary (e.g. for Cisco-CUCM coupling) |
| MLPP required | yes, [no] | Every connection request requires specification of an MLPP level |
| convert domain/id for appl | yes, [no] | Conversion of the name into ISDN standard nomenclature, yes or no |
| 'forced release' as MLPP level | flash-override-override, flash-override, immediate, [priority], routine, none | Conversion of Forced Release into an MLPP level |
| default MLPP level outgoing | flash-override-override, flash-override, immediate, priority, routine, [none] | Default MLPP level for outgoing connections, if no MLPP is provided by the application |
| default MLPP level incoming | flash-override-override, flash-override, immediate, priority, routine, [none] | Default MLPP level for incoming connections, if no MLPP is provided by the other side |
| MLPP domain | 256 characters [ ] | MLPP service domain |
| MLPP id | 256 characters [ ] | MLPP identifier (part of the domain name) |
| level 'flash-override-override' (highest) | 256 characters [flash-override-override] | The name that is communicated for this MLPP level; can only be changed for mode/namespace = Proprietary |
| level 'flash-override' | 256 characters [flash-override] | The name that is communicated for this MLPP level; can only be changed for mode/namespace = Proprietary |
| level 'flash' | 256 characters [flash-override-override] | The name that is communicated for this MLPP level; can only be changed for mode/namespace = Proprietary |
| level 'immediate' | 256 characters [immediate] | The name that is communicated for this MLPP level; can only be changed for mode/namespace = Proprietary |

Table 5-9 Configuration of the MLPP parameters

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| level 'priority' | 256 characters [priority] | The name that is communicated for this MLPP level; can only be changed for mode/namespace = Proprietary |
| level 'routine' | 256 characters [routine] | The name that is communicated for this MLPP level; can only be changed for mode/namespace = Proprietary |

Table 5-9 Configuration of the MLPP parameters

### 5.3.2.7 Registrar trunk parameters (only for direct VoIP connection)

Use this area to configure the VoIP connection (SIP subprotocol = SIP Registrar):

- the registration timeout,
- the maximum call number length,
- whether the registration shall remain active beyond a restart
- whether authentication is required,
- the type of the data transmission, and
- whether a OScAR-internal softswitch shall be activated.

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ SIP ➤ RTP ➤ SIP trunk #1..#4 ➤ Plain SIP ➤ SIP Registrar<br>Prerequisit: 'Services/SIP on vsip/SIP trunk #1..n/SIP subprotocol' = 'SIP-Registrar' | | |
| expiration time for registrations [min] | 1 .. 999 min [5 min] | The time period after which the registration of a telephones expires unless renewed. |
| persistent *) | yes, [no] | Retain the registration after a reboot of the server |
| maximum number length | 2 .. 32 [22] | The maximum length of the number which is allowed to call. If this number is exceeded, OScAR will reject the call. |
| require authentication | no<br>host<br>trunk | Authentification on the side of the communications devices<br>• none required<br>• where needed with individual authentication by the application<br>• Authentication specified in the trunk |
| User name (only shown for: 'require authentication' = 'trunk') | 256 characters [ ] | The name of the user |
| Password (only shown for: 'require authentication' = 'trunk') | 256 characters [ ] | Password |
| protocol type | any<br>TCP only<br>UDP only<br>TLS | Type of the data transmission<br>• any (must be defined by other side)<br>• TCP<br>• UDP<br>• TLS |
| enable softswitch | yes, [no] | Activate softswitch |

Table 5-10 Configuration of the Registrar parameters

#### 5.3.2.8 Internal softswitch (only for direct VoIP connection)

Use this area to configure - in combination with the direct VoIP connection (SIP subprotocol = SIP-Registrar) - the parameters governing the functionality of the internal softswitch which enables direct direct calls between VoIP devices that are connected directly, via OScAR.

This includes the following settings:

- the max. number of simultaneous internal calls,
- max. allowed length of a phone number that is called, and
- up to 10 breakout prefixes with assigned replacement prefixes to activate OScAR functions, e.g. to launch Broadcasts or for calls to the communications network.

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ SIP ➤ Soft Switch<br>Prerequisit: 'Services/SIP on vsip/SIP trunk #1..n/SIP enable softswitch' = yes | | |
| internal calls | @ License [0] | The number of internal calls that a softswitch can route. |
| cdnu length | 0 .. 48 [26] | The maximum length of the number which OScAR may call. If this number is exceeded, OScAR will not route the call. |
| breakout number #1 .. #10 | 4 characters [ ]<br>#1 = [0],<br>#2…#10 = [ ] | The number is not routed in the softswitch but forwarded to the application.<br>Towards the application, the 'breakout number' is substituted by 'replacement number'. |
| replacement number #1 .. #10 | 10 characters [ ]<br>#1 = [0],<br>#2…#10 = [ ] | |

Table 5-11 Configuration of the Softswitch parameters

### 5.3.3 VoIP voice data: RTP

Description:

The RTP process unpacks RTP data, feeds the coded voice data to the switching network and returns the output values in RTP packets for forwarding to the subscribers.

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ SIP ➤ RTP | | |
| RTP IP address | The IP address (selection field)<br>[own IP address] | The IP address used by OScAR to handle the RTP data traffic<br>(Number of options to choose from corresponds to the number of administrated IP addresses) |
| Enable IPv6 | yes [no] | Activate or deactivate IPv6 |
| RTP IP port #1 | IP port<br>[16384] | The basis IP port that is used by OScAR to handle the RTP data traffic<br>The IP port that is actually used is the first free IP port, starting from the basis IP port. |

### 5.3.4 Board operating systems: OS

Description

The board operating systems have no setting options.

Parameters:

none

### 5.3.5 Switching network: SWITCH

Description:

The SWITCH process constitutes the switching network, in which the person-to-person calls or conferences are switched and the announcements to individual subscribers, conferences or person-to-person calls are delivered.

Parameters:

none

### 5.3.6 Serial interfaces: SERIAL

Description:

The SERIAL process processes various interface protocols. It accepts data records from the DAKSpro application and dispatches these records via the interface. It also accepts data packages that were received by the interface and sends them to the DAKSpro application.

Note:
The serial interface is configured in the 'OScAR Classic Applications'.
➤ see Chapter 6, "Configuration of the DAKS Processes via VCON"

Parameters:

none

### 5.3.7 Audio I/Os: AIO-41 (for OScAR-Pro 300)

Description:

The AIO process establishes the connection between the switching network and the audio inputs and outputs.

Settings:

none

### 5.3.8 Digital I/Os: CONTACT

Description:

The CONTACT process controls digital outputs and transfers the states of digital inputs to the application.

Settable parameters:

none

### 5.3.9 Announcement memory: DISK

Description:

The DISK process readies the announcement memory on the board PRA-41 or the DSP-41.

Settable parameters:

None.

# 6 Configuration of the OScAR Processes via VCON

Overview

This chapter shows you how to use VCON to configure the general parameters of the OScAR processes. This includes, among other things, the specific parameters of the interfaces and protocols as well as the operational parameters.

Contents

This chapter consists of the following sub-sections:

## 6.1 General parameters

Description:

General parameters, among others of the OScAR-Pro applications.

Parameters:

| Parameters | Value range [default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ OScAR-Pro ➤ General Parameters<br>Behavior of the Application 'Personal calls/Group calls = 'Call Profiles | | |
| csnoqueue | on<br><br>[off] | Queue<br>• on<br>The queue is deactivated so that the destination can be called in multiple instances at the same time (i.e. in parallel), e.g. to call a hunt group with own output of the queue.<br>• off<br>The internal queue is used if the permitted number of simultaneous calls is exceeded. |
| cscallback timeout | 0..120 | Maximum waiting time for a callback in the "Report" function. |
| cancli | on<br><br>[off] | Changes of the 'Active Number' over the phone<br>• on<br>When changes are made to the 'Active Number' over any telephone, OScAR verifies if the Initiator also furnishes a CLI (= call number of the caller).<br>If no CLI is provided, OScAR will cut the connection immediately after the dial-thru code (with no error tone).<br>• off<br>no CLI check<br>In both cases, OScAR documents the call number that was used to make the changes. |
| csnodtmf | on<br><br>[off] | Deactivate the keypad-DTMF conversion<br>• on<br>The conversion from keypad to DTMF is switched off (deactivated).<br>• off<br>The conversion from keypad to DTMF is switched on (activated). |
| cssameboard | on<br><br>[off] | Selection of the board for outgoing (out-bound) calls<br>• on<br>The outgoing (out-bound) call is carried out on the same board that was used to make the initiator call.<br>• off<br>The outgoing (out-bound) call is carried out on any board. |

Table 6-1 Configuration of the general parameters

| Parameters | Value range [default setting] | Description |
|---|---|---|
| Other settings | | |
| recon | [on] | Reinitialize an $S_0$ trunk<br>• on<br>If problems are encountered during the connection buildup, the $S_0$ trunk is reinitialized. |
| | Off | • off<br>We recommend you do not deactivate this function. |
| gmdh3k | | Support of the field strength data inquiry for a GMD Medallion by Böhm-Elektronik<br>➤ see OScAR-TT User Manual |
| | on | • on<br>The GMD Medallion can be operated with any PBX, e.g. with HiPath 3000 (without query of the field strength data via the PBX). |
| | [off] | • off<br>Operation of the GMD Medallion in combination with an OpenScape 4000; the field strength values are computed through a CorNet-NQ/SIP-Q query. |
| lcli | | Evaluation of the CLI (= call number of the caller) when logging in and logging off over the phone. |
| | on | • on<br>The CLI is evaluated. The CLI must match the 1st phone number of the pertinent subscriber (based on the PIN). |
| | [off] | • off<br>The CLI is not evaluated. The logon and logoff can be from any telephone. |
| rrno*nodtmf | | Allow confirmation via DTMF when starting the application "Start broadcasts with ad hoc announcement". |
| | on | • on<br>No DTMF signals accepted. This makes sure that no Broadcast is started accidentally upon DTMF tones in the voice signal. |
| | [off] | • off<br>DTMF signals are accepted to start a Broadcast (see rrno*). |
| Filter Spaces | on | When activated ("on"), several consecutive space characters (blanks) in a text are replaced with a single space character or blank |
| | [off] | |

Table 6-1 Configuration of the general parameters

| Parameters | Value range [default setting] | Description |
|---|---|---|
| bonding | on<br>[off] | Support of both LAN interfaces in the channel bonding mode:<br>• on<br>The channel bonding mode is activated.<br>• off<br>The channel bonding mode is deactivated. |
| Prerequisit: 'bonding' = on | | |
| ARP Interval | 0... 1000 ms [500 ms] | The time interval during which the system for a connection between OScAR and Gateway. |
| rrno* | • [start alarm with *; on disconnect don't start alarm]<br>Broadcast launch with * key<br>– Advantage:<br>– easy to use<br>– option to cancel (abort)<br>– Disadvantages:<br>– little protection against accidental activation through DTMF signals/tones during an announcement<br>• start alarm with *; on disconnect start alarm<br>Broadcast launch with * key or by hanging up<br>– Advantage:<br>– easy to use<br>– Disadvantages:<br>– cancel/abort is possible, but does not offer intuitive operating<br>– little protection against accidental activation through DTMF signals/tones during an announcement<br>• start alarm with *; on recording timeout start alarm<br>Broadcast launch with *key or when the max. announcement length is exceeded<br>– Advantages:<br>– easy to use<br>– cancel/abort option<br>– Disadvantage:<br>– little protection against accidental activation through DTMF signals/tones during an announcement | |

Table 6-1 Configuration of the general parameters

| Parameters | Value range [default setting] | Description |
|---|---|---|
| rrno*<br>(Cont.) | • start alarm with *#; on disconnect don't start alarm<br>Broadcast launch by pressing the *key and the # key one after the other (within 1 s)<br>– Advantages:<br>– high protection against accidental activation through DTMF signals/tones during an announcement<br>– cancel/abort option<br>– Disadvantage:<br>– more difficult to use<br>• start alarm with *#; on disconnect start alarm<br>Broadcast launch by pressing the *key and the # key one after the other (within 1 s) or by hanging up<br>– Advantage:<br>– high protection against accidental activation through DTMF signals/tones during an announcement<br>– Disadvantages:<br>– cancel/abort is possible, but does not offer intuitive operating<br>– more difficult to use<br>• start alarm with *#; on recording timeout start alarm<br>Broadcast launch by pressing the * and the # key one after the other, or when the maximum announcement length is exceeded<br>– Advantages:<br>– high protection against accidental activation through DTMF signals/tones during an announcement<br>– cancel/abort option<br>– Disadvantage:<br>– more difficult to use | |
| Broadcast start with # (short dialog) | on, [off] | Usually, the Broadcast's over-the-phone launch via short dialog is closed with the star (*) key. When this parameter is enabled, the hash (#) key is used instead of the star (*) key. |
| Play Broadcast message (short dialog) | on, [off] | By default, no announcement is played back when a Broadcast is launched over the phone with a short dialog. When this parameter is enabled, the prompt "Prompt * key for BDC launch" is played back. |
| wpcs7 | There are several options to configure the wait position for conferees:<br>• [connect; play idle-tone]<br>OScAR accepts the call (connect) and plays an idle tone.<br>• stay in alerting; play idle-tone<br>OScAR remains in the alert state and plays an idle tone.<br>• connect; play silence<br>OScAR accepts the call (connect), but does not play a tone.<br>• connect; play announcement<br>OScAR accepts the call and plays the announcement 'To parked conferees'. | |

Table 6-1 Configuration of the general parameters

| Parameters | Value range [default setting] | Description |
|---|---|---|
| TDM or VoIP | [TDM], VoIP | Toggle between TDM and VoIP without additional channel licenses, with unchanging number of channels in total |
| failretry | 0..2 [1] | The max. number of allowed wrong entries of the security code during the conference |
| failwait | 0..30 [5 s] | The min. pause between a wrong entry of the security code during the conference and the new call attempt |
| max. operating time | 0... 1140 min [1140 min] | The max. operating time of a device during the Personal Security process |
| dial delay [1)]<br><br>1)= Can only be changed by the Support Team. | 0 .. 1000 ms [250 ms] | Delay between dial assignments per trunk |
| disconnect delay [1)] | 0 .. 1000 ms [150 ms] | Delay between commands to release the connection per trunk |
| path replacement delay [1)] | 0 .. 5000 ms [0 ms] | The delay between path replacement assignments (route optimization); spanning all trunks |
| host fifo size [1)] | 0 .. 100 [10] | Size of the FIFO memory when using the host interface |
| ad hoc ringing | [normal]<br>external<br>alarm | Setting of call signal:<br>• Intern (= normal)<br>• External<br>• Alarm |
| ad hoc member busy | [no action]<br>camp-on<br>intrusion<br>emergency intrusion<br>forced release | Behavior if subscriber line busy:<br>• No action<br>• Camp on<br>• Intrusion<br>• Emergency intrusion<br>• Release |
| ad hoc trunk busy | [no action]<br>forced release<br>intrusion | Behavior if trunk busy:<br>• No action<br>• Release<br>• Intrusion |
| hot standby | on<br><br>[off] | Switches the OScAR Server to the respective mode after a restart (for redundancy link-ups):<br>• on<br>The hot standby mode is activated.<br>• off<br>The hot standby mode is deactivated. |
| ignore call pickup group | on, [off] | Ignore call-pickup group |
| ignore call forwarding | on, [off] | Ignore call forwarding |

Table 6-1 Configuration of the general parameters

| Parameters | Value range [default setting] | Description |
|---|---|---|
| ignore secretary-executive configuration | on, [off] | Override executive-secretary configuration (CheSe) |
| ignore do-not-disturb | on, [off] | Override do-not-disturb function |
| direct speaker phone control | on, [off] | Voice calling (speakerphone control) |
| include all numbers in number check | on, [off] | Check all call numbers (1.-4.) when verifying the PIN entry |
| Country code | 5 characters | The country code, e.g. the country code for Germany: +49 |
| International prefix | 5 characters | The international country dialing code |
| National prefix | 5 characters | The national country dialing code |
| local area prefix | 6 characters | The area code |
| local office prefix | 6 characters | DDI (exchange) |
| max. ad hoc recording time | 5 .. 60 s [30 s] | The maximum announcement length for ad hoc announcements |
| Subsystem trunk | VSIP trunk #1 ...<br>VSIP trunk #n<br>[none] | Defines which trunk is used by the application "Gateway" as subsystem trunk |
| Redundancy Trunk | [none],<br>VSIP trunk-1-1-#1,<br>PRA-41-3-#1<br>PRA-41-3-#2<br>PRA-41-3-#3<br>PRA-41-3-#4 | Defines which trunk is used by the application "Gateway" as redundancy trunk |
| no switch to 'red alert' if PBX lost but GSM modem available | [off], on | If there is no connection to the PBX but the GSM modem is still available, there will be no switch to the system state 'Red Alert'. |
| time zone | Africa/Abidjan ...Zulu | The time zone of the OScAR Server |
| Reserved channels on Registrar-trunk | 0..5 [0] | The number of channels reserved on the Registrar trunk for ESPA-X emergency announcements |
| Spectralink reserved channels on Registrartrunk | 0..12 [0] | The number of channels reserved on the Registrar trunk for Spectralink terminals in personal security. |
| DMC Ringtime | [60] | Maximum ringing time for DMC communication devices |
| DMC no numbercheck | [off], on | When registering a DMC, the call number of the terminal device is not being checked. |
| SMTP secure | [off], on | Send encrypted emails |

Table 6-1 Configuration of the general parameters

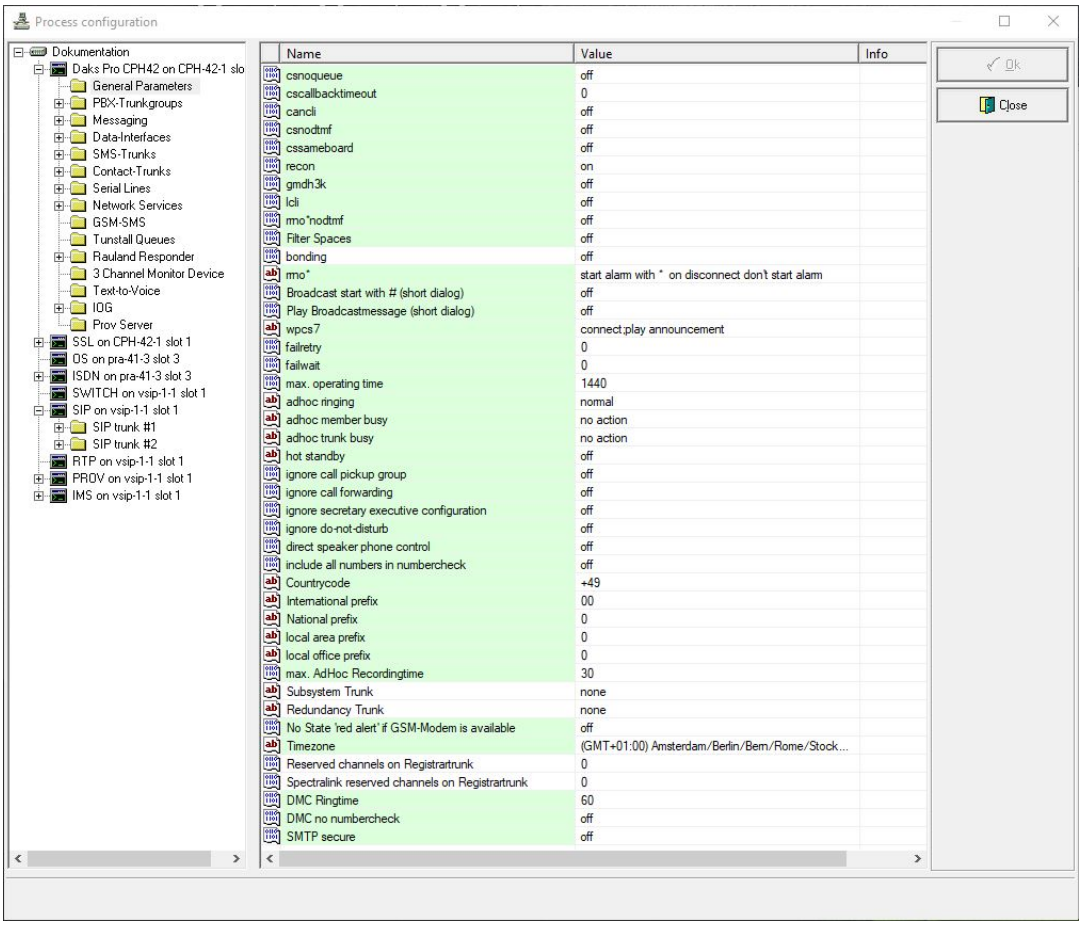



Image 6-1 General OScAR-Pro parameters

## 6.2 PBX-Trunkgroups

Parameters:

| Parameters | Value range [default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ OScARpro ➤ PBX-Trunkgroups➤ Group #1 - #n | | |
| Type | [not used]<br>TDM-PBX<br>VoIP-PBX<br>VoIP-Registrar<br>VoIP-Subsystem | Selection of the telephone system trunk group:<br>• TDM-PBX:<br>Connection to TDM telephone systems<br>• VoIP-PBX:<br>Connection to Voice over IP telephone systems<br>• VoIP-Registrar:<br>Provision of a registrar function<br>• VoIP-Subsystem:<br>Connection of the OScAR server to subsystems |
| TDM Channels | 5..480 [0] | Maximum number of TDM channels that the OScAR process may use.<br>  <br>Caution!<br>"TDM Channels" can only be administered if TDM-PBX has been selected as "Type". |

Table 6-2 Configuration of the PBX-Trunkgroups

## 6.3 Messaging

Parameters:

| Parameters | Value range [default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ OScARpro ➤ Messaging ➤ Trunk #1 - #n | | |
| Type | [not used]<br>OAP<br>OM-AXI<br>Cisco<br>Spectralink | Messaging Trunk Selection:<br>• OAP:<br>Connection to a WSG or IMS server<br>• OM-AXI:<br>Connection to an OM-AXI server<br>• Cisco:<br>Connection to a Cisco telephone system<br>• Spectralink:<br>Connection to a Spectralink telephone system |

Table 6-3 Configuration of the Messaging Trunks

## 6.4 Data Interfaces

Parameters:

| Parameters | Value range [default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ OScARpro ➤ Data-Interfaces ➤ SI Trunk | | |
| Number of interfaces | 0..8 (OScAR 300A)<br>0..2 (OScAR 200) | Number of serial interfaces to be supported |
| Tree structure: Server ➤ OScARpro ➤ Data-Interfaces ➤ VI Trunk | | |
| Number of interfaces | According licensing | Number of virtual interfaces to be supported |
| Tree structure: Server ➤ OScARpro ➤ Data-Interfaces ➤ ESPA-X Trunk | | |
| Number of interfaces | 0..60 (OScAR 300A)<br>0..5 (OScAR 200) | Number of ESPA-X interfaces to be supported |

Table 6-4 Configuration of the Data Interface

## 6.5 SMS-Trunks

Parameters:

| Parameters | Value range [default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ OScARpro ➤ SMS-Trunks ➤ Interface #1 - #n | | |
| Interfaces | [not used]<br>GSM-SMS<br>SMS Large Account<br>SMPP<br>TNPP | Messaging Trunk Selection:<br>• GSM-SMS:<br>Connection for sending SMS via a GSM-SMS modem<br>• SMS Large Account:<br>Connection for sending SMS via the Internet<br>• SMPP<br>Connection for sending SMS via SMPP<br>• TNPP:<br>Connection for message dispatch to a pager center via TNPP |

Table 6-5 Configuration of the SMS-Trunks

## 6.6 Contact-Trunks

Parameters:

| Parameters | Value range [default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ OScARpro ➤ Contact-Trunks ➤ DIO | | |
| Number of Units | 0..2 (OScAR 300A) [0] | Number of DIO modules to be used |
| Baumstruktur: Server ➤ OScARpro ➤ Contact-Trunks ➤ IOM | | |
| Number of units | 0..2 [0] | Number of IOM modules to be used |
| Tree structure: Server ➤ OScARpro ➤ Contact-Trunks ➤ Profibus | | |
| Number of units | 0..22 (OScAR 300A) [0] | Number of Profibus modules to be used |
| Tree structure: Server ➤ OScARpro ➤ Contact-Trunks ➤ Satellite | | |
| Number of units | According licensing | Number of OScAR satellites to be supported |

Table 6-6 Configuration of the Contact-Trunks

# 6.7 Configure serial interfaces and virtual serial interfaces

## 6.7.1 Serial interfaces

Description:

Parameter to configure the serial interfaces and their protocols, and additional parameters.

Parameters:

| Parameters | Value range [default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ OScAR-Pro ➤ Serial Lines ➤ SI1-SI8 | | |
| Function | | Interface function: |
| | [none] | none: no function |
| | PLC | PLC: PLC interface |
| | NUC | NUC: Nurse call interface without callback |
| | NUC+ | NUC+: Nurse call interface with callback |
| | HOST | HOST: Interface for the emergency response host computer |
| | HOST+ | HOST+: Interface for the emergency response host computer incl. expansions |
| | GSM | GSM: Interface to the GSM-SMS modem |
| | SIGMA | SIGMA: SIGMASYS coupling |
| | SICLI | SICLI: Interface to third-party systems SICLI, conveyer belt controlling, ESSER or SIEDLE |
| | ALPHA | Alpha: Alpha protocol |
| | PROFIBUS | Profibus: Interface to the Profibus contact inputs |
| Prerequisit: 'function' = 'PLC / NUC / NUC +' | | |
| protocol | ESPA | Protocols:<br>• ESPA<br>➤ see Section 8.3 "Nurse call interface with ESPA protocol"<br>➤ see Section 8.4 "PLC interface with ESPA protocol" |
| | FTI1, VIT1 | • FTI1, VIT1<br>➤ see Section 8.5 "Nurse call interface with FTI1 and VIT1 protocol" |
| | RLTAP | • RLTAP<br>Rauland Responder<br>TAP interface |
| | DUST | • DUST<br>(Only shown for: function = PLC) |
| Prerequisit: 'function' = 'PLC / NUC / NUC + /GSM/ SIGMA / SICLI / ALPHA' | | |
| interface | [RS232], RS422 | Physical connection |
| baud rate | 300 ... 93750 [9600] | Bit transmission rate |

Table 6-7 Configuration of the serial interface

| Parameters | Value range [default setting] | Description |
|---|---|---|
| | | |
| parity | [none], even, odd | Parity |
| data bits | 5, 6, 7, [8] | Number of data bits |
| stop bits | [1], 2 | Number of stop bits |
| Prerequisit: PLC (protocol = ESPA) NUC / NUC + / SIGMA / SICLI / ALPHA | | |
| option 1 | Options with value ranges and defaults<br>➤ see Section 6.7.3 "Protocol-specific parameters" | |
| option 2 | | |
| option 3 | | |
| option 4 | | |
| Prerequisit: 'NUC / NUC + / SIGMA / SICLI / ALPHA' | | |
| Process queue length | 0.. 255<br>[0] | The length of the process queue |
| Prerequisit: 'NUC / NUC +' | | |
| Number of reserved ESPA-444 calls in the queue that have the priority: '1' | 0.. 50, [0] | Number of slots that are reserved in the queue for ESPA-444 calls with the priority 1 |
| ESPA extended Status | on<br>[off] | Extended settings of the nurse call interface<br>• on<br>If needed, send the status values of the 9er group, as status information<br>• off<br>Send the call status '3' also after the connection (for external systems that do not support the status values '9', '91' and '9#') |
| Keypad echo | on<br>[off] | Convert nurse's keystrokes from keypad signaling to DTMF<br>• on<br>Send all received keypad information in form of DTMF tones to the telephone interface of the nurse call system<br>• off<br>Do not send received keypad information to the nurse call system |
| Keypad echo for Calltype 21 | on<br>[off] | Convert nurse's keystrokes for Calltype 21 from keypad signaling to DTMF<br>• on<br>Send all received keypad information for Calltype 21 in form of DTMF tones to the telephone interface of the nurse call system<br>• off<br>Do not send received keypad information to the nurse call system |

Table 6-7 Configuration of the serial interface

| Parameters | Value range [default setting] | Description |
|---|---|---|
| '1' evaluation | on<br>[off] | Keystroke '1' pressed by the nurse during the active callback to the patient<br>• on<br>Keystroke '1': Evaluate keystroke<br>• off<br>Keystroke '1': Ignore keystroke |
| '1' disconnects | on<br>[off] | Automatic call release<br>• on<br>Keystroke '1': End call<br>• off<br>Keystroke '1': Continue call |

Table 6-7 Configuration of the serial interface

| Parameters | Value range [default setting] | Description |
|---|---|---|
| '#' evaluation | | Keystroke '#', pressed by the nurse during an active and ongoing callback call to the patient |
| | on | • on<br>Keystroke '#': Evaluate keystroke |
| | [off] | • off<br>Keystroke '#': Ignore keystroke |
| '#' disconnects | | Automatic call release |
| | on | • on<br>Keystroke '#': End call |
| | [off] | • off<br>Keystroke '#': Continue call |
| callback features | | Properties of the callback initiated by the nurse: |
| | [normal] | • normal<br>no special properties |
| | speaker phone control | • speaker phone control<br>Activate speakerphone control during the callback call |
| | emergency call | • emergency call<br>Signal the call as emergency call |
| ESPA callback mode | [none] | Special callback functionality of the serial interface: |
| | TELEVIC | • Callback to the TELEVIC system |
| | TUNSTAL1 | • Callback via the first TUNSTALL wait position |
| | TUNSTAL2 | • Callback via the second TUNSTALL wait position |
| | TUNSTAL3 | • Callback via the third TUNSTALL wait position |
| ESPA amount of Status Info records w/o specific Status Requests | 0.. 5 [0] | Maximum number of status message that may be sent for a " Status Request". |
| enable SieCare | on, [off] | SieCare activate/deactivate |
| enable Teleguard | on, [off] | Activate/deactivate Teleguard |
| Prerequisit: 'function' = 'NUC / NUC+' und 'protocol' = 'RLTAP' | | |
| RLTAP connection type | 3 characters [INT] | Connection type for callbacks in combination with RLTAP |
| RLTAP callback mode | [none], to phone, to nurse call system, to both | Type of the callback in combination with RLTAP |
| Prerequisit: 'function' = 'NUC+' | | |
| callback number prefix | 3 characters [ ] | The prefix that must be prepended to the phone number to reach a subscriber. |

Table 6-7 Configuration of the serial interface

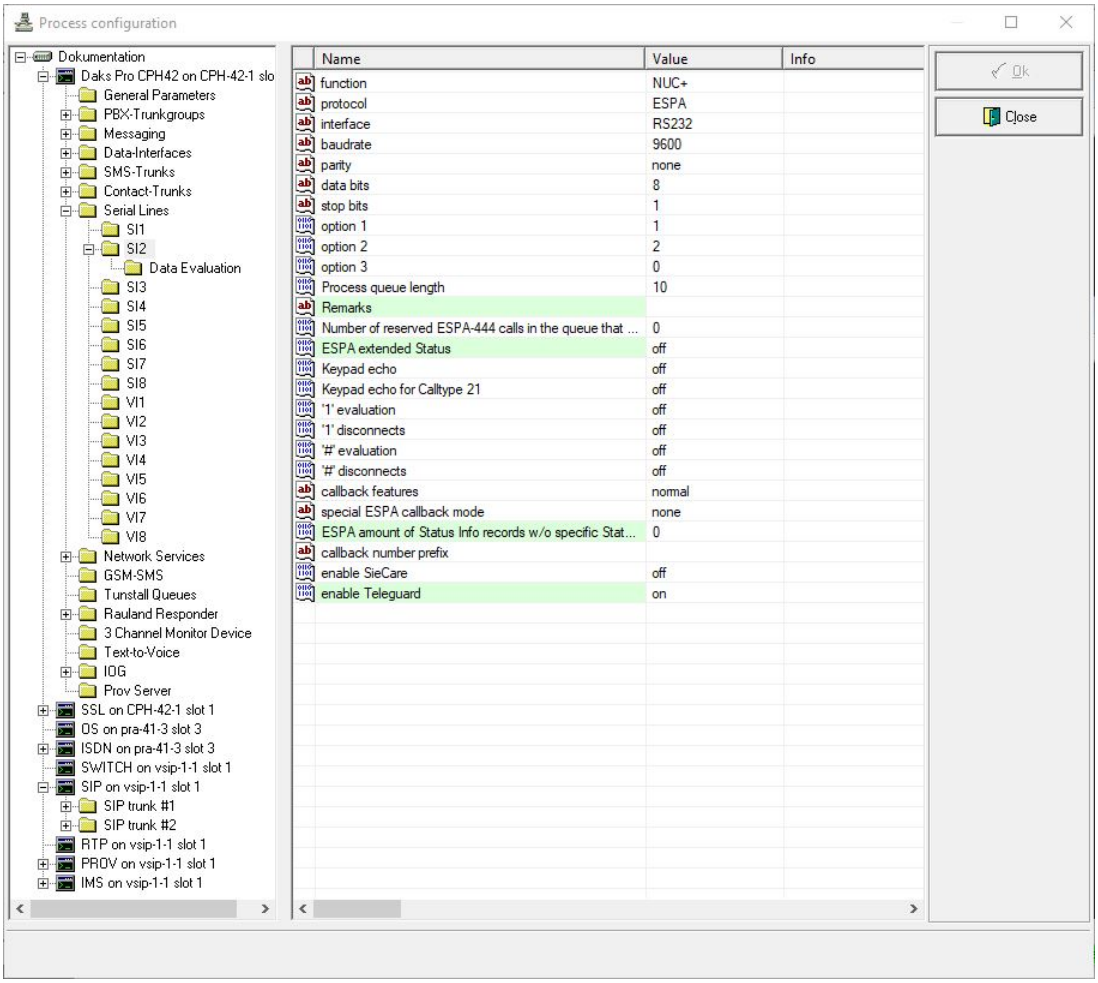



Image 6-2 VCON serial interfaces

## 6.7.2 VCON serial interfaces

Description:

Parameter to configure the IP-based virtual interfaces with serial protocols and advanced parameters.

Parameters:

| Parameters | Value range [default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ OScAR-Pro ➤ Serial Lines ➤ VI1 .. VI8 | | |
| Function | [none]<br>NUC<br>NUC+<br>TNPP | Interface function:<br>none: no function<br>NUC: Nurse call interface without callback<br>NUC+: Nurse call interface with callback<br>TNPP: Telocator Network Paging Protocol to control POCSAG pagers. |
| Parameters for all functions | | |
| IP address | IP address<br>[0.0.0.0] | IP-address of the server<br>Note:<br>Only shown when the parameter "Role" is set to "Client". |
| IP port | IP port<br>[0] | IP port of the protocol that is utilized |
| Role | [Client],<br>Server | Setting if the OScAR server operates as a Client or as a Server.<br>When operating as a Client, OScAR builds up the connection; when operating as a Server, OScAR waits for the connection build-up from the Client. |
| Prerequisit: 'TNPP' | | |
| Tree structure: Server ➤ OScAR-Pro ➤ Serial Lines ➤ VI1..VI8 ➤ TNPP | | |
| Destination Address | 0.. 65535<br>[0] | Address of the destination |
| Source Address | 0.. 65535<br>[0] | Address of the source |
| Page Type | POCSAG - 512 baud<br>POCSAG - 1200 baud<br>POCSAG - 2400 baud<br>Golay Sequential Code<br>Golay Type II-A<br>FLEXTM<br>FLEXTM-Augmented<br>ERMES<br>ERMES-Augmented<br>NEC D2 format | Supported pager types |

Table 6-8 Configuration of the virtual interface

| Parameters | Value range [default setting] | Description |
|---|---|---|
| | NEC D3 format | |
| | APOC 1200<br>APOC 2400<br>HSC<br>5/6 tone<br>2 tone<br>RDS<br>MBS<br>Multitone - Mark IV<br>Multitone - Mark V<br>Multitone - Mark VI<br>Spantel<br>DTMF<br>DTMF Networking<br>Echo format<br>Newspager - 512 baud<br>Newspager - 1200 baud<br>Newspager - 2400 baud<br>Load Management Format (SA206) | |
| Page Class | Beep only<br>Numeric Display<br>Shifted Numeric<br>Alphanumeric Display<br>Voice<br>Data/Transparent Data<br>Special Class 1.. 9 | Classification of the pager |
| RF Channel Designator | 0.. 63<br>[0] | Channel selection |
| RF Zone Designator | 0.. 63<br>[0] | |
| Page Function Code | default pager address/function<br>address/function 1..4 | |
| Pause in sec between messages | 0.. 30<br>[0] | Minimum pause between the dispatch of messages |
| Tree structure: Server ➤ OScAR-Pro ➤ Serial Lines ➤ VI1..VI8 ➤ TNPP ➤ Whitelist 1 .. 2 | | |
| IP address | IP address [0.0.0.0] | IP addresses and their corresponding subnet masks, that may access the ESPA-X service |
| IP subnet mask | IP mask [0.0.0.0] | |
| Remarks | 50 characters [ ] | Any comments, for information purposes only |

Table 6-8 Configuration of the virtual interface

| Parameters | Value range [default setting] | Description |
|---|---|---|
| Prerequisit: 'NUC / NUC +' with protocol 'ESPA, SALCOM, PRINTER, TAP'<br>➤ see Section 6.7.1 "Serial interfaces" | | |
| Ignore Checksum | yes, [no] | When this parameter is enabled, the Checksum is not evaluated. |
| Prerequisit: 'NUC / NUC +' | | |
| Tree structure: Server ➤ OScAR-Pro ➤ Serial Lines ➤ VI1..VI8 ➤ Data Evaluation | | |
| Default Group ID | 0.. 9999, [ ] | The default group ID<br>This group is launched when no match was found. |
| Minimum group identifier length | 1.. 4, [4] | The minimum length of the group ID<br>Shorter group IDs are left-justified filled with zeros. |
| Tree structure: Server ➤ OScAR-Pro ➤ General Parameters ➤ Serial Lines ➤ VI1..VI8 ➤ Data Evaluation ➤ Pattern 1 | | |
| Pattern | 0.. 260 characters<br>[ ] | The regular expression that is applied to the received text |
| Event type group | 0.. 260 characters<br>[ ] | The group numbers of the pattern's regular expression<br>Based on the Event type group the system decides which Broadcast Group to start or stop.<br>Fro example: \1 = first group , \2 = second group |
| Originator group | 0.. 260 characters<br>[ ] | The group numbers of the pattern's regular expression. |
| General Stop identifier | 0.. 260 characters<br>[ ] | This expression ends all Broadcasts that were started through this interface<br>Note:<br>Several regular expressions are possible. |
| Tree structure: Server ➤ OScAR-Pro ➤ General Parameters ➤ Serial Lines ➤ VI1.. VI8 ➤ Data Evaluation ➤ Pattern 1 ➤ Start Stop 1.. 20 | | |
| Start identifier | 0.. 260 characters<br>[ ] | The regular expression for the "Start identifier"<br>The regular expression is applied to the result of the "Event type group". |
| Originator range | 0.. 260 characters<br>[ ] | The regular expression for the "Originator range"<br>The regular expression is applied to the result of the "Originator group". |
| Stop identifier | 0.. 260 characters<br>[ ] | The regular expression for the "Stop identifier"<br>The regular expression is applied to the result of the "Event type group".<br>This expression ends the Broadcast that was started through this interface on the basis of the "Start identifier". |
| Start ID is component of Stop ID | yes, [no] | When this parameter is enabled, the content of the "Start identifier" must also by included in the text to end the Broadcast. |
| Alarm group | 0.. 9999<br>[ ] | Broadcast Group ID of the Broadcast that shall be launched |

Table 6-8 Configuration of the virtual interface

| Parameters | Value range [default setting] | Description |
|---|---|---|
| Beep code | 0.. 9, [0] | The beep code that is utilized:<br>• 0.. 5, 8, 9<br>no effect<br>• 6<br>Alarm call signaling if the Broadcast Group parameters require an an alarm call for the subscriber; otherwise the alerting is by way of external call.<br>• 7<br>generally alarm call signaling |
| Precedence | [low], medium , high | The priority level that is utilized |
| Callback enabled | [no], yes | Only shown when "function" is set to "NUC+". |
| Display Text composition | 0.. 260 characters<br>[ ] | The composition of the display text, including the group numbers of the pattern's regular expression and free text |
| Tree structure: Server ➤ OScAR-Pro ➤ General Parameters ➤ Serial Lines ➤ VI1..VI8 ➤ Data Evaluation ➤ Post process 1..20 | | |
| Search pattern | 0.. 260 characters<br>[ ] | The regular expression that is applied to the text from "Display text composition". |
| Replacement | 0.. 260 characters<br>[ ] | Replacement text with the group numbers of the regular expression for the parameter "Search pattern" and free text. |
| Count | [0].. n | Maximum number of search iterations within the text that is browsed |

Table 6-8 Configuration of the virtual interface

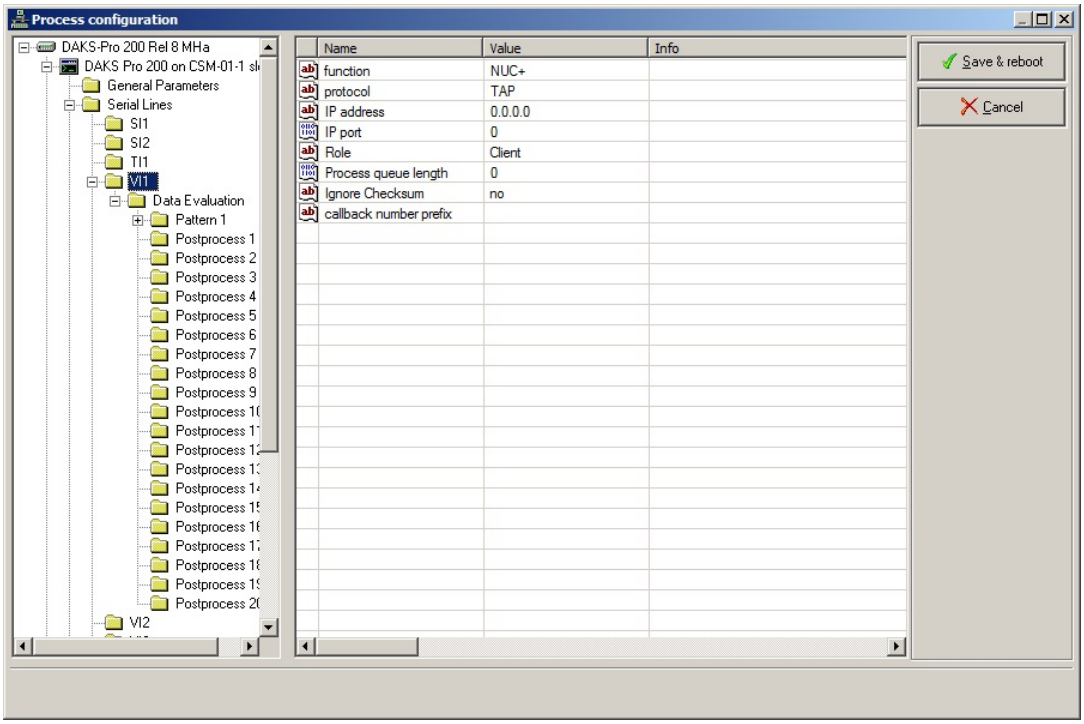



Image 6-3 VCON

## 6.7.3 Protocol-specific parameters

| Protocol | Protocol-specific parameters |
|---|---|
| DUST | **option 1** bit-determined:<br>bit 0 = with length<br>bit 1 = high priority (is not evaluated, OScAR is generally high-priority)<br>bit 2 = CRC-CCITT (can be neglected because OScAR automatically adjusts to external system)<br>**option 2:**<br>0 = the subscriber's PIN is not appended to the 'calling number'<br>1 = The subscriber's PIN is appended to the 'calling number'<br>**option 3** = 0, (don't care) |
| ESPA | **option 1** = ESPA address of the external system<br>**option 2** = ESPA address of OScAR<br>**option 3**:<br>0 = default<br>1 = A 'status request' is immediately answered with 'paged'<br>2 = Accelerated "paged callback info" after successful build-up of the callback connection<br>**process queue length** = 1...50,<br>length of the process queue in comb. with NUC(+) [a)] |
| GSM | **option 1** = 0<br>**option 2** = 0<br>**option 3** = 0<br>**option 4** = 0 |
| FTI1 | **option 1** = n characters (0 ..160) that are not evaluated<br>**option 2** = m characters (0 ..160, m+n < 161) display text message<br>**option 3** = bit field ACK / check character:<br>bit 0 = 0 => without confirmation of the receipt<br>bit 0 = 1 => with confirmation of the receipt<br>bits 2.1 = 0.0 => no check character<br>bits 2.1 = 0.1 => Motorola checksum (add all characters, then ones complement)<br>bits 2.1 = 1.0 => BCC (EXOR for all characters)<br>bit 3 = 0 => 'Standard FTI1 Mode'<br>➤ see Section 8.5.3 "'FTI1' = fixed number of characters, text preceding the identifier"<br>bit 3 = 1 => 'Enhanced FTI1 Mode'<br>➤ see Section 8.5.3 "'FTI1' = fixed number of characters, text preceding the identifier"<br>**process queue length** = 1...50, Length of process queue in comb. with NUC [1)] |

Table 6-9 Protocol-specific parameters of the serial interface

| Protocol | Protocol-specific parameters |
|---|---|
| VIT1 | **option 1** = Trigger character<br>**option 2** = End character<br>**option 3** = bit field ACK / check character:<br>bit 0 = 0 => without confirmation of the receipt<br>bit 0 = 1 => with confirmation of the receipt<br>bits 2.1 = 0.0 => no check character<br>bits 2.1 = 0.1 => Motorola checksum (add all characters, then ones complement)<br>bits 2.1 = 1.0 => BCC (EXOR for all characters)<br>**process queue length** = 1...50, Length of process queue in comb. with NUC [1)] |
| SIG-MASYS [b)] | **option 1:**<br>0 = Connection to SM port<br>1 = Connection to SCI<br>**option 2** don't care<br>**option 3** don't care |
| SICLI | **option 1:**<br>0 = SICLI default<br>1 = SICLI expanded<br>2 = FBS1<br>3 = ESSER<br>4 = SIEDLE<br>**option 2** don't care<br>**option 3** don't care<br>**process queue length**= 1...50, length of the process queue |
| ALPHA 2 | **option 1** don't care<br>**option 2** don't care<br>**option 3** don't care<br>**process queue length** = 1...50, length of the process queue |
| PROFIBUS | **option 1** = 0<br>**option 2** = 0<br>**option 3** = 0 |

Table 6-9 Protocol-specific parameters of the serial interface

a. The queue comprises Broadcasts that are still waiting to be started, Broadcasts that are already in progress and Broadcasts for which status information still needs to be sent. Here, the maximum value per interface is 50.

b. SIGMASYS generally operates with the following general port parameters: 9600 baud, even parity, 8 databits, 1 stop bit.

## 6.8 GSM-SMS

Description:

The following parameters are used to define the command strings that are applied for modems to send SMS messages.

Caution!
Some of the strings are modem-specific, i.e.depending on the manufacturer and type of modem they may deviate from the defaults.

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ OScAR-Pro ➤ GSM-SMS | | |
| check | 9 characters [ATI] | In the idle state, the modem is addressed on a cyclical basis to check on its availability. This command must be answered with an OK; for example "ATI" or "AT" can be used. |
| check interval | 5.. 30 [30] | The interval that defines the chronological sequence (in seconds) in which the modem is addressed when in the idle mode. |
| dial | 15 characters [ATD] | Parameter to dial, e.g. with prefix for an outside line, usually "ATD" or "ATD0W" (dial blind "0" and wait for dial tone). |
| reset | 9 characters [ATZ] | Reset the modem, usually "ATZ". |
| escape char | 1 character [+] | Escape character, usually "+"<br>If, during an active modem connection, the escape character is sent three times in a row, the modem will toggle from the transfer mode to the command mode.<br>After that you can hang up with the hangup string. |
| hangup | 9 characters [ATH0] | Command for the modem to hang up (go on-hook), usually "ATH0". |
| Note:<br>The below-described Init strings contain, in part, the following commands (manufacturer-dependent):<br>• Disconnection when DTR->off, usually "&D2": Command for the modem to hang up when the DTR line becomes inactive.<br>• No automatic call acceptance, usually "ATS0=0": The modem may not accept an incoming call (ringing).<br>• Setting of the escape character, usually "ATS2=43" for "+".<br>• Activate the echo of the commands by the modem, usually "ATE1"<br>The three Init strings 'for analog mode', 'for X75' and 'for X75T70' must be configured. For modes that are not supported, make sure you enter invalid pseudo strings that, when transferred to the modem, lead to an error message ("ERROR!!!"), e.g. "AT 0". | | |

Table 6-10 Configuration of the GSM-SMS parameters

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| init string for analog modem | 49 characters [ATX3] | Init string for analog modem (manufacturer-dependent), e.g.:<br>• devolo Microlink 56k i:<br>"AT &D2 S0=0 X3 S2=43 M1 L1 B21"<br>• CPV-PICO-T:<br>"AT &D2 S0=0 X3 S2=43 S31=64 I6 M1 L1"<br>• ZYXEL 1496:<br>"AT &D2 S0=0 X3 S2=43 M1 L1"<br>• ELSA Microl. 33.6TQV:<br>"AT &D2 S0=0 X3 S2=43 M1 L1"<br>• Radio modem TC35i:<br>"AT S0=0 X3"<br>• Radio modem CT63:<br>"ATX3"<br>Caution!<br>Before putting it into operation, you must initialize CT63 with "AT+ipr=9600" through a terminal emulation program, and this initialization must be saved immediately with "at&w0". |
| additional init string | 49 characters [ ] | Additional string to initialize the modem |
| init string for X75 | 49 characters [AT 0] | Init string for ISDN modem to set the B-channel protocol X.75 (manufacturer-dependent), e.g.:<br>• devolo MicroLink 56k i:<br>"AT &D2 S0=0 X3 S2=43 I6 M1 L1 B26 \N6"<br>• Radio modem CT63:<br>"AT 0" |
| init string for X75T70 | 49 characters [AT 0] | Init string for ISDN modem to set the B-channel protocol X.75/T70 (manufacturer-dependent), e.g.:<br>• devolo MicroLink 56k i:<br>"AT &D2 S0=0 X3 S2=43 I6 M1 L1 B26 \N8"<br>• Radio modem CT63:<br>"AT 0" |
| The following settings are only required for providers, namely:<br>• those that cannot be addressed with the above-mentioned settings, or<br>• that require a password for the connection buildup.<br>If settings are made here, this connection type automatically and independent of the parameterization under the OScAR Administrator-Tool uses 8 bits per character and the protocol type UCP. | | |

Table 6-10 Configuration of the GSM-SMS parameters

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| shortcut | 3 characters [ ] | Short descriptor to denote the connection type, e.g. "SW+" for the expanded Swisscom GSM-SMS access.<br>Note:<br>The short descriptor must be identical to the short descriptor of the connection type as configured in the OScAR Administrator-Tool. |
| ac1 | 32 characters [ ] | Provider-dependent, e.g. "PROXIMUS" by Belgian provider with the same name. |
| oadc1 | 32 characters [ ] | Provider-dependent |
| oadc60 | 32 characters [ ] | Provider-dependent |
| pwd60 | 32 characters [ ] | Provider-dependent |
| ucp60 | yes, [no] | Activate or deactivate the protocol type UCP-60 (large account database option = login procedure before sending SMS). |
| special character | on, [off] | Transmission of German special characters to the GSM provider, yes or no. |
| Message timeout | 5...30 s [15 s] | The time period during which OScAR waits for a reply from the provider when sending GMS-SMS messages. |

Table 6-10 Configuration of the GSM-SMS parameters

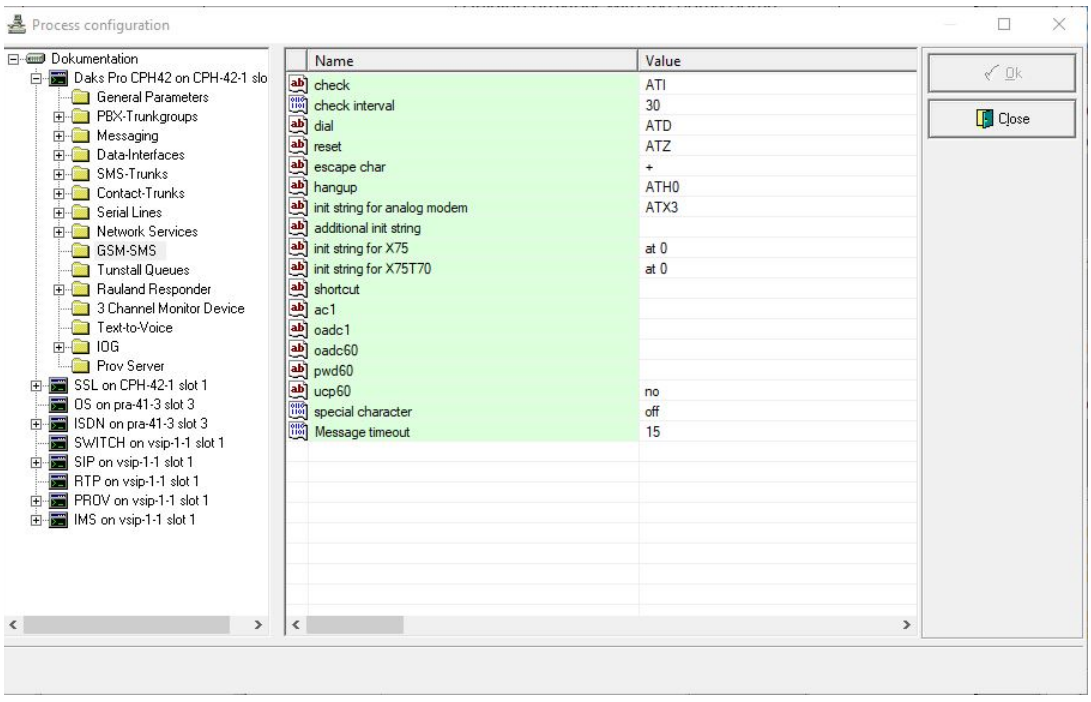



Image 6-4 GSM-SMS parameters

## 6.9 Tunstall Queues

Description:

Special settings for Tunstall nurse call systems.

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ OScAR-Pro ➤ Tunstall Queues | | |
| queue 1 | 1 .. 99 [50] | Number of parallel calls in callback queue positions. |
| queue 2 | | |
| queue 3 | | |

Table 6-11 Settings for the Tunstall Queues parameters

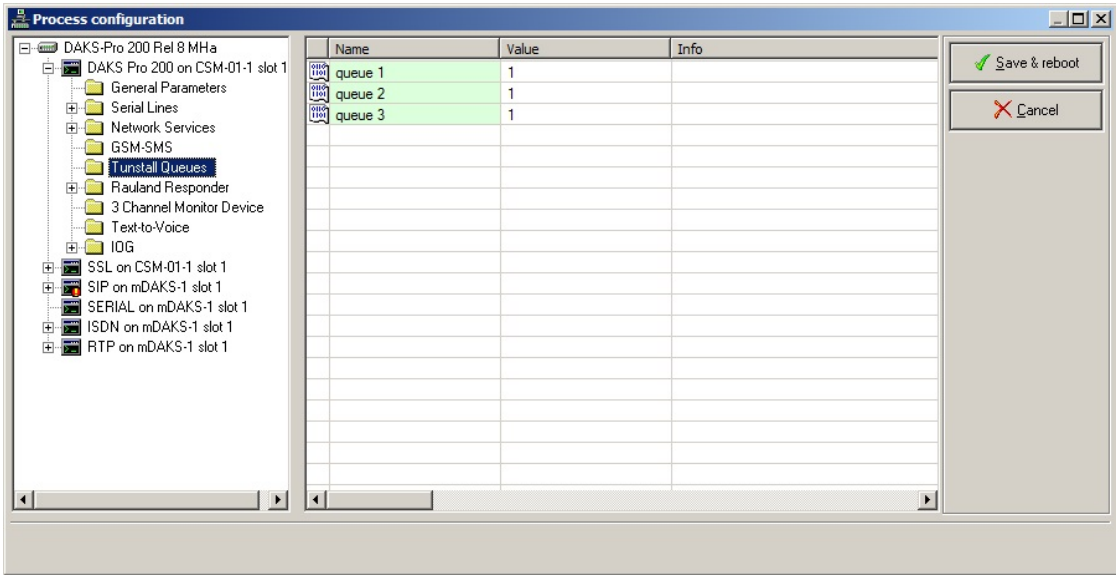



Image 6-5 Tunstall queue parameters

### 6.9.1 Rauland Responder

Description:

Special settings for Rauland nurse call systems (see additional documentation to the Service Manual: Interface to Rauland Responder IV and 4000).

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ OScAR-Pro ➤ Rauland Responder ➤ Calltype 1 .. 50 | | |
| call type | 20 characters [ ] | The call type that is defined in the OScAR Server for callbacks to the call system and that contains the relevant call (phone) number, the number of parallel connections, and the timing parameters. |
| priority | 2 characters [ ] | Priority of nurse call:<br>• 0N<br>Nurse call with priority 0 without the option for a callback call<br>• 1N<br>Nurse call with priority 1 without the option for a callback call<br>• 2N<br>Nurse call with priority 2 without the option for a callback call<br>• 0C<br>Nurse call with the priority 0 and with the option for a callback call<br>• 1C<br>Nurse call with the priority 1 and with the option for a callback call<br>• 2C<br>Nurse call with the priority 2 and with the option for a callback call |
| | | |

Table 6-12 Configuration of the Rauland Transponder parameters

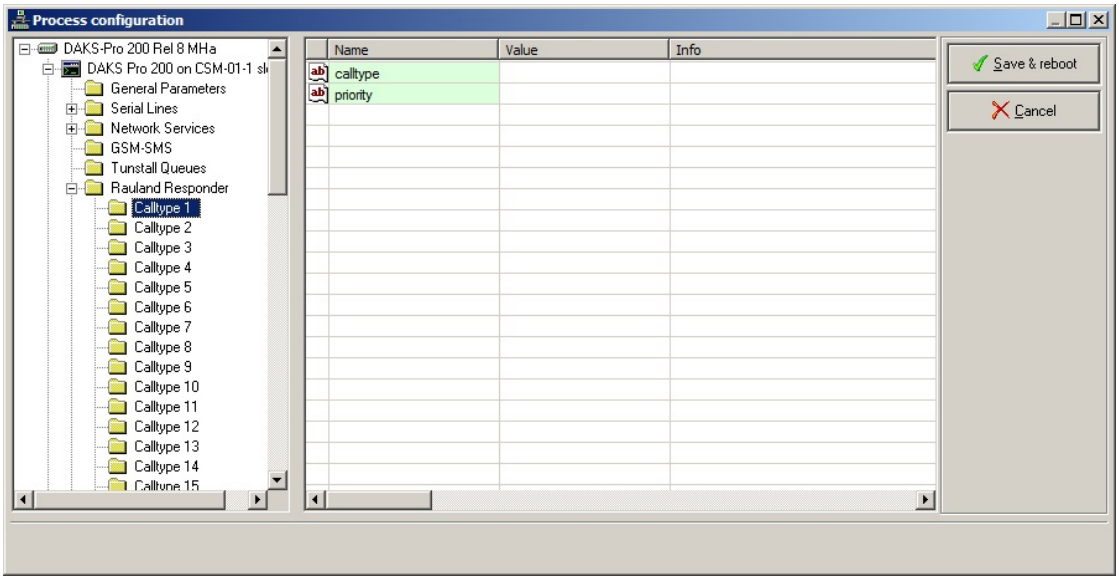



Image 6-6 Rauland Responder parameters

# 6.10 Network Services

## 6.10.1 Ethernet A

Description:

These parameters are used to configure the Ethernet port A.

➤ see "Hardware Service Manual"

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ Interface A | | |
| IP address | IP address [0.0.0.0] | IP address of the corresponding Ethernet port. |
| subnet mask | Subnet mask [0.0.0.0] | Subnet mask of the corresponding Ethernet port. |
| gateway | IP address [0.0.0.0] | Gateway of the corresponding Ethernet port. |
| MAC address | MAC address xx.xx.xx.xx.xx.xx | MAC address of the TCP/IP interface. |
| enabled | [yes], no | Activate/deactivate the interface |
| ethernet mode | [Autonegotiation], 10baseT/half, 10baseT/full, 100baseT/half, 100baseT/full, 1000baseT/full | Transmission parameter Layer 1 of the Ethernet interface.<br>Note:<br>1000BaseT/full only configurable for OScAR-Pro 300. |
| | | |

Table 6-13 Configuration of the Ethernet A parameters

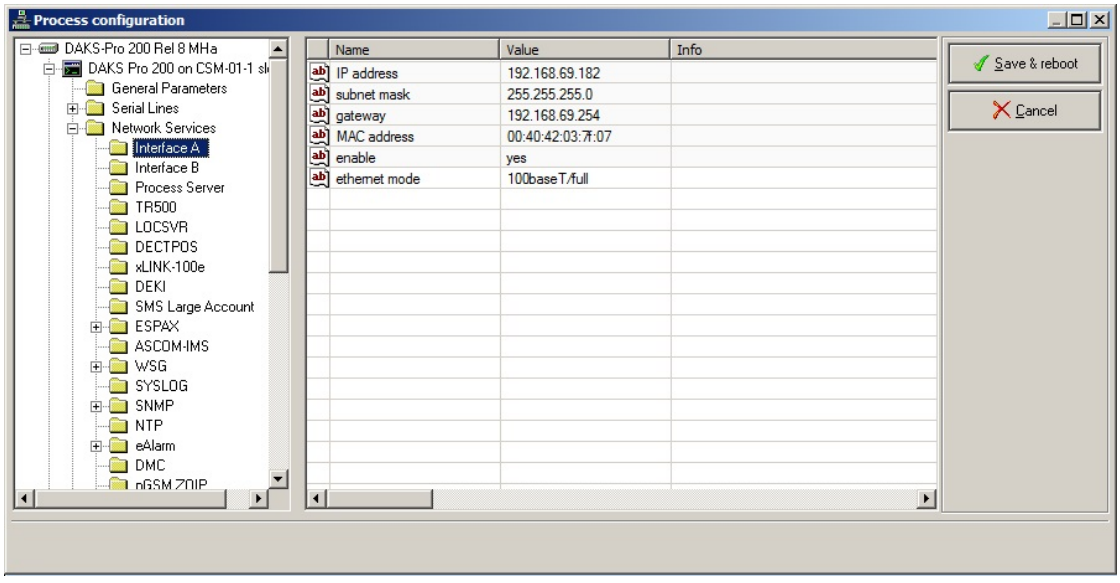



Image 6-7 Interface A parameters

## 6.10.2 Ethernet B

Description:

These parameters are used to configure the Ethernet port B.

➤ see "Hardware Service Manual"

Note:
Only applies to OScARpro 200!

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ Interface B | | |
| IP address | IP address [0.0.0.0] | IP address of the corresponding Ethernet port. |
| subnet mask | Subnet mask [0.0.0.0] | Subnet mask of the corresponding Ethernet port. |
| gateway | IP address [0.0.0.0] | Gateway of the corresponding Ethernet port. |
| MAC address | MAC address<br>xx.xx.xx.xx.xx.xx | MAC address of the TCP/IP interface. |
| enabled | [yes], no | Activate/deactivate the interface. |
| ethernet mode | Autonegotiation | This comment is for information purposes only and shows the Ethernet interface's transmission parameter Layer 1. |
| physical connection via port | [A], B | This parameter is only shown for: OScAR-200 Hardware.<br>Ethernet port utilized for VoIP:<br>• A:<br>VoIP uses the Ethernet port A (only port A must be connected with the network).<br>• B:<br>VoIP uses the Ethernet port B (both ports must be connected with the network). |

Table 6-14 Configuration of the Ethernet B parameters

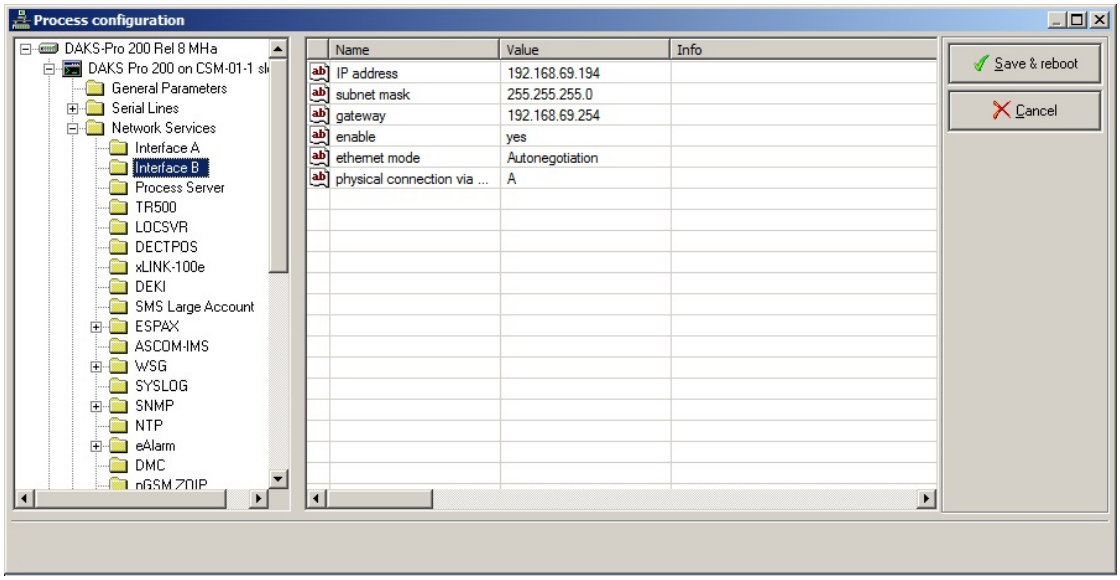



Image 6-8 Interface B parameters

## 6.10.3 Process Server

Description:

This service enables the connectivity for the OScAR-TT-Server.

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ Process Server | | |
| enabled | yes, [no] | Activate/deactivate the service of the Process Server. |
| IP port | IP-Port [2001] | The IP port where the service of the Process Server can be reached. |
| IP protocol type | [TCP] | The protocol type of the service of the Process Server. |
| wave transfer port | IP port [2004] | The IP port used by the service of the Process Server to transmit WAV files. |
| Text-to-Voice port | IP port [2005] | The OScAR Server uses this IP port to transfer texts to the Process Server, for conversion into WAV files. |
| text-to-voice timeout | 5 .. 120 s [30 s] | The timeout after which the OScAR Server will abort the conversion of the TTV data, and send an error message. |

Table 6-15 Configuration of the Process Server parameters

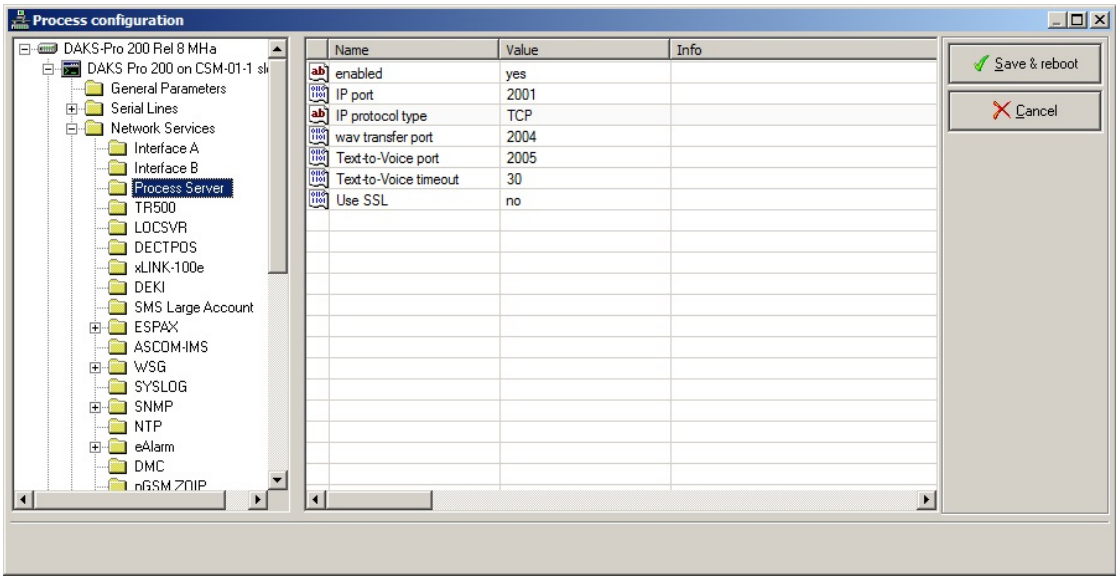



Image 6-9 Process Server parameters

## 6.10.4 TR500

Description:

This service enables external computers to access OScAR through the TR500 protocol (to alert individual subscribers or, where needed entire groups). For more details on the TR500 service:

➤ see Chapter 9, "Data Interfaces via LAN"

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ TR500 | | |
| enabled | yes, [no] | Activate/deactivate the TR500 service |
| IP port | IP port [1200] | The IP port where the TR500 service can be reached. |
| IP protocol type | [UDP] | The protocol type of the TR500 service. |
| calling name | 23 characters [ ] | The name that is output for an outgoing (outbound) call, e.g. "OScAR-INFO".<br>If no text is defined, the beginning of the message is played as 'calling name' (incl. if needed a prepended exclamation mark "!").<br>➤ see Section 9.2.2.1 "Standard message 'Call with message'". |
| calling number | 17 characters [ ] | The number that is output for an outgoing (outbound) call, e.g. [tie trunk code OScAR] + [dialthru code for SMS retrieval] (numeric). |
| connection type | 3 characters [ ] | The connection type that is used for outgoing (outbound) calls.<br>➤ see OScAR-TT User Manual |
| delay | 0 .. 999 s [60 s] | The minimum pause between the last call with the previous and first call with the new message. |
| max. dialing attempts | 1 .. 20 [3] | The number of dialing attempts, e.g. when a line is busy or a call was not taken (no call acceptance). |
| normal call busy | | Behavior if subscriber line busy.<br>For regular urgency (normal) or heightened (emergency) urgency: |
| | [no action] | • No action |
| emergency call busy | camp-on | • Camp on |
| | intrusion | • Intrusion |
| | emergency intrusion | • Emergency intrusion |
| | forced release | • Release |
| normal call ringing | | Call signal setting. For regular urgency (normal) or heightened (emergency) urgency: |
| | [default] | • Intern = Standard |
| emergency call ringing | external | • External |
| | emergency | • Alarm |
| announcement | 4 digits [ ] | Announcement for connected subscribers<br>Identifier of an announcement stored and defined in the OScAR Server. |
| | | |

Table 6-16 Configuration of the TR500 parameters

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| intrusion announcement | 4 digits [ ] | Intrusion announcement to subscribers whose lines are busy.<br>Identifier of an announcement stored and defined in the OScAR Server |
| timestamp | [no]<br>time<br>day month time<br>month day time | The timestamp that is prepended to the message:<br>• no: none<br>• time: hh:mm:ss<br>• day month time: DD.MM. hh:mm:ss<br>• month day time: MM/DD hh:mm:ss |
| cause X | yes, [no] | Reply Cause "X" for negative confirmation |

Table 6-16 Configuration of the TR500 parameters

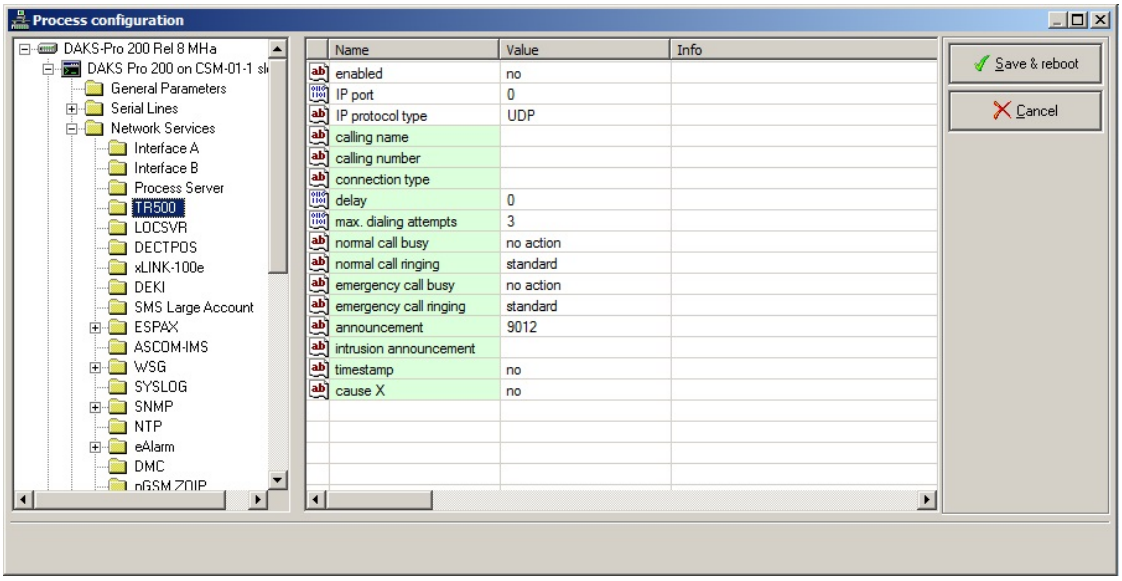



Image 6-10 Parameter TR500

## 6.10.5 LOCSRV: HiPath Positioning System (HPS)

Description:

This service constitutes the interface between the OScAR Server and the Hipath-Positioning-System (HPS), for positioning requests from OScAR to HPS.

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ LOCSVR | | |
| enabled | yes, [no] | Activate/deactivate the LOCSRV service |
| IP address | IP address [0.0.0.0] | The IP address of the positioning server. |
| IP port | IP port [80] | The IP port of the positioning server. |
| IP protocol type | [TCP] | The protocol type for the communication with the positioning server. |
| Peer hostname | 79 characters [ ] | The name of the positioning server. |
| servlet | 79 characters [ ] | The path and name of the CGI script on the location sever. |
| timeout | 1 .. 60 s [35 s] | The timeout after which the OScAR Server automatically aborts a query to the positioning server. |
| user name | 20 characters [ ] | The user name that is used to connect to the positioning server. |
| user password | 20 characters [ ] | The user password that is used to connect to the positioning server. |
| | | |

Table 6-17 Configuration of the LOCSRV parameters

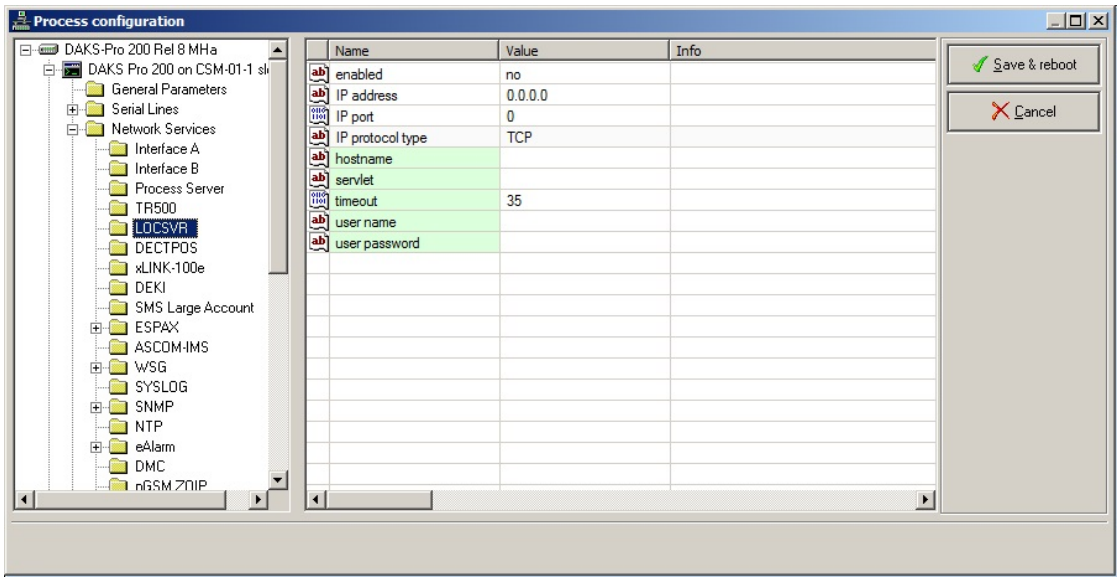



Image 6-11 Parameter LOCSRV

## 6.10.6 DECTPOS: Inquiry of field strength data via OScAR

Description:

This service enables the HiPath-Positioning-System (HPS) to query filed strengths in the OpenScape 4000 DECT network via the OScAR server:

- to retrieve field strength values with which a communication device is currently receiving base stations (only for fully trackable communication devices)
- to query the 'visited station', i.e. the base station that is currently being used by the communication device to communicate (for all communication device, especially devices with a limited tracking capability).

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ DECTPOS | | |
| enabled | yes, [no] | Activate/deactivate the DECTPOS service |
| IP port | IP port [2002] | The IP port where the DECTPOS service can be reached. |
| IP protocol type | [TCP] | The protocol type of the DECTPOS service. |
| timeout | 1 .. 60 s [35 s] | The timeout after which the OScAR Server will answer to an inquiry or to a request, even if it did not yet receive an answer from the PBX network. |
| | | |

Table 6-18 Configuration of the DECTPOS parameters

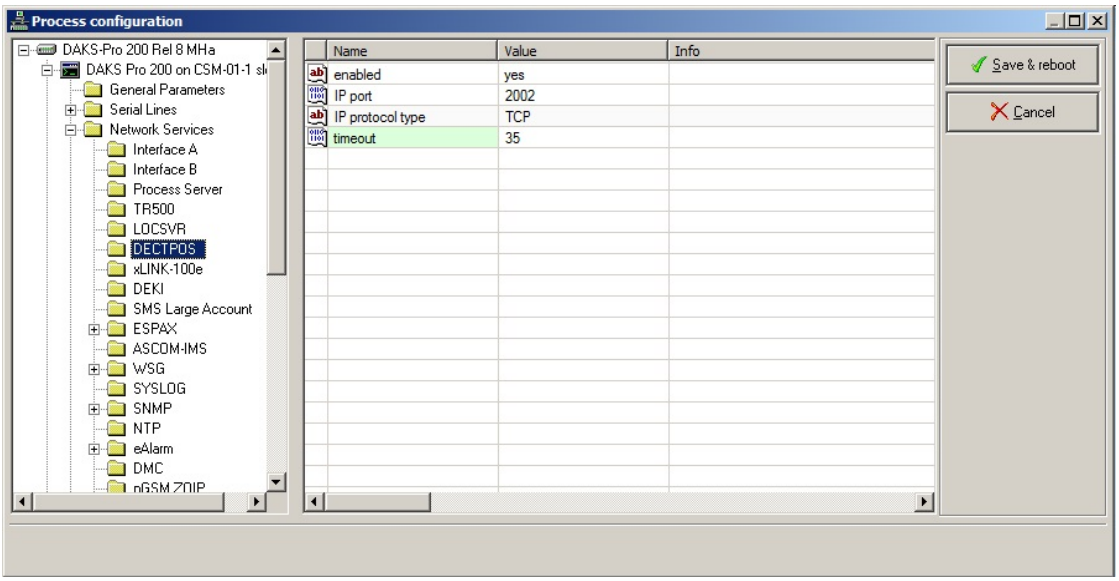



Image 6-12 Parameter DECTPOS

## 6.10.7 xLink-100e

Description:

This service enables external computers to access the OScAR server via the xLink-100 protocol.

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ xLINK-100e | | |
| enabled | yes, [no] | Activate/deactivate the xLink100e service |
| IP port | IP port [2003] | The IP port where the xLink100e service can be reached. |
| IP protocol type | [TCP] | The protocol type of the xLink100e service. |
| xLink100e | on, [off] | Release of the protocol version xLink100e. |
| add alarm member message | on, [off] | Sending of information when a group member is added to the alarm memory. |
| login required | on, [off] | The login is required. |
| enable TCP timeout | on, [off] | Automatic disconnect if no data traffic took place over a period of 120 seconds. |
| enable M2P messages | on, [off] | Sending of details on Broadcasts that were activated by Mail2Phone. |
| enable PC messages | on, [off] | Sending of details on Broadcasts that were activated through the PC. |
| enable inactive alarm member messages | on, [off] | Sending of details on group members who are not called. |
| enable ACTTYPE element | on, [off] | Send the activation type |
| xml namespace | 255 characters [ ] | The string that is sent together with all datasets. |
| whitelist IP address 1 .. 5 | IP address [0.0.0.0] | The IP addresses that may access the xLink100e service. |
| user name | 30 characters [ ] | The user name, if login is required. |
| user password | 30 characters [ ] | The user password, if login is required. |
| | | |

Table 6-19 Configuration of the xLink-100e parameters

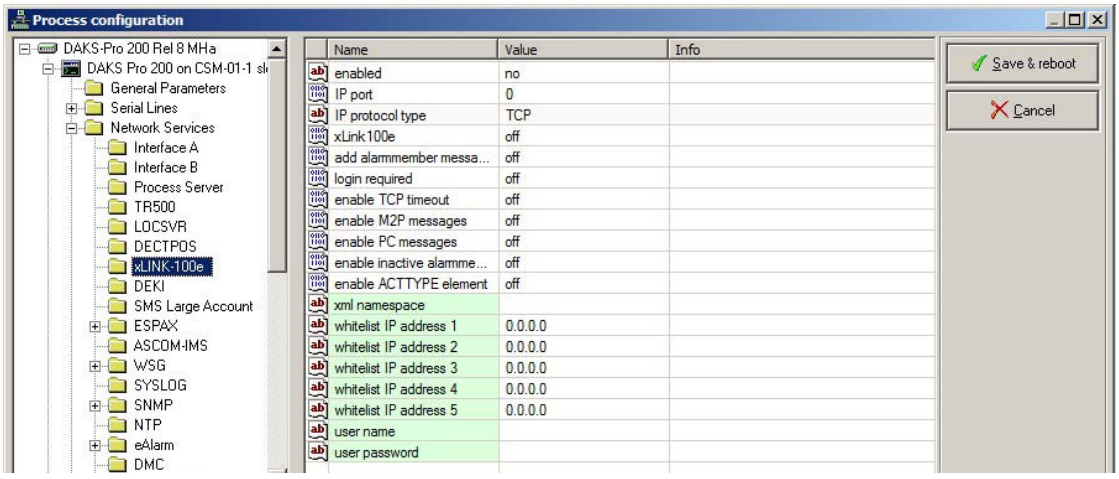



Image 6-13 xLink-100e parameters

## 6.10.8 DEKI: OScAR-EIB-Konnex interface

Description:

This service enables the linkup to EIB/KONNEX via the DEKI gateway manufactured by Weinzierl Engineering GmbH.

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ DEKI | | |
| enabled | yes, [no] | Activate/deactivate the DEKI service |
| IP address | IP address [0.0.0.0] | The IP address of DEKI. |
| IP port | IP port [5000] | The IP port of DEKI. |
| IP protocol type | [TCP] | The protocol type of the DEKI service. |

Table 6-20 Configuration of the DEKI parameters

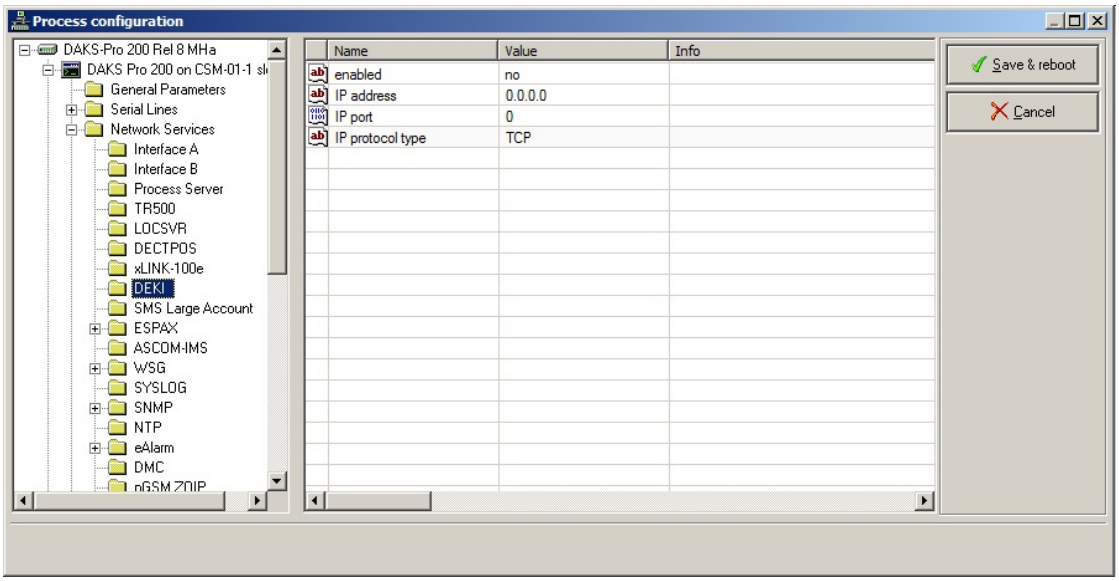



Image 6-14 Parameter DEKI

## 6.10.9 SMS Large Account

Description:

This service enabled the link-up to the GSM provider via the so-called Large Account.

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ SMS Large Account | | |
| enabled | yes, [no] | Activate/deactivate the SMS Large Account service |
| IP address | IP address [0.0.0.0] | The IP address of the GSM provider. |
| IP port | IP port [5000] | The IP port of the GSM provider. |
| IP protocol type | [TCP] | The protocol type of the SMS Large Account. |
| Short-id | Characters 0... 16 | The short ID of the GSM provider that is needed to log in. |
| Submit- Pass-word | Characters 0..16 | The submit password of the GSM provider that is needed to log in. |
| No authentifica-tion | yes, [no] | No authentification required for GSM provider login |
| Char encoding | [GSM]<br>SWISS | Type of message encoding |
| | | |

Table 6-21 Configuration of the SMS Large Account parameters

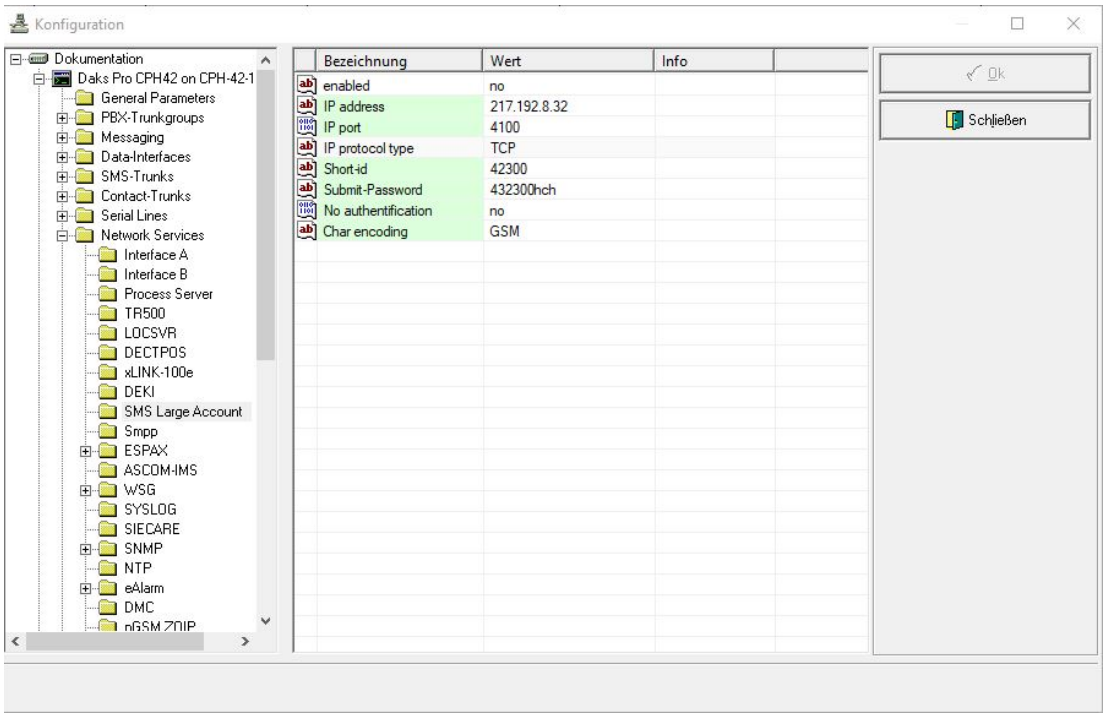



Image 6-15 Parameter SMS Large Account

## 6.10.10 ESPA-X

Description:

This service enables external computers to access the OScAR server via the ESPA-X protocol.

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ ESPAX | | |
| enabled | yes, [no] | Activate/deactivate the ESPA-X service |
| IP port | IP port [2023] | The IP port where the ESPA-X service can be reached. |
| IP protocol type | [TCP] | The protocol type of the ESPA-X service. |
| server name | 30 characters [ ] | The name that is reflected at the login to the client who is logging in. |
| timeout | 0 .. 120 s [60 s] | The maximum time between 2 heartbeats; if exceeded, the connection is automatically released. |
| SSL Port | SSL port [2423] | The IP port where the server can be reached via SSL. |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ ESPAX ➤ Session 1-60 | | |
| user name | 12 characters [ ] | The user name of the session. |
| user password | 12 characters [ ] | The user password of the session. |
| Remarks | 50 characters [ ] | Any comments, for information purposes only. |
| max. groups | 10 .. 150 [50] | The number of Broadcast groups that may be in a the queue at a time. |
| Number of reserved ESPA-X calls in the queue that have the priority: 'Emergency' | 0.. 150 [0] | The number of Broadcast groups with the priority 'Emergency' that may be in a the queue at a time. |
| max. calls | 10 .. 2000 [10] | The number of single calls that may be in a the queue at a time. |
| enable callback | yes, [no] | Allow callback calls for this session. |
| Max. number of session-specific announcements | 0 .. 100 [0] | The maximum number of announcements that may be created for this session. |
| Max. number of session-specific groups | 0 .. 100 [0] | The maximum number of groups that may be created for this session. |
| Max. number of session-specific subscribers | 0 .. 1000 [0] | The maximum number of subscribers that may be created for this session. |
| | | |

Table 6-22 Configuration of the ESPA-X parameters

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Max. number of transparent mode processes | 0 .. 10 [0] | The maximum number of transparent mode processes that may be created for this session. |
| Max. number of transparent mode connections | 0 .. 100 [0] | The maximum number of transparent mode connections that may be created for this session. |
| Enable Text-To-Voice conversion | yes, [no] | Activate text-to-voice conversion for this session. |
| Enable Mail-to-Phone | yes, [no] | Activate/deactivate the Mail2Phone service |
| Enable DANoS | yes, [no] | Activate/deactivate DANoS |
| Enable PANoS | yes, [no] | Activate/deactivate PANoS |
| Allow to record all announcements | yes, [no] | Allow announcement recording of database announcements for this session |
| Enable Location Request | yes, [no] | Allow location queries for this session |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ ESPAX ➤ whitelist 1-60 | | |
| IP address | IP address [0.0.0.0] | IP addresses and their corresponding subnet masks, that may access the ESPA-X service. |
| IP subnet mask | IP mask [0.0.0.0] | |
| Remarks | 50 characters [ ] | Any comments, for information purposes only. |

Table 6-22 Configuration of the ESPA-X parameters

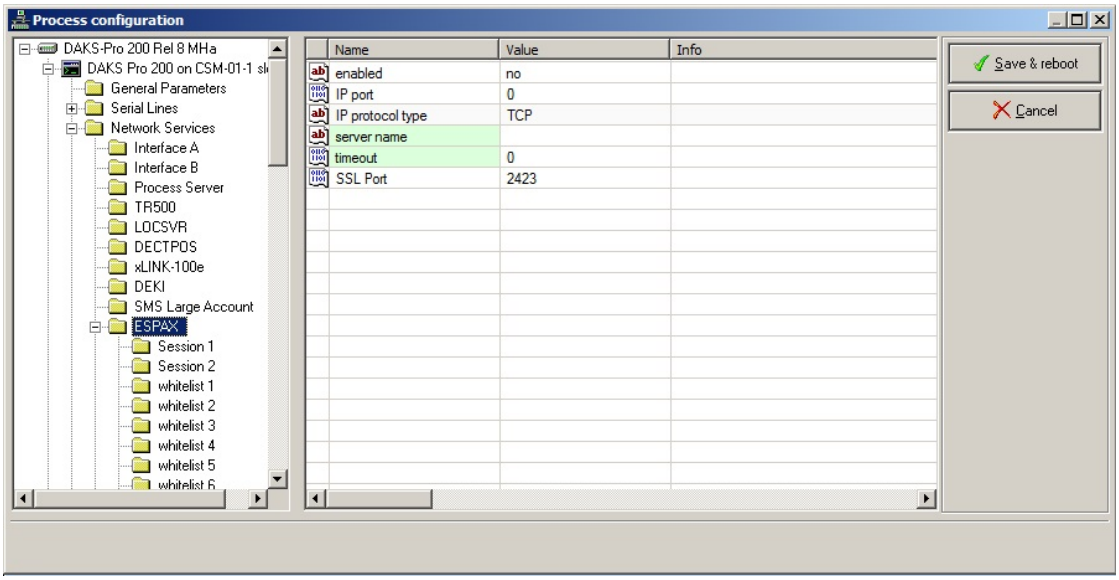



Image 6-16 ESPAX parameters

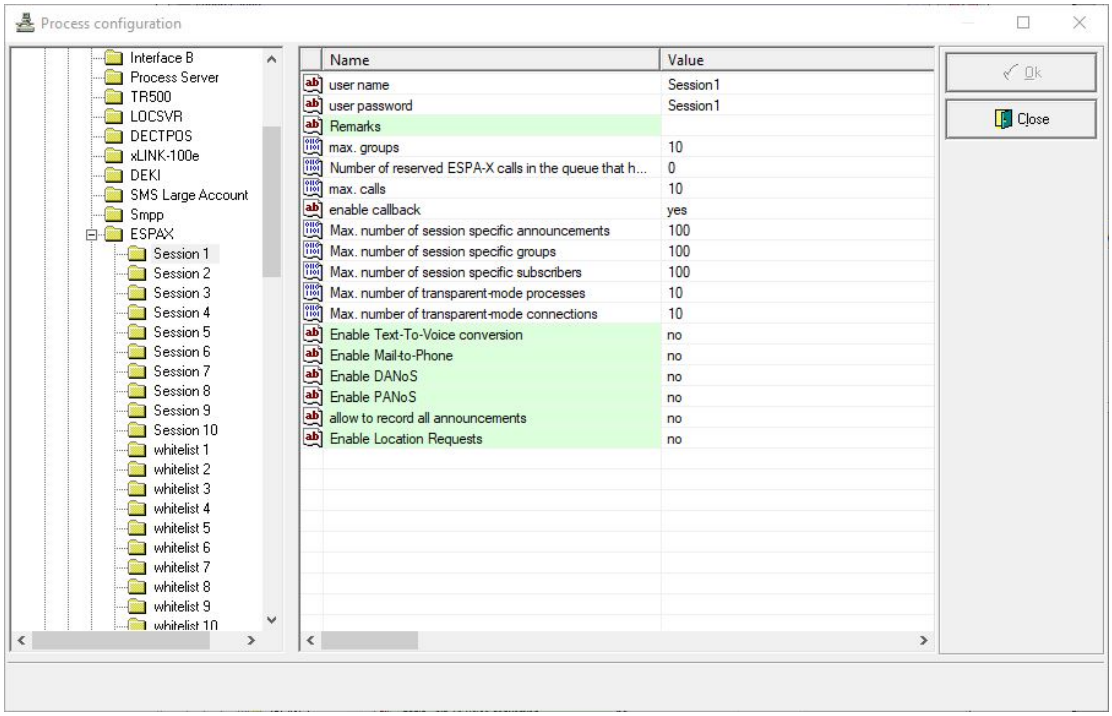



Image 6-17 ESPAX parameters - Session 1

## 6.10.11 ASCOM: IMS control via OAP

Description:

This service makes it possible to control the pager component (text messages, softkeys) of an i75/ i62 device manufactured by the company styled Ascom, using the so-called Integrated Message Server (IMS).

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ ASCOM-IMS | | |
| enabled | yes, [no] | Activate/deactivate the ASCOM-IMS service |
| IP address | IP address [0.0.0.0] | The IP address of the ASCOM-IMS service. |
| IP port | IP port [1321] | The IP port of the ASCOM-IMS service. |
| IP protocol type | [TCP] | The protocol type of the ASCOM-IMS service. |

Table 6-23 Configuration of the ASCOM-IMS parameters

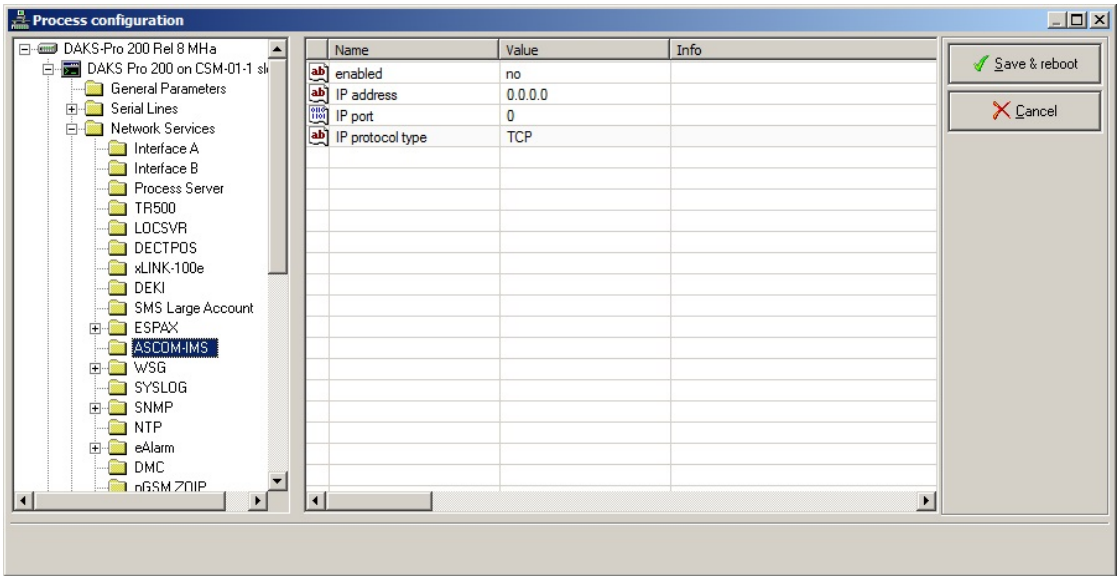



Image 6-18 Parameter ASCOM-IMS

## 6.10.12 WSG: WL3 control via OAP

Description:

This service makes it possible to control the pager component (text messages, softkeys) of a WL3 device manufactured by Unify, using the so-called Wireless Server Gateway (WSG).

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ WSG | | |
| enabled | yes, [no] | Activate/deactivate the service of the WSG server |
| IP address | IP address [0.0.0.0] | The IP address of the service of the WSG server. |
| IP port | IP port [1322] | The IP port of the service of the WSG server. |
| IP protocol type | [TCP] | The protocol type of the service of the WSG server. |
| Events transfer to ESPA-X Session | [none]<br>Session 1..40 | Sending messages from the WSG service to the selected ESPA-X session. |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ WSG ➤ Prio: low/standard, Ring: normal<br>• Prio: medium/high, Ring: normal<br>• Prio: emergency, Ring: normal<br>• Prio: low/standard, Ring: urgent<br>• Prio: medium/high, Ring: urgent<br>• Prio: emergency, Ring: urgent<br>• Prio: low/standard, Ring: emergency<br>• Prio: medium/high, Ring: emergency<br>• Prio: emergency, Ring: emergency<br>• Info message | | |
| Outgoing Priority | 1.. 9, [1] | The priority that is transmitted to the OAP devices in keeping with the configured priority and the selected call signal.<br>Note:<br>This parameter is not shown for "Info message". |
| Outgoing beep characteristics | 0.. 9, [0] | The signal tones that are transmitted to OAP communication devices in keeping with the configured priority and the selected call signal. |
| Outgoing intensity | [normal]<br>none<br>silent<br>low<br>medium<br>high<br>max | The volume that is transmitted to OAP communication devices in keeping with the configured priority and the selected call signal. |

Table 6-24 Configuration of the WSG server parameters

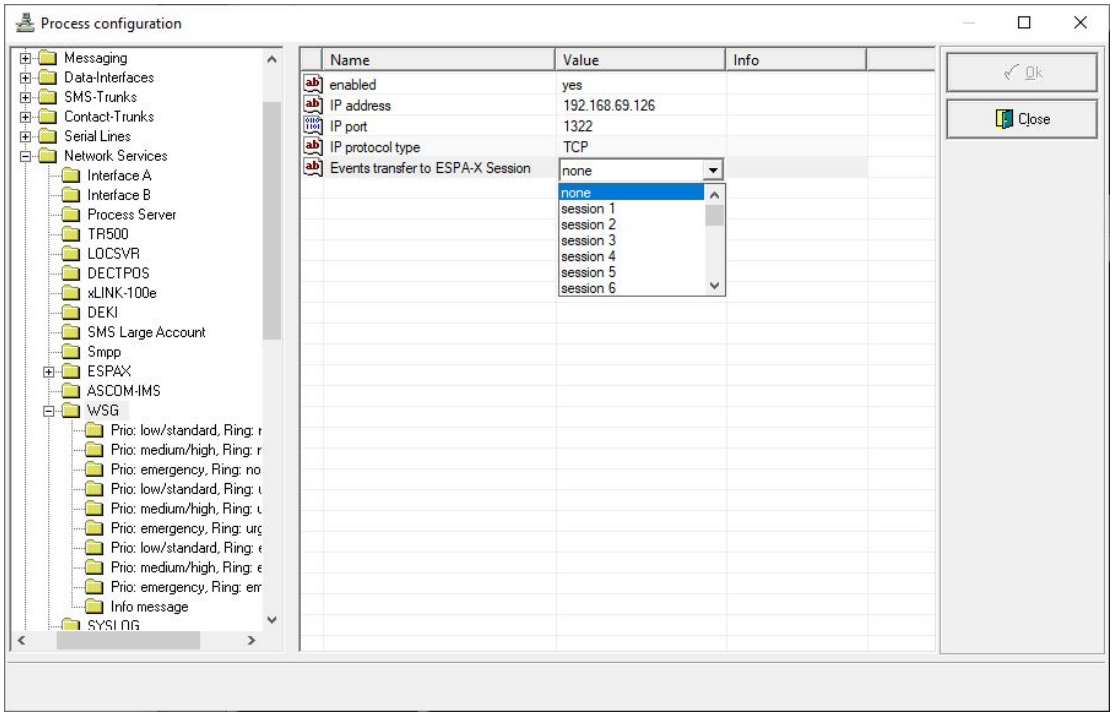



Image 6-19 WSG parameters

## 6.10.13 SYSLOG: Central logging

Description:

This service logs the most important information (error reporting, system messages) to an external SYSLOG server.

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ SYSLOG | | |
| enabled | yes, [no] | Activate/deactivate the SYSLOG service |
| IP address | IP address [0.0.0.0] | IP address of the SYSLOG service. |
| IP port | IP port [514] | The IP port of the SYSLOG service. |
| IP protocol type | [UDP] | The protocol type of the SYSLOG service. |
| Log all | on<br>[off] | Also log outputs that do not start with date/ time via SYSLOG |
| Tag | 1..259 | Labeling of the OScAR server in the SYSLOG server |

Table 6-25 Configuration of the SYSLOG parameters

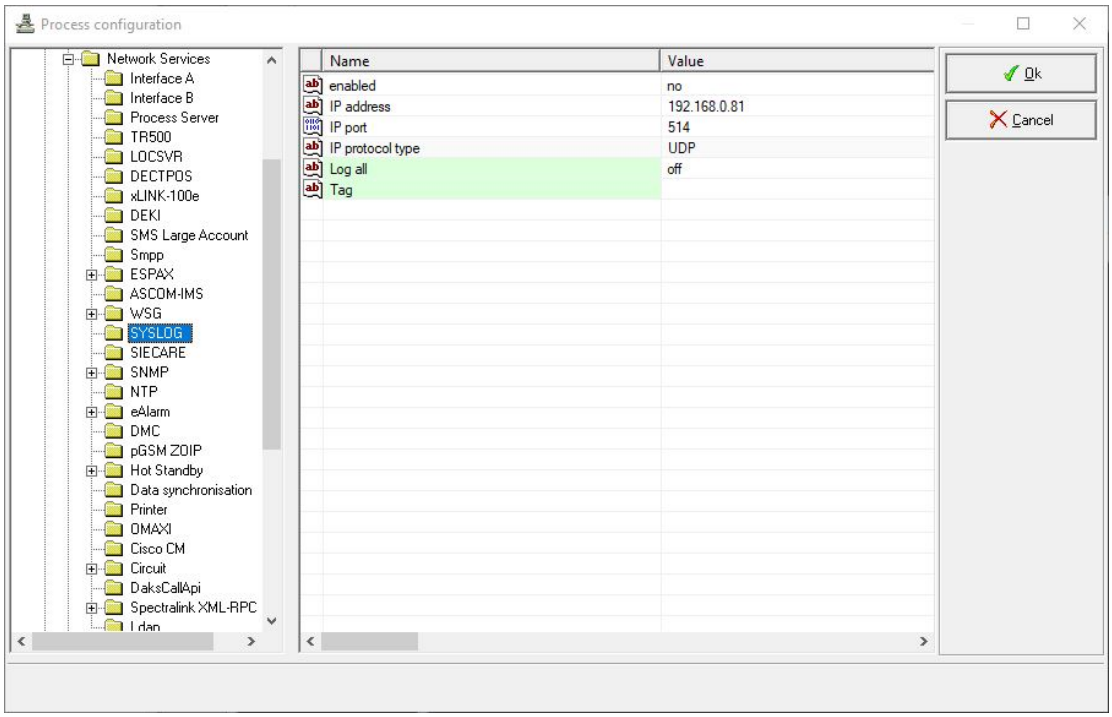



Image 6-20 Parameter SYSLOG

## 6.10.14 SIECARE

Description:

Special settings that apply to SIECARE.

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ SIECARE | | |
| enabled | yes, [no] | Activate/deactivate the SieCare service |
| IP address | IP address [0.0.0.0] | The IP address of the SieCare service. |
| IP port | IP port [1321] | The IP port of the SieCare service. |
| IP protocol type | [TCP] | The protocol type of the SieCare service. |
| alive check interval | 10 .. 300 s [30 s] | The interval for heartbeats sent from OScAR to SieCare. |
| response timeout | 2 .. 30 [10 s] | The timeout until the Broadcast starts, if SieCare fails to respond to the call number query. |
| | | |

Table 6-26 Configuration of the SIECARE parameters

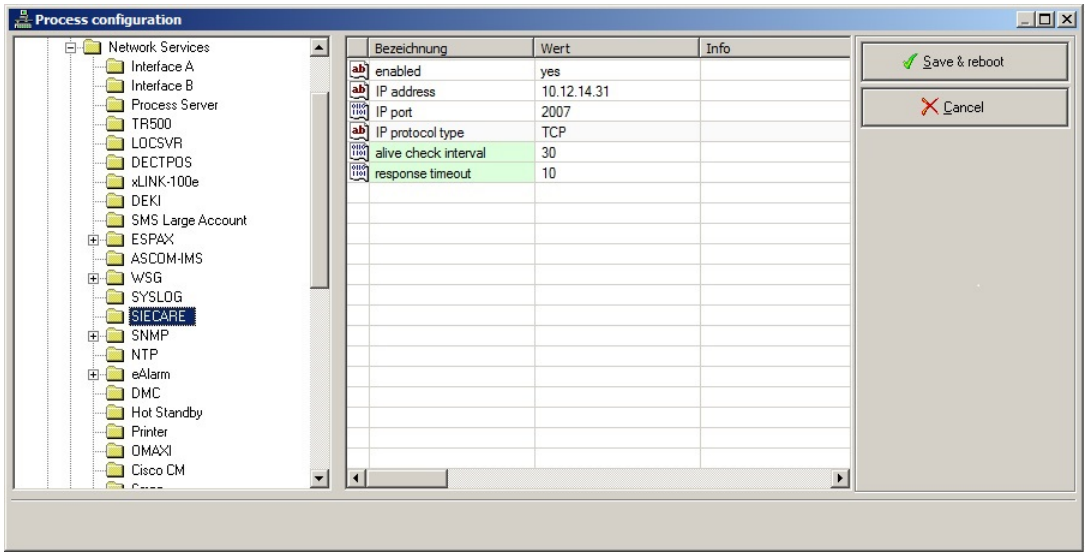



Image 6-21 Parameter SieCare

## 6.10.15 SNMP

Description:

The SNMP service of the OScAR Server realizes an SNMP agent which can be queried by SNMP managers and which can send traps autonomously.

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ SNMP | | |
| alternate IP address | IP address [0.0.0.0] | The alternative IP address for SNMP server. |
| enable SNMPv1 | [yes], no | Allow the SNMP protocol Version v1. |
| enable SNMPv2c | yes, [no] | Allow the SNMP protocol Version v2. |
| enable SNMPv3 | yes, [no] | Allow the SNMP protocol Version v3. |
| SNMP MIB RFC | [1213], 3418 | Utilize the data in keeping with RFC 1213 or RFC 3418, respectively. |
| public community string 1 ..5 | 256 characteristics ["public"] | The community strings to query SNMP entries (SNMP-Manager to the OScAR Server). |
| private community string 1 ..5 | 256 characters ["private"] | The community strings to set or edit SNMP entries (SNMP-Manager to the OScAR Server). |
| allowed IP address 1.. 5 | IP address [0.0.0.0] | The IP addresses from which access to the SNMP service is allowed; when '0.0.0.0' is entered throughout this signified: no access control at all. |
| SNMP listen port | 161 | IP port where OScAR listens for SMNP queries. |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ SNMP ➤ SNMP traps:<br>• IP-module #1..#2<br>• S0-interface #1-A.. #1-D<br>• S2M interface #1-A.. #2-D<br>• VoIP interface #A.. #B<br>• OScAR-TT connection<br>• SMS modem<br>• xLink<br>• DEKI<br>• Power Supply<br>• Serial Interface #1..2<br>• DPS-basic<br>• eAlarm<br>• ESPA-X session #1..60<br>• Hot Standby<br>• IOG<br>• Profibus module #1..#3<br>• SieCare | | |
| interface name | 256 characters, can be edited | Allocated name of this function/interface; name cannot be altered |

Table 6-27 Configuration of the SNMP parameters

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| interface index | Value: [decimal] (hexadecimal) | Allocated number of this function/interface; number cannot be altered |
| send trap | [yes], no | Configuration that determines if an SNMP trap is activated to monitor this function/interface. |
| alternative name | 256 characters, can be edited | Editable, alternative name of this function/interface; if left empty, the system will use 'interface name'. |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ SNMP ➤ trap receiver 1... 5 | | |
| trap receiver IP address | IP address | IP address of the SNMP manager |
| Manager SNMP version | [SNMPv1], SNMPv2c, SNMPv3 | The SNMP version that is used by the Trap recipient; not shown unless an IP address is properly entered under 'trap receiver IP address'. |
| trap community string | Characters [public] | Community string when sending a trap (OScAR to SMNP Manager)<br>Note:<br>Can only be used together with Version SNMPv1 and SNMPv2c. |
| SNMP trap type | [trap]<br>inform | Selection of the way in which a trap is sent:<br>• trap<br>Sends a trap that does not need to be confirmed by the SNMP manager.<br>• inform<br>Sends a trap that must be confirmed by the SNMP manager.<br>Note:<br>Can only be used together with Version SNMPv2c and SNMPv3. |
| user name | 50 characters [ ] | Name of the user of the trap<br>In order to use SNMP V3, the entry of the user name is imperative.<br>Note:<br>Can only be used together with the Version SNMPv3. |

Table 6-27 Configuration of the SNMP parameters

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| authentication protocol | [none], MD5, SHA-1 | Selection of the protocol that is used for the authentication; does not appear unless a 'user name' is entered. |
| authentication passphrase | 50 characters [ ] | Selection of the protocol that is used for the authentication; does not appear unless a 'user name' is entered. |
| privacy protocol | [none], DES, AES-128 | Selection of the encryption protocol; not shown unless an 'authentication passphrase' is properly entered. |
| privacy passphrase | 50 characters [ ] | String for the encryption of data; only shown when a protocol is selected under 'privacy protocol'. |
| | | |

Table 6-27 Configuration of the SNMP parameters

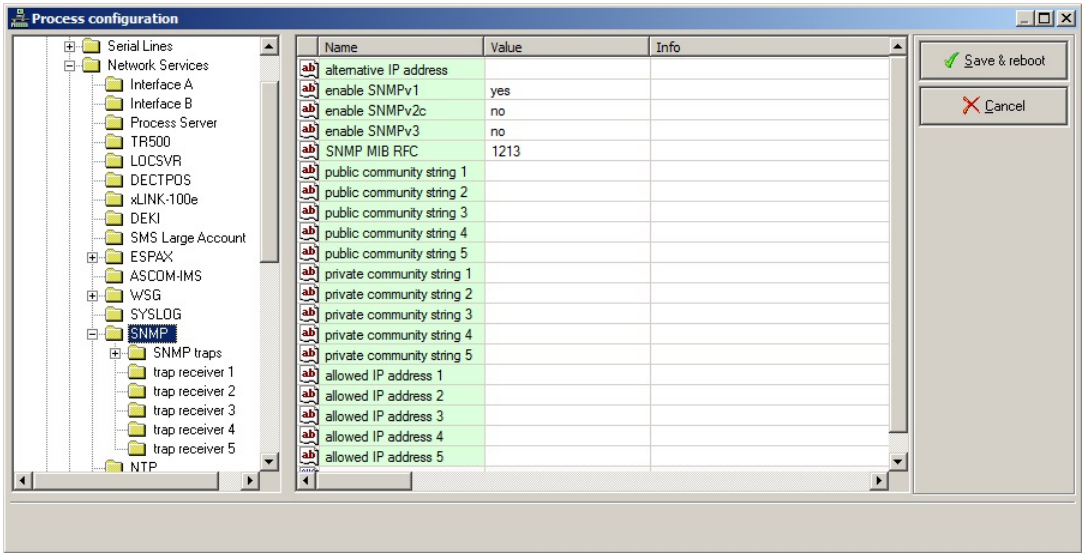



Image 6-22 VCON SNMP

## 6.10.16 NTP

Description:

The NTP service of the OScAR Server realizes the synchronization of the internal OScAR clock with one or two external NTP servers.

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ NTP | | |
| enabled | yes, [no] | Activate/deactivate the NTP service |
| IP address | IP address [0.0.0.0] | The IP address of the NTP service. |
| IP port | IP port [514] | The IP port of the NTP service. |
| IP protocol type | [UDP] | The protocol type of the NTP service.<br>Note:<br>This parameter is for information only and cannot be changed. |
| alternate server IP address | IP address [0.0.0.0] | The alternative IP address of the NTP service. |
| alternate server IP port | IP port [514] | The alternative IP port of the NTP service. |

Table 6-28 Configuration of the NTP parameters

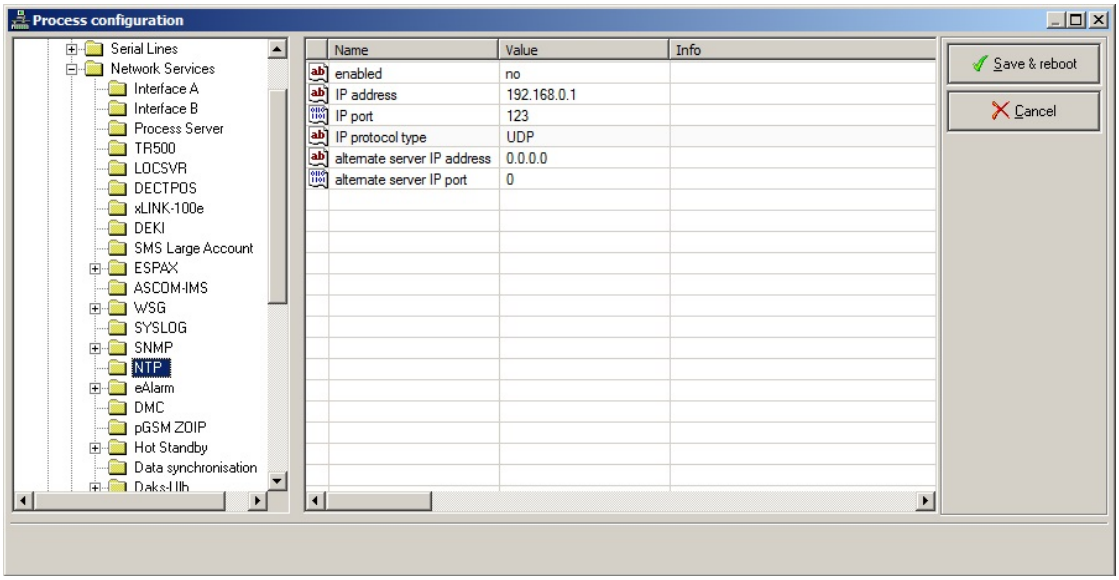



Image 6-23 VCON NTP

## 6.10.17 eAlarm

Description:

The eAlarm service of the OScAR Server makes it possible to connect with the eAlarm server of Swisscom.

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ eAlarm | | |
| enabled | yes, [no] | Activate/deactivate the eAlarm service |
| IP port | IP port [514] | The IP port of the eAlarm service. |
| IP protocol type | [TCP] | The protocol type of the eAlarm service.<br>Note:<br>This parameter is for information only and cannot be changed. |
| start script | 32 characters [ ] | Script to start an alarm through the eAlarm server. |
| query script | 32 characters [ ] | Script to query for a feedback from the eAlarm server. |
| remote query script | 32 characters [ ] | Script to query for a feedback from the eAlarm emergency server. |
| timeout [min] | 0 .. 120 min [15 min] | The maximum wait time, at the end of which a status message must have been returned, reporting on a subscriber alerted through the eAlarm server. During this wait time, OScAR will not call the subscriber in any other Broadcast. |
| feedback polling interval [sec] | 10 .. 60 s [30 s] | The time interval in which the OScAR Server queries the eAlarm server for the status of the subscribers. |
| language | [de], fr, it, en | The language that is used by eAlarm to convert text information into audio voice signals. |
| alive polling time [sec] | 0 ..120 s [30 s] | The minimum time interval during which the OScAR Server sends heartbeats to the eAlarm. |
| use https | yes, [no] | Setup a connection to the eAlarm server via https, yes/no |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ eAlarm ➤ Standard / Emergency | | |
| server name | 32 characters [ ] | The URL of the swisscom server. |
| user name | 32 characters [ ] | The user name of the eAlarm service. |
| user password | 32 characters [ ] | The user password of the eAlarm service. |

Table 6-29 Settings of eAlarm parameters

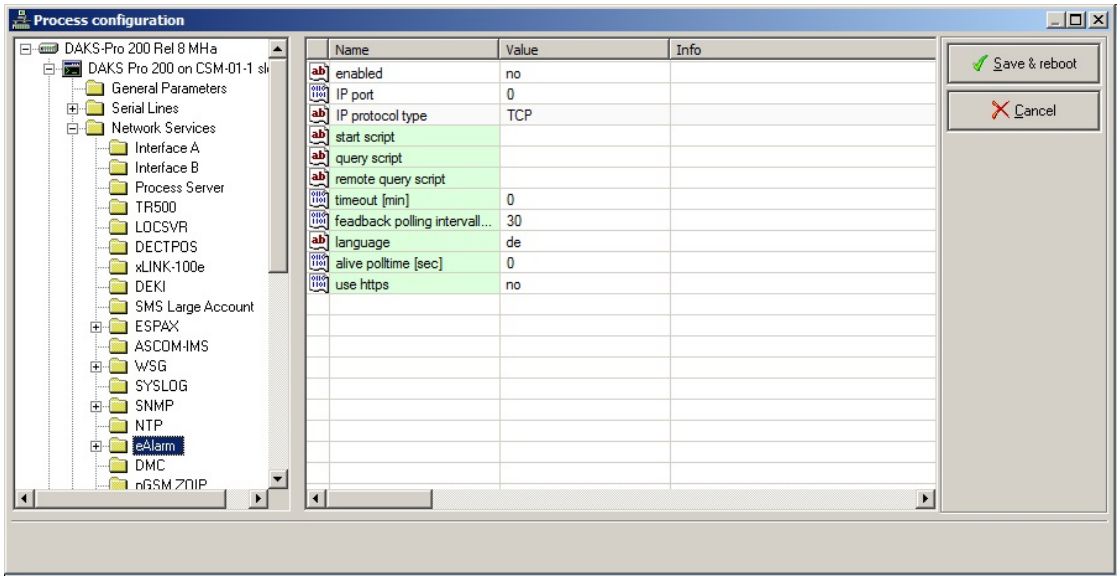



Image 6-24 Parameter eAlarm-1

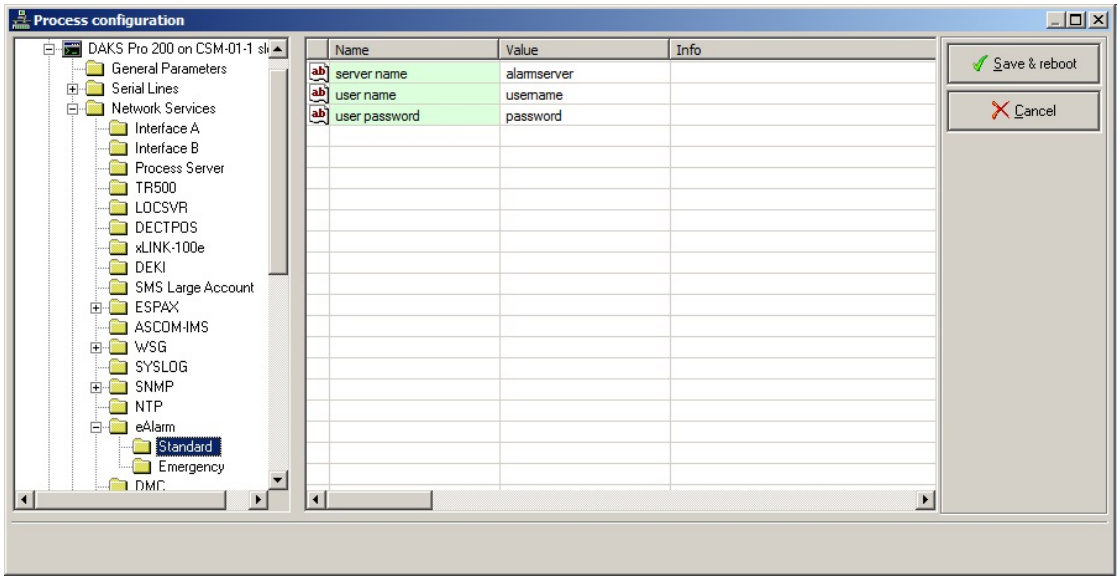


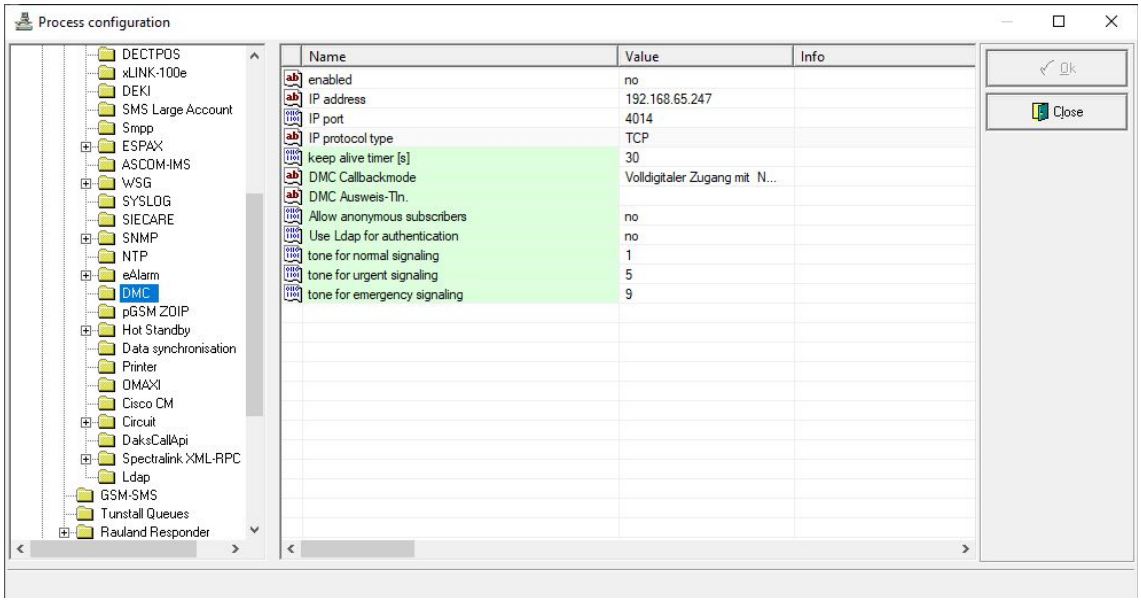

Image 6-25 Parameter eAlarm-2

## 6.10.18 OScAR DMC-Service

Description:

The OScAR DMC service realizes the connection to smartphones (e.g. iPhone or Android) with OScAR Mobile Client (= DMC).

Parameters:




| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ DMC | | |
| enabled | yes, [no] | Activate/deactivate the DMC service |
| IP address | IP address [0.0.0.0] | The IP address of the DMC service. |
| IP port | IP port [80] | The IP port to connect with the Proxy. |
| IP protocol type | [TCP] | The protocol type of the interface to the proxy.<br>Note:<br>This parameter is for information only and cannot be changed. |
| keep alive timer [s] | 5 ... 110 s [30 s] | The max. time interval during which a device must send a heartbeat to the DMC. |

Table 6-30 Configuration of the OScAR-Smartphone-Access parameters

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| DMC callback mode | Processing of callback calls from DMC:<br>• [Fully digital access with dialthru code]<br>In the callback call, the DMC dials the full OScAR call number, including the dialthru code and the internal Session ID, and uses en-bloc selection (standard in Germany).<br>• Semi-digital access with dialthru code<br>In the callback call, the DMC dials the full OScAR call number, including the dialthru code, and uses en-bloc selection.<br>After the thru-connect, the internal Session ID is sent via DTMF (for phone numbers that are too long, e.g. international phone numbers).<br>• Semi-digital access via ID Subscriber<br>In the callback call, the DMC dials an ID Subscriber whose calls are redirected to the OScAR Server's dialthru code, and uses en-block selection.<br>After the thru-connect, the dialthru code and the internal Session ID are sent via DTMF.<br>• Semi-digital access via central dialthru code<br>In the callback call, the DMC dials an ID Subscriber whose calls are redirected to the OScAR Server's central dialthru code, and uses en-block selection.<br>After the Connect, the internal Session ID is sent via DTMF, (e.g. USA/CH).<br>• Semi-digital access via ID Subscriber and central dialthru<br>In the callback call, the DMC dials an ID Subscriber whose calls are redirected to the OScAR Server's central dialthru code.<br>After that, the dialthru code and the internal Session ID are transmitted via DTMF (e.g. USA/CH). | |

Table 6-30 Configuration of the OScAR-Smartphone-Access parameters

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| DMC ID subscriber | 0..5 characters | Call (phone) number of the ID Subscriber for callback calls |
| Allow anonymous subscribers | yes, [no] | Allow subscriber without authentication, for the DMC service<br>Caution!<br>No alarm messages can be dispatched to subscribers who fail to properly and correctly authenticate themselves.<br>Note:<br>This parameter is only shown when GPS positioning is enabled. |
| Use LDAP for authentification | yes, [no] | Authentification of the DDC clients via LDAP server. |
| tone for normal signaling | 0..9<br>[1] | Sound that is played when the subscriber receives a message with the ringing setting "Normal". |
| tone for urgent signaling | 0..9<br>[5] | Sound that is played when the subscriber receives a message with the ringing setting "Urgent (External)". |
| tone for emergency signaling | 0..9<br>[9] | Sound that is played when the subscriber receives a message with the ringing setting "Alarm". |

Table 6-30 Configuration of the OScAR-Smartphone-Access parameters

## 6.10.19 pGSM ZOIP

Description:

This service makes it possible to control Param clients via the Raemis GSM system of DRUID.

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ pGSM ZOIP | | |
| enabled | yes, [no] | Activate/deactivate pGSM-ZOIP |
| IP address | IP address [0.0.0.0] | The IP address of the pGSM-ZOIP service. |
| IP port | IP port [514] | The IP port of the pGSM-ZOIP service. |
| IP protocol type | [TCP] | The protocol type of the pGSM-ZOIP service. |
| SMS port | IP port [7000] | The port where SMS text messages of the GSM-ZOIP service are received. |
| http request timeout [s] | [300] | The timeout upon which the OScAR Server ends the connection to the Client, and sends an error report. |
| Keep alive timer [s] | 30..600 s [30 s] | The minimum time interval during which a communication device must send a heartbeat to the OScAR Server. |
| Message lifetime [s] | 30..600 s [30 s] | The time in seconds during which an SMS text message is valid in the SMSC database. |
| User name | 0..32 characters [ ] | The user name that is used to login to the ZOIP service. |
| Password | 0..32 characters [ ] | The user password to login to the ZOIP service. |
| Phone number | 0..32 characters [ ] | The number that is shown to the recipient of the call. |
| | | |

Table 6-31 Configuration of the pGSM ZOIP parameters

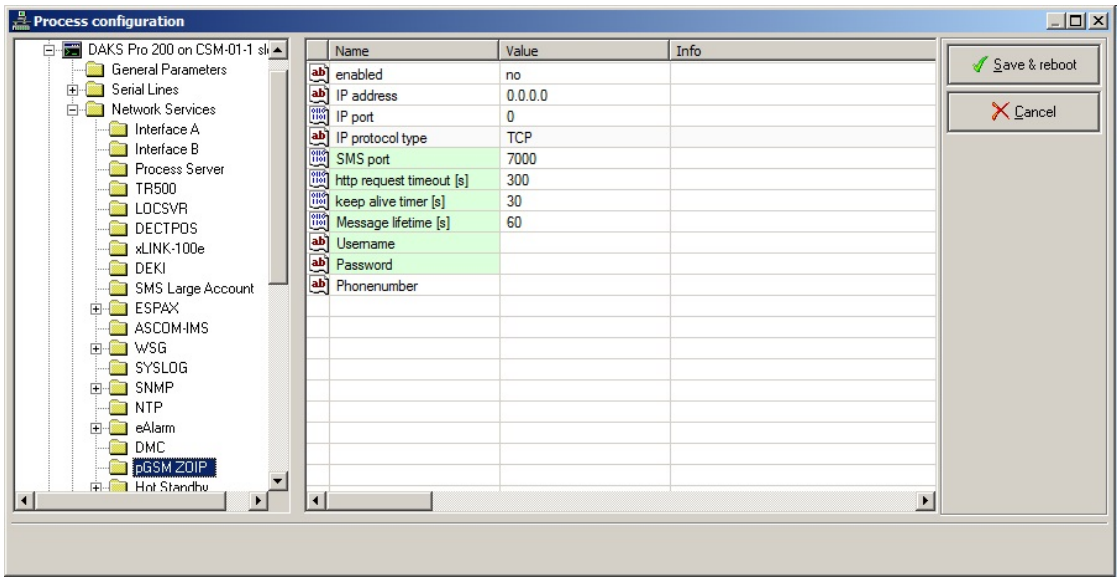



Image 6-26 pGSM ZOIP parameters

## 6.10.20 Hot Standby

Description:

When operating with an active Main Server and a passive Redundancy Server for backup, you can select:

- which OScAR shall operate as the Main Server and which OScAR shall operate as the Redundancy Server for backup,
- the connection from the Redundancy Server to the Main Server, and
- which states automatically switch the passive Redundancy Server to active, and the active Main Server to passive.

If, for example, the switch-over shall take place when the Main Server no longer has a connection to the PBX, set the parameter "No TDM PBX interface active" to: "on". If several parameters are enabled, the switch-over will be carried out as soon as the system enters into a state for which the parameters have been set.

The Redundancy Server also switches into the active mode:

- when the connection to both OScAR-Servers fails and
- when the OScAR server is in the hot standby mode.

After a reboot the system starts:

- the Main Server in the active mode and
- the Redundancy Server in the passive mode.

Caution!
In the event there are problems with regard to the connection between both OScAR servers, both OScAR servers are active. In this event, the Broadcast members are alerted by both servers when needed.
This could lead to difficulties if the Broadcasts are launched from both servers at the same time, e.g. through contacts, with fixed prioritization of the Broadcast members as well as with the features intrusion or forced release.

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ Hot Standby | | |
| enabled | yes, [no] | Activate/deactivate hot standby service |
| IP port | IP port [514] | The IP port of the Main Server. |
| IP protocol type | [TCP] | The protocol type of the service<br>Note:<br>This parameter is for information only and cannot be changed. |
| Hot Standby Mode | Redundancy Server,<br>[Main Server] | Configuration of the hot standby mode:<br>• Redundancy Server:<br>This is the hot standby server.<br>• Main Server:<br>This is the primary (main) server. |
| Prerequisit: 'Hot Standby Mode' = 'Redundancy-Server' | | |
| IP address | IP address [0.0.0.0] | IP address of the Main Server |
| Poll interval | 10..60 [30] | The interval, during which backup server queries the status from the main server. |
| | | |

Table 6-32 Configuration of the Hot Standby parameters

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ Hot Standby ➤ System bits<br>Prerequisit: 'Hot Standby Mode' = 'Main-Server' | | |
| Controller not up and running | on, [off] | The controller is not up and running. |
| No operational readiness (no valid data) | on, [off] | The server is unable to operate (invalid data). |
| No TDM PBX interface active | on, [off] | No TDM PBX interface is active. |
| Not all TDM PBX interfaces active | on, [off] | Not all TDM PBX interfaces are active. |
| PC not logged in | on, [off] | The PC is not logged in. |
| Data not synchronous | on, [off] | The database is not synchronized. |
| Profibus not active | on, [off] | Profibus is inactive. |
| Not all Profibus components ready | on, [off] | Not all Profibus components are active. |
| xLink interface not active | on, [off] | The xLink interface is inactive. |
| SMS memory full | on, [off] | SMS memory full |
| GSM-SMS modem not ready | on, [off] | The GSM-SMS modem is unable to operate. |
| 1st interface on 1st auxiliary board not active (=1st port..) | on, [off] | The first interface on the first auxiliary board is inactive (= 1st port...). |
| 2nd interface on 1st auxiliary board not active (=2nd port..) | on, [off] | The second interface on the first auxiliary board is inactive (= 2nd port...). |
| | | |

Table 6-32 Configuration of the Hot Standby parameters

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| 3rd interface on 1st auxiliary board not active (=3rd port..) | on, [off] | The third interface on the first auxiliary board is inactive (= 3rd port...).<br>Note:<br>Only for OScAR-Pro 300. |
| 4th interface on 1st auxiliary board not active (=4th port..) | on, [off] | The fourth interface on the first auxiliary board is inactive (= 4th port...).<br>Note:<br>Only for OScAR-Pro 300. |
| DPS not active | on, [off] | DPS is inactive. |
| DCF-77 receiver not synchronous | on, [off] | The DCF-77 receiver is not synchronized. |
| DECTPOS interface not active | on, [off] | The DECTPOS interface is inactive. |
| YELLOW ALERT<br>(not all PBX IFs ready or, if applicable, not all Profibus components ready) | on, [off] | The yellow alert is active. |
| RED ALERT<br>(no PBX IFs ready or no valid data) | on, [off] | The red alert is active. |
| 1st interface on 2nd auxiliary board not active (=5th port...) | on, [off] | The first interface on the second auxiliary board is inactive (= 5th port...).<br>Note:<br>Only for OScAR-Pro 300. |
| 2nd interface on 2nd auxiliary board not active (=6th port...) | on, [off] | The first interface on the second auxiliary board is inactive (= 6th port...).<br>Note:<br>Only for OScAR-Pro 300. |
| 3rd interface on 2nd auxiliary board not active (=7th port...) | on, [off] | The first interface on the second auxiliary board is inactive (= 7th port...).<br>Note:<br>Only for OScAR-Pro 300. |
| 4th interface on 2nd auxiliary board not active (=8th port...) | on, [off] | The first interface on the second auxiliary board is inactive (= 8th port...).<br>Note:<br>Only for OScAR-Pro 300. |
| NTP server not active | on, [off] | The NTP server is inactive. |
| SieCare interface not active | on, [off] | The SieCare interface is inactive. |
| No VoIP PBX-interface active | on, [off] | No TDM PBX interface is active. |
| Not all VoIP PBX interfaces active | on, [off] | Not all VoIP PBX interfaces are active. |

Table 6-32 Configuration of the Hot Standby parameters

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| E-Alarm server not active | on, [off] | The eAlarm server is inactive. |
| No Subswitch ready | on, [off] | No subswitch is ready to operate. |
| Not all Subswitches ready | on, [off] | No all subswitches are ready to operate. |
| Mc800 not ready | on, [off] | Mc800 is not ready to operate. |
| Partial failure of power supply | on, [off] | A partial breakdown of the PSU occurred. |
| IOM interface 1 not active | on, [off] | The IOM interface 1 is inactive. |
| DMC-Proxy not active | on, [off] | The DMC-Proxy service is inactive. |
| Push service not active | on, [off] | The push service is inactive. |
| Web Access not active | on, [off] | The Web Access is inactive. |
| Ris port not active | on, [off] | The Ris port is inactive. |
| 1st.. 60th ESPA-X session not active | on, [off] | The 1...60 ESPA-X Sessions inactive. |
| | | |

Table 6-32 Configuration of the Hot Standby parameters

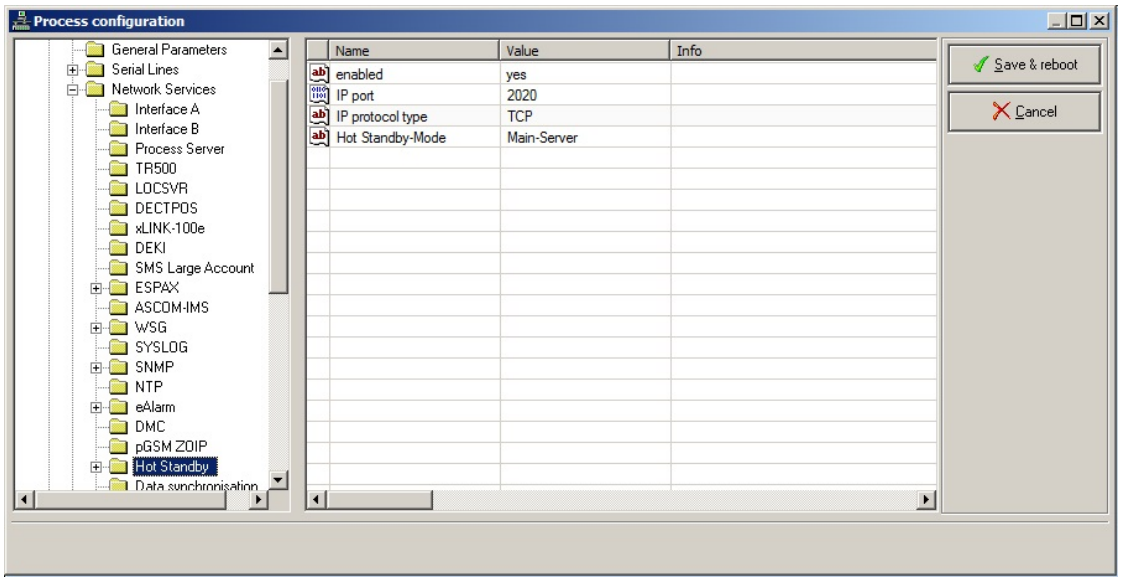



Image 6-27 Parameter Hot Standby

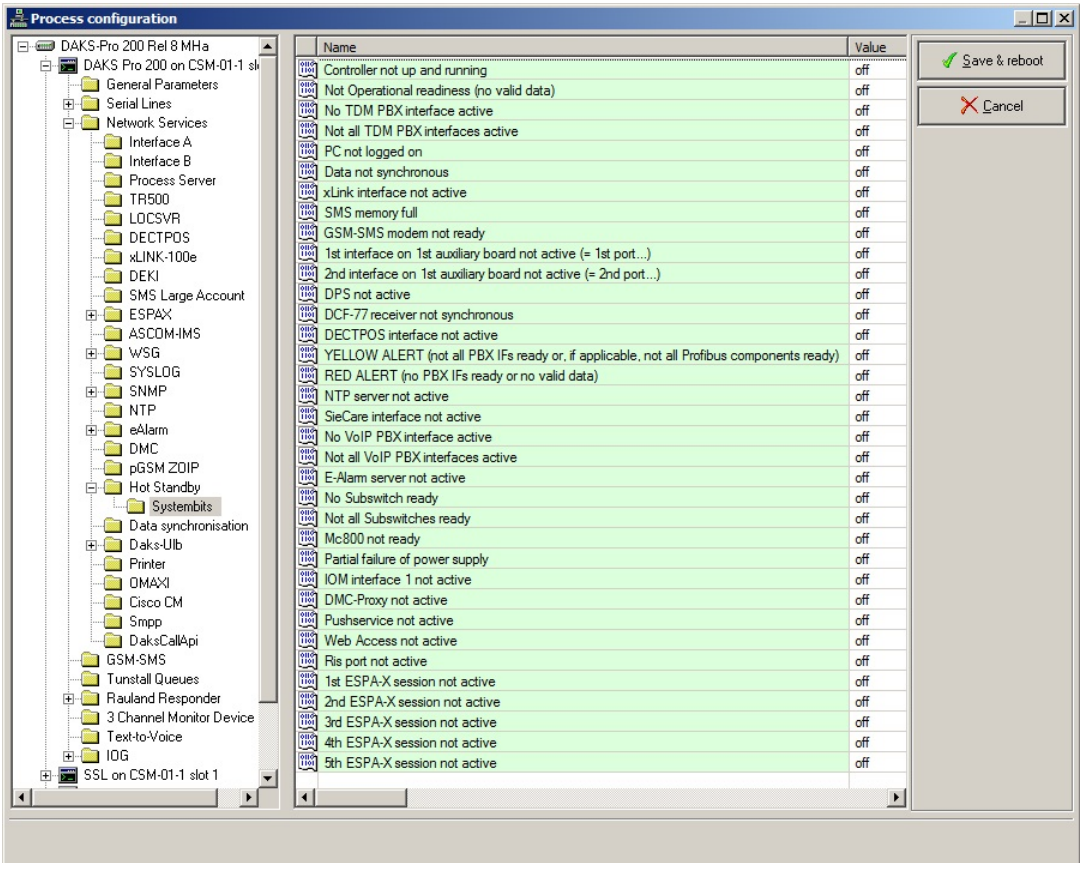



Image 6-28 Parameter Hot Standby - System bits

## 6.10.21 Data synchronization

Description

This service is used to synchronize subscriber-specific text messages between two servers.

The synchronization is carried out:

- hot-swap during the ongoing operation, when a subscriber gets a text message from one of the two OScAR servers,
- following the restart of one of the OScAR servers,
- after switch-over from hot standby to active, or
- when there is a lack of synchronicity due to connection problems.

Note:
Subscriber-specific text messages are stored for maximally 24 hours. After expiry of this time, they are automatically deleted.

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ OScAR-Pro ➤ Data synchronization | | |
| enabled | yes, [no] | Activate/deactivate the data synchronization |
| IP address | 0.0.0.0 | IP address of the OScAR servers, which which the system shall synchronize the data. |
| IP port | 0 | The IP port where the OScAR server can be reached for this service. |
| IP protocol type | TCP | The protocol type of the service "Data synchronization"<br>Note:<br>This parameter is for information only and cannot be changed. |
| | | |

Table 6-33 Configuration of the Data synchronization parameters

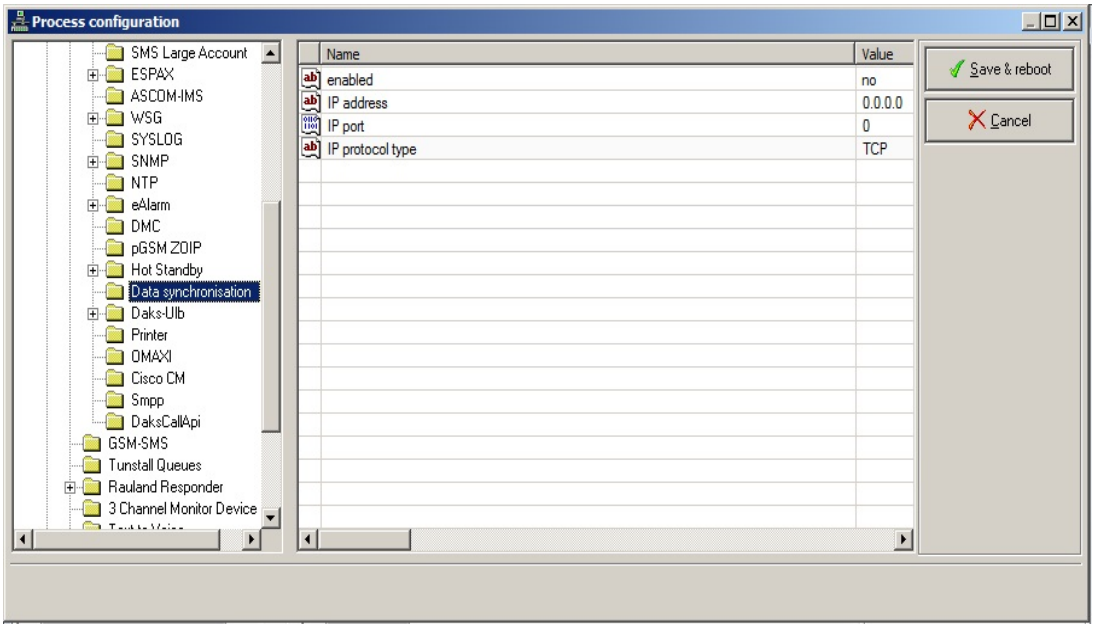



Image 6-29 Data synchronization parameters

## 6.10.22 Printer

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ Printer | | |
| enabled | yes, [no] | Activate/deactivate the printer service |
| IP address | IP address, [0.0.0.0] | IP address of the printer. |
| IP port | IP port, [9100] | The IP port where the printer service can be reached. |
| IP protocol type | TCP | The protocol type of the printer service.<br>Note:<br>This parameter is for information only and cannot be changed. |
| Print priority | [USB], NETWORK | The prioritization of the interface for data transmission, when printers are available that are connected through USB and LAN:<br>• USB<br>• Computer network |
| | | |

Table 6-34 Configuration of the printer parameters

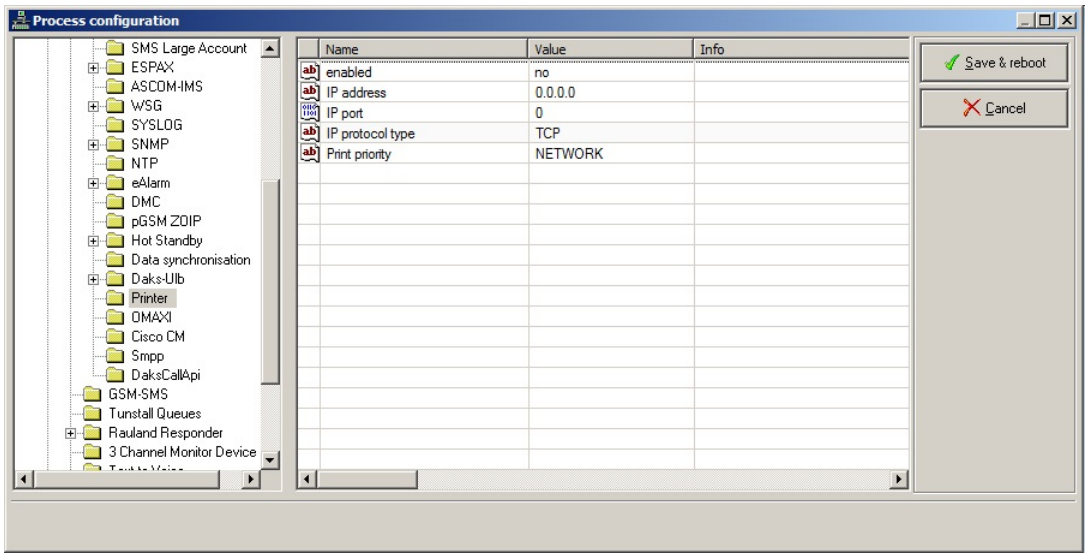



Image 6-30 Printer parameters

## 6.10.23 OM-AXI server

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ OMAXI | | |
| enabled | no | Activate/deactivate the OM-AXI server |
| IP address | IP address [0.0.0.0] | IP address of the OM-AXI server. |
| IP port | IP port [12621] | The IP port where the server can be reached. |
| IP protocol type | TCP | The protocol type of the OM-AXI service.<br>Note:<br>This parameter is for information only and cannot be changed. |
| OMM2 address | IP address [0.0.0.0] | IP address of the OM-AXI standby server. |
| Melody1 (Red) | Alarm tone [Alarm 6] | Alarm tone for display text color 'Red'. |
| Melody2 (Orange) | Alarm tone [Alarm 2] | Alarm tone for display text color 'Orange'. |
| Melody3 (Yellow) | Alarm tone [Alarm 4] | Alarm tone for display text color 'Yellow'. |
| Melody4 (Green) | Alarm tone [Alarm 3] | Alarm tone for display text color 'Green'. |
| Melody5 (Blue) | Alarm tone [Alarm 1] | Alarm tone for display text color 'Blue'. |
| User name | 260 characters [OScAR] | The user name of the OM-AXI server. |
| Password | 260 characters [OScAR] | The user password of the OM-AXI user. |
| Standard Calling Number | 0 | The standard calling number that is sent for outgoing (out-bound) calls. |
| Standard Calling Number | 0 | The default name name that is sent for the first outgoing (out-bound) call. |
| | | |

Table 6-35 Configuration of the OM-AXI server parameters

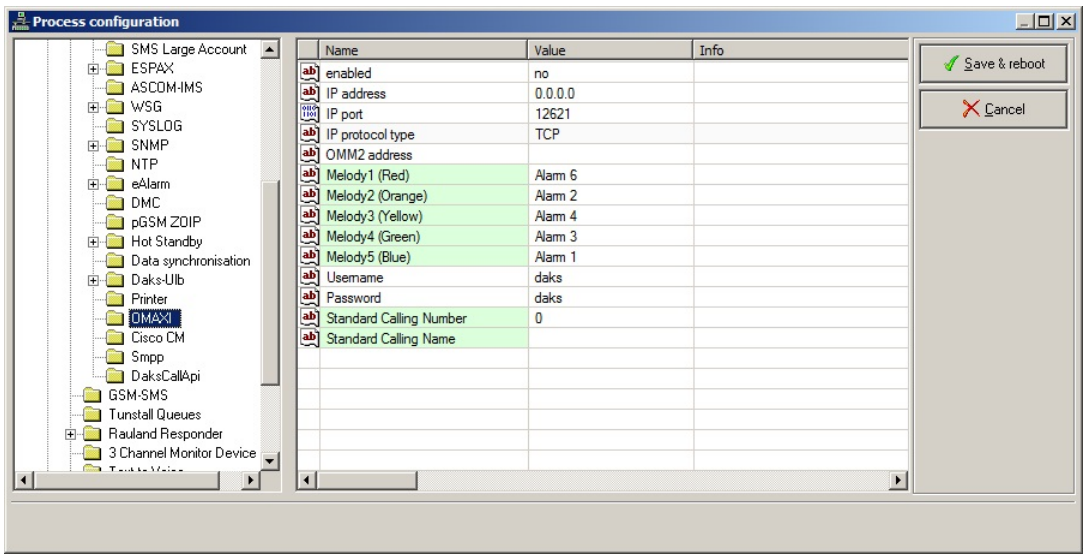



Image 6-31 OMAXI parameters

## 6.10.24 Cisco CM

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ Cisco CM | | |
| enabled | no | Activate/deactivate the Cisco Call Manager service |
| IP address | IP address [0.0.0.0] | IP address of the Cisco Call Manager. |
| IP port | IP port [12621] | IP port where the Cisco Call Manager can be reached. |
| IP protocol type | TCP | The protocol type of the Cisco Call Manager service.<br>Note:<br>This parameter is for information only and cannot be changed. |
| Ris user name | [ ] | The name of the user, for authentication at the RisPort SOAP service. |
| Ris Password | [ ] | The password for authentication at the RisPort SOAP service. |
| Use Https | true, [false] | Setup a connection to the RisPort service via https, yes/no. |
| Ris Query interval | 4.. 3600 | Interval for the RisPort query. |
| enable RisPort queries in hot standby | [false]<br>true | Enable RisPort queries even in "Hot Standy" |
| IPPS Username | [ ] | The name of the user, for authentication at the Cisco Phone service. |
| IPPS Password | [ ] | The password for authentication at the Cisco Phone service. |
| IPPS Connect timeout | 1.. 15, [10] | Maximum timeout to the Cisco Phone service. |
| IPPhoneResponse timeout | 5 .. 30, [5] | Maximum timeout until the response to sending a text message must be received. |
| alternative IP address | IP-Adresse [0.0.0.0] | IP address of a load balance server |
| Msg Melody (Normal) | [Chime] | Name of the wave file is shown at the phone; this file is played when the system calls with the call signal "Normal". |
| Msg Melody (Urgent) | [Piano 1] | Name of the wave file is shown at the phone; this file is played when the system calls with the call signal "Urgent". |
| Msg Melody (Alarm) | [Pulse 1] | Name of the wave file is shown at the phone; this file is played when the system calls with the call signal "Alarm". |
| | | |

Table 6-36 Configuration of the Cisco CM parameters

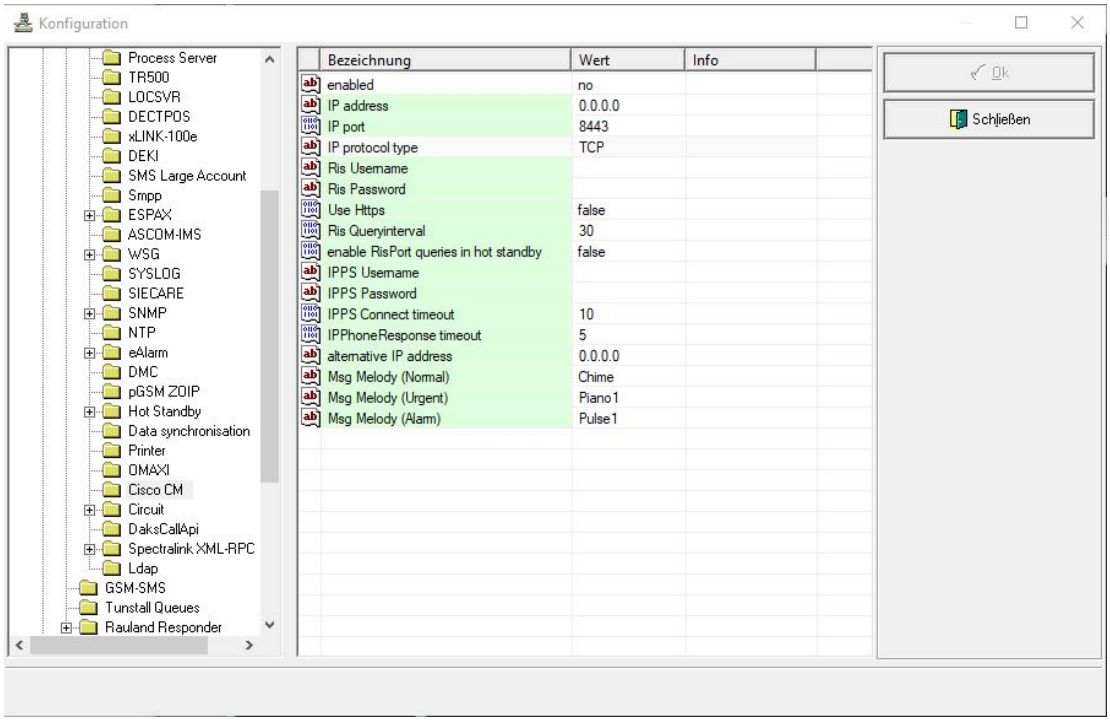



Image 6-32 Cisco CM parameters

## 6.10.25 Spectralink XML-RPC

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ Spectralink | | |
| enabled | no | Activate/deactivate the Spectralink Dect-server. |
| IP address | IP address [0.0.0.0] | IP address of the Spectralink Dect-server. |
| IP port | IP port [12621] | IP port where the Spectralink Dect-server can be reached. |
| IP protocol type | TCP | The protocol type of the Spectralink Dect-server.<br>Note:<br>This parameter is for information only and cannot be changed. |
| username | [ ] | The name of the user. |
| Password | [ ] | The password for authentication at the Spectralink Dect-server. |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ Spectralink ➤ Alert normal/external/alarm | | |
| Tone | 0..11 [1] | Ring tone<br>0= off<br>1 - 11= Matches the device tones |
| Volume | 0..9 [3] | Volume<br>0= Silent<br>1= quiet<br>9= loud |
| Vibrate | on [off] | Vibration |
| Red LED | on [off] | Red LED<br>Note: Colors are mixable |
| Green LED | on [off] | Green LED<br>Note: Colors are mixable |
| Blue LED | on [off] | Blue LED<br>Note: Colors are mixable |
| LED-Command | [off]<br>flash slow<br>flash fast | LED-Command |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ Spectralink ➤ Lone Worker Mode | | |
| Monitoring time-out text | 0..32 characters<br>[Communication problem with OScAR] | Text to be shown in the terminal device display in case of a connection problem. |
| Inactive background text | 0..32 characters<br>[Standard mode - no monitoring] | Background text when the terminal device is not in monitoring. |
| Active background text | 0..32 characters<br>[LWM Modus aktiv] | Background text when the terminal device is in monitoring. |

Table 6-37 Configuration of the Spectralink parameters

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Icon id | 0..255 [0] | Symbol is displayed during monitoring and in idle state.<br>0 = No symbol<br>161 = Spectralink symbol |
| Pincode for disabling Lone Worker Mode | 0..99999 [00000] | Pincode for disabling Lone Worker Mode. |
| Pincode for temporary mute active alarm tone | 0..999999 [11111] | Pincode for disabling Lone Worker Mode . |
| Pincode for temporary mute active alarm tone | 0..99999 [00000] | Pincode for temporary mute active alarm tone. |
| Pincode for allowance to power off the handset | [0000] | Pincode for allowance to power off the handset. |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ Spectralink XML-RPC ➤ Lone Worker Mode ➤ Tear off | | |
| Pre alarm time | 5..15 [15] | Time in seconds before the Tear off alarm is sent to the system. |
| Activation time | 5..15 [15] | Time in seconds that the tear off cord must be detached, before the (Pre) alarm is activated. |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ Spectralink XML-RPC ➤ Lone Worker Mode ➤ Fast Run | | |
| Pre alarm time | 5..15 [15] | Time in seconds before the Fast Run alarm is sent to the system. |
| Activation time | 5..15 [15] | Time in seconds that the Fast Run alarm condition must be fulfilled before the (pre-)alarm is activated. |
| Alarm off timer | 0..1 [0] | Time in seconds that the tear off cord must be detached, before the (Pre) alarm is activated. |
| Sensitivity | 0..7 [3] | 0= fast run alarm disabled<br>1= less sensitive<br>7= most sensitive |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ Spectralink XML-RPC ➤ Lone Worker Mode ➤ Not vertical | | |
| Pre alarm time | 5..15 [15] | Time in seconds before the Not vertical alarm is sent to the system. |
| Activation time | 5..15 [15] | Time in seconds that the Not vertical alarm condition must be fulfilled before the (pre-)alarm is activated. |

Table 6-37 Configuration of the Spectralink parameters

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Sensitivity | 0..7 [5] | 0= vertical alarm disabled<br>1: approximately 75 degrees to upright position<br>2: approximately 65 degrees to upright position<br>3: approximately 57 degrees to upright position<br>4: approximately 50 degrees to upright position<br>5: approximately 40 degrees to upright position<br>6: approximately 32 degrees to upright position<br>7: approximately 25 degrees to upright position |
| Tree structure:: Server ➤ OScAR-Pro ➤ Network Services ➤ Spectralink XML-RPC ➤ Lone Worker Mode ➤ No Move | | |
| Pre alarm time | 5..15 [15] | Time in seconds before the No Move alarm is sent to the system. |
| Activation time | 5..15 [15] | Zeit in Sekunden, die die Ruhealarmbedingung erfüllt sein muss, bevor der (Vor-)Alarm aktiviert wird. |
| Sensitivity | 0..7 [5] | 0= Ruhealarm deaktiviert 1= weniger empfindlich 7= am empfindlichsten |
| Pre alarm time | 5..15 [15] | Time in seconds before the alarm is sent to the system. |
| Activation time | 5..15 [15] | Time in seconds the tear off cord must be detached, before the (Pre) alarm is activated. |
| Alarm off timer | 0..1 [0] | Enables a cool-down period before resetting pre-alarm time. |
| Sensitivity | 0..7 [7] | 0= fast run alarm disabled<br>1= less sensitive<br>7= most sensitive |
| | | |

Table 6-37 Configuration of the Spectralink parameters

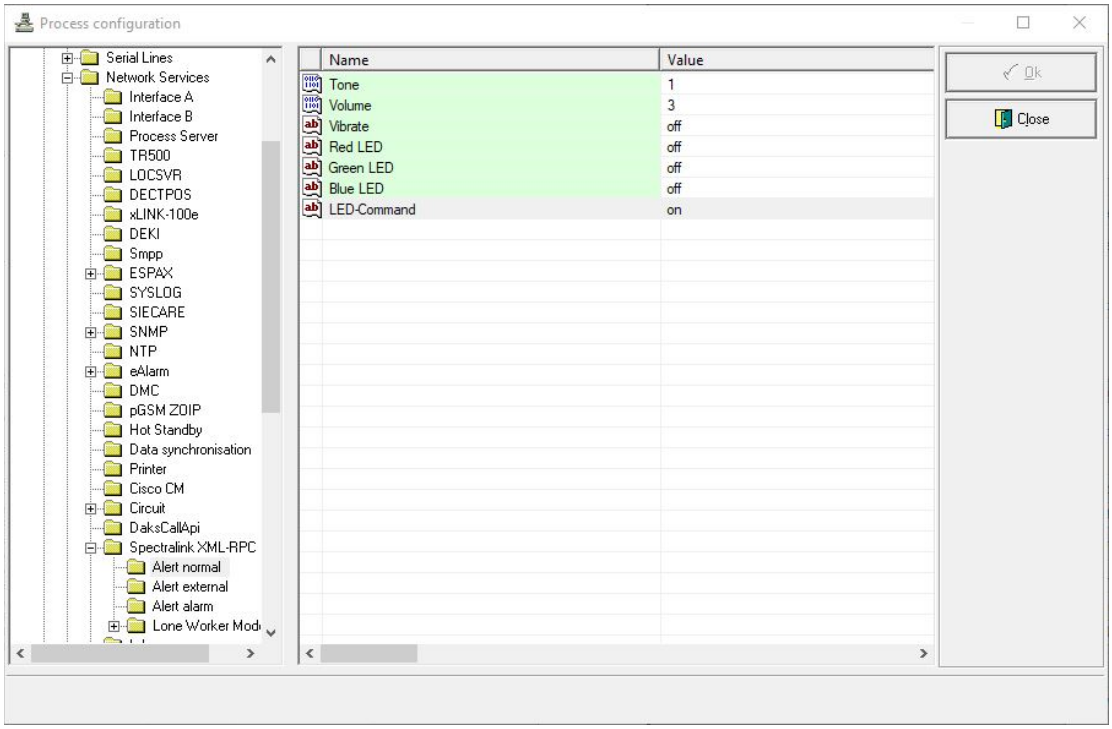



Image 6-33 Spectralink parameters

## 6.10.26 LDAP

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ LDAP | | |
| enabled | yes, [no] | Enable or disable LDAP service |
| IP address | IP address [0.0.0.0] | IP address of the LDAP service |
| IP port | IP port [12621] | IP port where the LDAP service can be reached |
| IP protocol type | TCP | Protocol type of the LDAP service<br>Note:<br>This parameter is for information only and cannot be changed. |
| Use SSL | true, [false] | Enable or disable encryption (SSL) |
| Principal Name | 0..260 characters [] | Login name of the LDAP user |
| Principal Password | 0..260 characters [] | Login password of the LDAP user |
| Rootpath | 0..260 characters [] | Rootpath of the LDAP server |
| AccountName | 0..260 characters [] | User login name |
| distiguished-Name | 0..260 characters [] | Defined name of the user |
| | | |

Table 6-38 Configuration of the Spectralink parameters

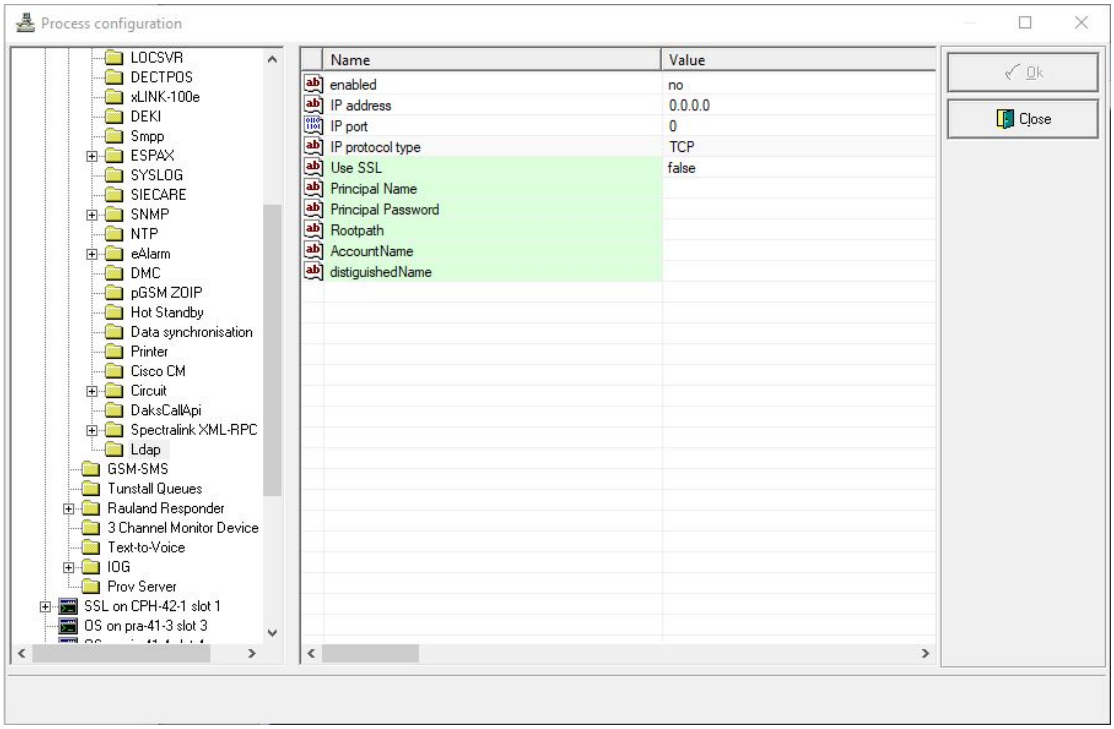



Image 6-34 Spectralink parameters

## 6.10.27 SMPP

Description

The SMPP service is used for:

- the dispatch of text messages (SMS).
- The receipt of text messages (SMS) and the launch of Broadcasts or activation of single calls.

Description of the syntax of the SMS text message to launch Broadcasts:

<Group Prefix><Group ID><Group Separator><Display text>

For example SMS text message: `G1003: Hooray it works`

Description of the syntax of the SMS text message to activate single calls:

<ID Connection Type><Space><Call Number><Group Separator><Display text>

For example SMS text message: `int 4711:Hooray it works`

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ OScAR-Pro ➤ Network Services ➤ SMPP | | |
| enabled | yes, [no] | Activate/deactivate the SMPP service |
| IP address | IP address, [0.0.0.0] | IP address of the modem. |
| IP port | IP port, [2775] | The IP port where the modem can be reached. |
| IP protocol type | TCP | The protocol type of the SMPP service.<br>Note:<br>This parameter is for information only and cannot be changed. |
| Password | [ ] | The password for authentication at the modem |
| System ID | [ ] | The system ID.<br>Must match the System ID as configured in the modem. |
| System Type | [ ] | The system type.<br>For information purposes only. |
| Source Addr | [ ] | The source address.<br>For information purposes only. |
| Group Prefix | Max. 1 character, [ ] | The trigger character to identify a following group ID.<br>Note:<br>If the Group Prefix is not administrated:<br>• and the SMS text message begins with a number, the system will interpret it as a Group ID.<br>• the ID of the connection type may not consist of digits. |
| Group Separator | Max. 1 character, [ ] | Separator between the Group ID or call number, and the display text |
| Delivery Timeout | 10.. 60, [30] | The maximum timeout for the transmission. |
| Link Enquiry Interval | 10.. 60, [30] | Interval of life messages |

Table 6-39 Configuration of the SMPP parameters

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Queue Full Retry | 1.. 10, [5] | Number of attempts to send a message when the response "Queue full" is received. |
| Response Timeout | 10.. 60, [30] | Maximum duration in which a response to the sending of an SMS must be received. |
| Minimum group identifier length | 1.. 4, [4] | The minimum length of the group ID.<br>Shorter group IDs are left-justified filled with zeros. |

Table 6-39 Configuration of the SMPP parameters

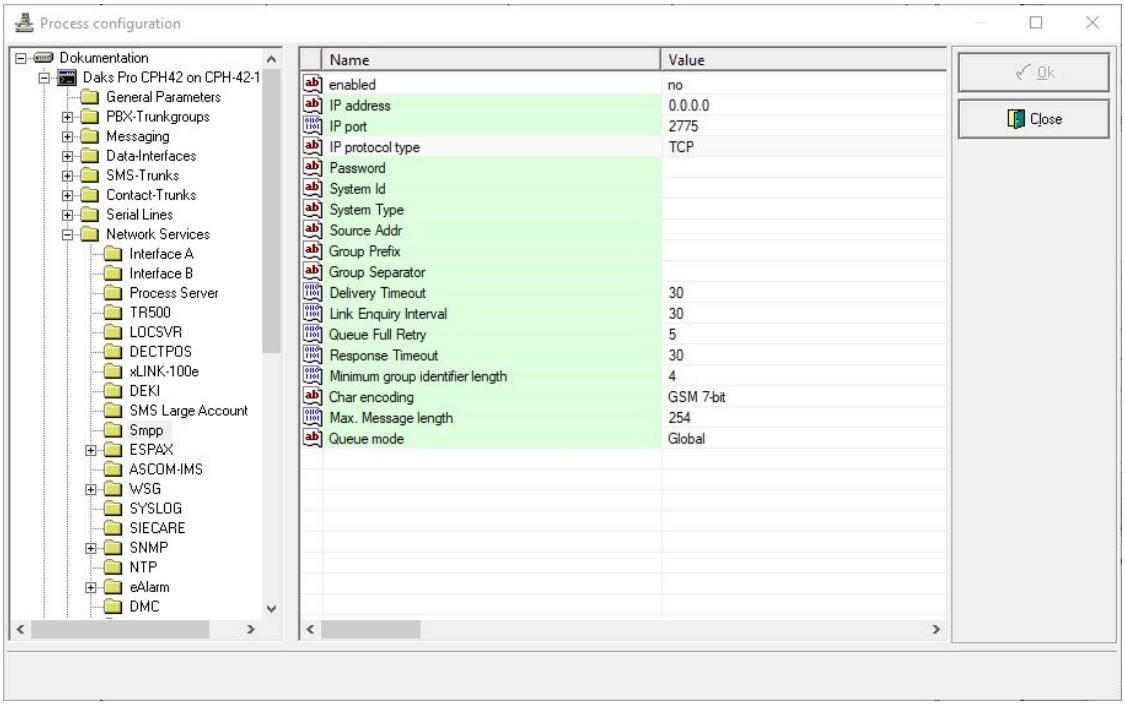



Image 6-35 SMPP parameters

## 6.11 3 Channel Monitor Device

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ OScAR-Pro ➤ 3 Channel Monitor Device | | |
| AIO-Input for A | 1..8 [1] | Definition of the AIO input for channel A of the radio monitoring device. |
| AIO-Input for B | 1..8 [2] | Definition of the AIO input for channel B of the radio monitoring device. |
| AIO-Input for C | 1..8 [3] | Definition of the AIO input for channel C of the radio monitoring device. |
| Volume for level 2 | -40..6 [-20] | The volume level for level 2. |
| Volume for level 3 | -40..6 [-16] | The volume level for level 3. |
| Volume for level 4 | -40..6 [-12] | The volume level for level 4. |
| Volume for level 5 | -40..6 [-8] | The volume level for level 5. |
| Volume for level 6 | -40..6 [-4] | The volume level for level 6. |
| Volume for level 7 | -40..6 [-0] | The volume level for level 7. |
| | | |

Table 6-40 Configuration of the 3 Channel Monitor Device parameters

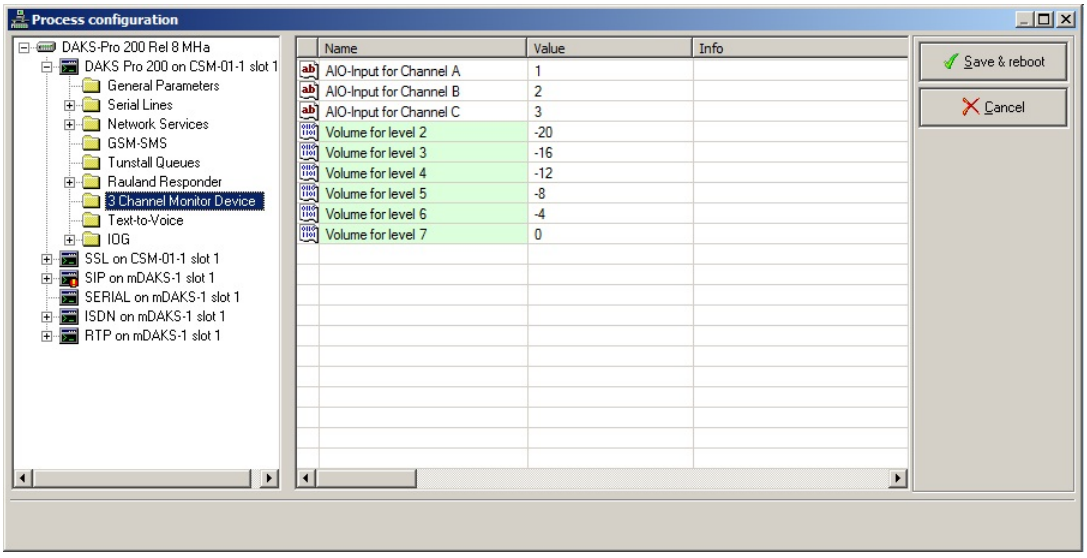



Image 6-36 3 Channel Monitor Device parameters

## 6.12 Text-to-Voice

Description:

The text-to-voice service makes it possible to convert display text messages transmitted via an external data interface into actual voice announcements.

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ OScAR-Pro ➤ Text-to-Voice | | |
| TTV license 1 .. n | SI1 .. n, xLINK<br>ESPA-X 1 .. n<br>TR500<br>VI1 .. n | Assignment of the available data interface to a TTV license. |

Table 6-41 Configuration of the Text-to-Voice parameters

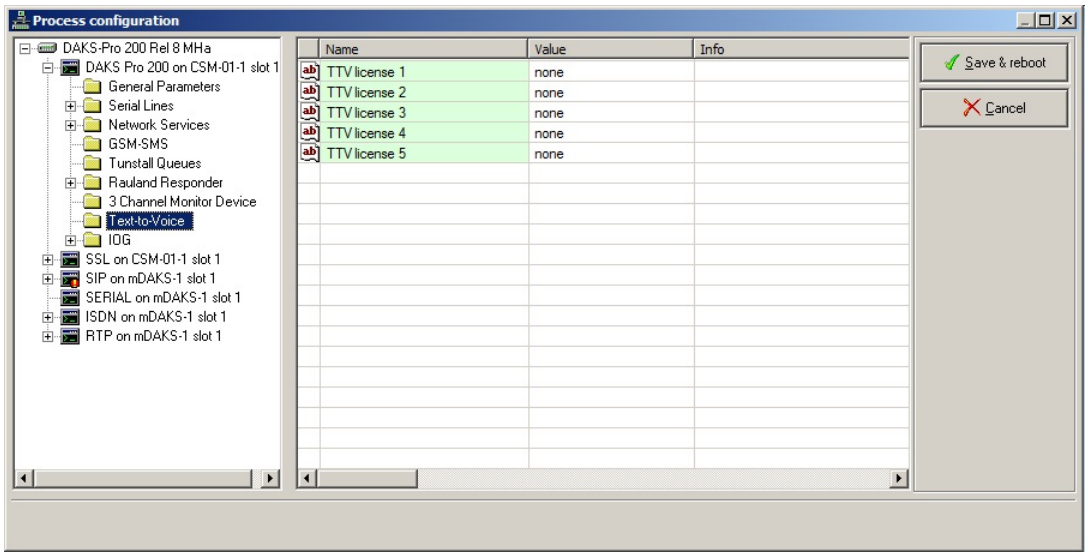



Image 6-37 Parameter Text-to-Voice

## 6.13 IOG contacts

Parameters:

| Parameters | Value range | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ IOG | | |
| Apply Configuration | [Current Configuration] | The default display of the contacts, in keeping with the current configuration data. |
| | Change to Hardware, | If no configuration data is available (e.g. right after the activation), a configuration is generated from the license. Where needed, adjust the sequence of the connected IOM modules to match this configuration. |
| | Change to License | If configuration data is available, but this data does not mirror the IOM modules that are actually connected, e.g. after altering the sequence of the modules, the configuration is read out from the actual modules that are currently connected. |
| Serial number | [..] | Serial number of the connected IOG module. The number is automatically read out by the system after the module is connected and the parameter 'Apply Configuration' is switched to: 'Change to Hardware' or 'Change to License'. |
| Tree structure: Server ➤ IOG ➤ Output of the order of the IOM modules | | |
| | | |

Table 6-42 Configuration of the IOG contact parameters

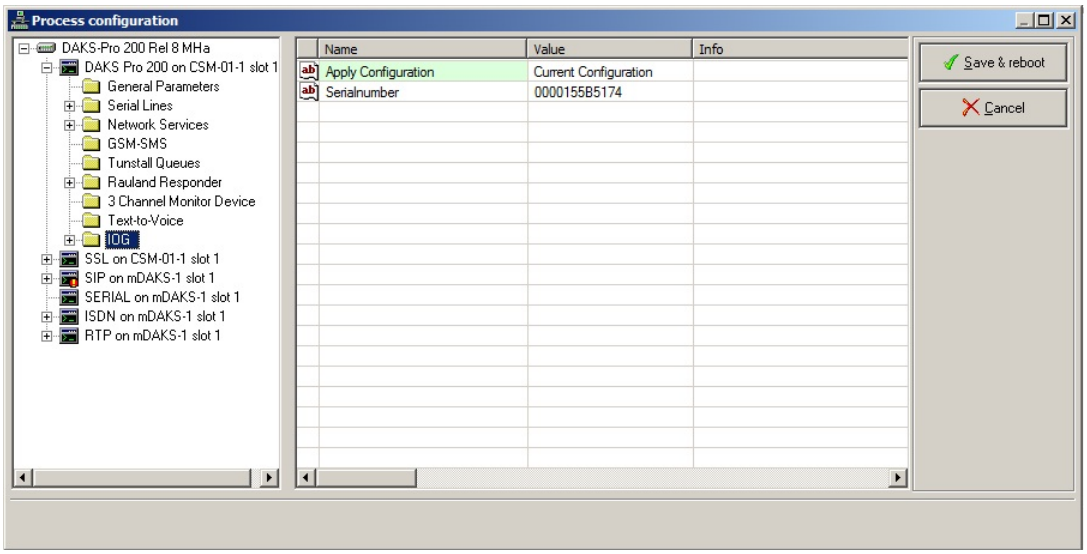



Image 6-38 IOG contact parameters

## 6.14 SSL

Description:

Use the area "SSL" to list and administrate imported certificates.

Parameters:

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| | | |
| Tree structure: Server ➤ SSL Service | | |
| Allow self signed | yes, [no] | Allow certificates that are self-signed. |
| Allow unknown issuer (CA) | yes, [no] | Allow certificates also if their issuer (CA) is unknown. |
| Allow outdated | yes, [no] | Allow certificates also if their validity date has expired. |
| Sign certificates with sha256 | [yes], no | Sign certificates with sha256. |
| Ciphers | SSLv3 and better<br>TLS v 1.2 HIGH and up only<br>[TLS v 1.0 and up] | Version of the encryption protocol. |
| AES coding | AES-128<br>AES-256<br>[AES-128 and AES-256] | Supported key length of the encryption method. |
| SHA support | SHA1 allowed<br>[SHA1 prohibited], | Use of SHA1<br>• SHA1 prohibited:<br>Connections with SHA1 not allowed<br>• SHA1 allowed:<br>Connections with SHA1 allowed |
| FIPS 140-2 mode | yes, [no] | Enabling the FIPS 140-2 mode |
| sign with expiration in | 1 year,<br>2 years,<br>3 years,<br>5 years,<br>10 years | Certificate validity period |
| Add IPs to CN | [yes], no | Use IP address in certificate |
| Add IPs to SAN | [yes], no | Use IP address in "Subject alternative name" |
| Add Hostname to SAN | [yes], no | Use host name in "Subject alternative name" |
| Tree structure: Server ➤ SSL ➤ Machine Certificate | | |
| This area is used for the certificate that is currently used by the OScAR server. | | |
| Tree structure: Server ➤ SSL ➤ Issuer | | |
| This area is used for details on the issuer of the certificate. | | |
| Tree structure: Server ➤ SSL ➤ Trusted Certificates | | |
| This area is used to list all certificates that have been uploaded to the memory of trusted certificates. | | |
| Tree structure: Server ➤ SSL ➤ Trusted Certificates ➤ Certificate | | |
| Action | [none], remove certificate | Use 'remove certificate' to delete a certificate |

Table 6-43 Configuration of the SSL parameters

| Parameters | Value range [Default setting] | Description |
|---|---|---|
| Tree structure: Server ➤ SSL ➤ Trusted Certificates ➤ Issuer | | |
| This area is used for details on the issuer of the certificate. | | |
| Tree structure: Server ➤ SSL ➤ Temporary Certificates | | |
| This area is used to list all certificates that are allowed on a temporary, i.e. time-limited basis. | | |
| Action | [none],<br>add to „Trusted certificates“ | Use the parameter 'add to trusted certificates' to add certificates to the memory of trusted certificates. |
| Tree structure: Server ➤ SSL ➤ Temporary Certificates ➤ Issuer | | |
| This area is used for details on the issuer of the certificate. | | |

Table 6-43 Configuration of the SSL parameters

# 7 PBX Systems and Softswitches

Overview

This chapter covers the configuration of the different PBX systems to operate in combination with one or several OScAR Servers.

Contents

This chapter consists of the following sub-sections:



## 7.1 Basic information on the PBX interfaces of OScAR

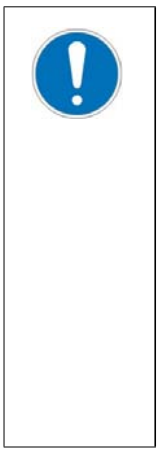
The coupling between OScAR and the PBX network or the convergent voice/data network, respectively, can be carried out:

- via TDM/ISDN or
- via VoIP/SIP.

In mixed environments, the OScAR-Pro 300 can be connected to both TDM/ISDN and VoIP/SIP in parallel, i.e. at the same time.

The coupling to the PBX system or to the telecommunications network is carried out via trunk connection with a code and with direct dialing functionality, so that OScAR can be seen, from the network's side, like an additional network node, i.e. like a subsystem with its own numbering plan.

Note:
This is therefore not a CSTA-coupling (such as e.g. ACL or CAP for PBX systems by Unify).



Note:
Please be aware that the configuration of the interface(s) between OScAR and the various PBX systems or soft switches is not part of this document.
For documentation of the configuration of the PBX interfaces:

- either on the Installation CD under "Documentation"
  Caution!
  This information may have already become outdated!
- or at: ftp://ftp.tetronik.com/Documentation
  Caution!
  For this access you must be a service technician fully trained on OScAR and properly registered with tetronik. If you have already received your personal access data for the FTP download, you can use your login data for this area also.

## 7.2 TDM/ISDN coupling of OScAR

Depending on the size and dimension of the server, the OScAR-Pro 300 coupling is via:

- 2 or 4 $S_0$ trunks (= 4 or 8 channels),
- 1 to 16 E1-/$S_{2M}$ trunks (= maximally 480 channels ), or
- 1 to 16 digital T1 trunks (= maximally 368 channels). *)

Depending on the size and dimension of the server, the OScAR-Pro 200 coupling is via:

- 2 or 4 $S_0$ trunks (= 4 or 8 channels),
- 1 E1-/$S_{2M}$ digital trunks, (= 30 channels), or
- 1 digital T1 trunk (= 23 channels). *)

The voice coding is carried out in keeping with G.711 at 64 kbit/s, a-law; in addition, OScAR also supports µ-law. *)

As D-channel protocol OScAR supports:

- QSIG in the versions:
  - QSIG-ETSI-BC or QSIG-ISO-BC = QSIG (ETSI or ISO) Basic Call, and
  - QSIG-ETSI-SS or QSIG-ISO-SS = QSIG (ETSI or ISO) incl. Supplementary Services.
- CorNet-NQ.

In addition, OScAR also supports the D-channel protocols NI2 *) and DSS1.

Especially in OpenScape Voice, OpenScape 4000 and HiPath 3000 networks, OScAR offers particular (alarm) features when operating in combination with communication devices that are connected to these PBX systems (see separate documentation on how to configure the PBX interfaces).

*) especially for sales in North America

## 7.3 VoIP/SIP couplings of OScAR

OScAR is coupled to the soft switch or to the soft switch cluster:

- with up to 480 channels via Gbit Ethernet

  Note: Applies only to OScAR-Pro 300 in the single installation setup or in the redundant installation setup with cannel-bonding mode.
- using up to 4 logical trunks.

OScAR supports:

- redundant soft switch installations with Geo separators (also via DNS-SRV) and
- OpenScape Branch proxy/session border controller (SBC) installations

As signaling protocol, OScAR supports either SIP or SIP-Q (SIP-Q currently in combination with Unify HiPath 3000, OpenScape business, OpenScape 4000 and OpenScape Voice).

OScAR supports the following performance features/signaling on the SIP- or SIP-Q trunk(s):

- SIP in keeping with RFC3261
- SDP in keeping with RFC2327
- RTP in keeping with RFC1890
- Connection Reuse in the Session initiation Protocol (SIP) RFC 5923
- MLPP RFC 4411, 4412
- TLS V1.2 RFC 5246
- SPD SDES (Security Descriptions for Media Streams) RFC 4568
- RTP Payload for DTMF (DTMF as data package) in keeping with RFC2833 or as SIP information
- Refer, Transfer, Reinvite in keeping with RFC3515
- SIP Session Timers (monitoring of sessions via keep-alive), in keeping with RFC4028
- Private extensions for asserted identity within trusted networks (output via display), in keeping with RFC3325 (also for outgoing/outbound calls with any-name, any-number)
- Reason header field (reasons for call disconnect similar to ISDN) in keeping with RFC3326
- G.711 a-law or µ-law (µ-law on project-specific basis)
- Overlap-dialing per response "484 address incomplete"

When using SIP-Q OScAR additionally supports:

- Tunneling of QSIG over SIP in keeping with ECMA 355
- Output of text messages with up to 24 characters to digital communication devices, sent in form of QSIG elements,
- Transfer of keystrokes during a call, as keypad information
- Route optimization = Path replacement (only for specific applications),
- Special features, especially within Unify HiPath 3000, OpenScape Business, OpenScape 4000 and OpenScape Voice networks, when operating with communication devices that are connected to these systems (see separate documentation on how to configure the PBX interfaces).

For the NFON coupling, OScAR-Pro also supports in SIP:

- Special features when operating with communication devices that are connected to these systems (see separate documentation on how to configure the PBX interfaces).

# 8 Serial Data Interfaces

Overview

This chapter covers the coupling of the OScAR Server to external systems via serial data interfaces. It describes the functionalities that are offered by the system components and shows you how these components are configured.

Contents

This chapter consists of the following sub-sections:

# 8.1 General

OScAR supports serial protocol interfaces to external systems, for example to:

- nurse call systems
- fire alarm systems
- programmable logic controllers (PLC)
- an emergency response host computer

Layer 1:

OScAR supports point-to-point connections (configurable directly on site) in keeping with:

- RS422, electrically isolated and
- RS232, electrically isolated.

Layer 2:

The following data transmission protocols are used:

- ESPA 4.4.4. (purs. to documentation ESPA no. 4.4.4., date of publication: November 1984)
- DUST 3964R
- the two simple protocols VIT1 and FTI1

Layer 3:

OScAR supports 3 different interfaces:

- PLC interface
  Only contact information is transmitted, i. e. this is a simulation of the activation of OScAR contact inputs.
- Nurse call interface (= paging interface)
  Here, the groups that shall be activated incl. the (current) display message are transmitted and additional functions are offered, e.g. callback calls to calling patients in the health care sector.
- Host interface (not documented here)
  The range of functions stretches from the activation of predefined groups to a complete remote control of the OScAR Server, avoiding the OScAR-internal data administration from an emergency response host computer.

In this document, the main focus is placed on nurse call interfaces with ESPA protocol.

The PLC interface with ESPA protocol is utilized only if the external system supports the ESPA protocol, while the display outputs as well as, if applicable, the language outputs shall be administrated in OScAR, for example:

- in combination with older nurse call systems that are difficult to administrate,
- when devices with HiPath/Hicom-specific display functions need to be alerted with distinct announcements,
- in combination with building management systems that behave like a PLC.

The nurse call interface with the two simple protocols VIT1 and FTI1 is always used if the upstream system logically requires the nurse call interface, but the implementation of DUST or ESPA would be disproportional.

Specifically, the PLC interface with DUST protocol is used in combination with Simatic S5.

## 8.2 Layer 1, independent of the type of interface selected

OScAR sends and receives (electrically isolated) via RS232 or RS422 with a variable baud rate (1200, 2400, 4800 or 9600 bd):

- 7 or 8 data bits
- variable Parity bit as well as
- 1 or 2 Stop bits.

➤ see Section 8.1 "General"

During this process the system utilizes the character set IBM 2. For 7 data bits this is equivalent to US ASCII.

OScAR corresponds here to a DTE (Data Terminal Equipment) with PIN assignment, like the COM port of a PC.

## 8.3 Nurse call interface with ESPA protocol

For the configuration of the nurse call interface in the OScAR Server, the system utilizes the protocol ESPA and the function NUC or NUC+ (NUC+ only if callback calls are also needed).

### 8.3.1 Comments on the ESPA specification

#### 8.3.1.1 Regarding Pos. 2.4 of the ESPA specification: 'Transmission Control Prefixes'

When polling or selecting OScAR, the OScAR device address must be sent before <ENQ>.

OScAR may send the following <NAK> responses

- '1' <NAK> transmission error
- '2' <NAK> busy, queue full
- '3' <NAK> invalid message

If OScAR responds with ...<NAK>, the received messages are automatically discarded.

If a message from OScAR is answered with <NAK> or '1' <NAK>, the system will repeat the message 2 more times (i.e. max. 3 attempts in total).

After this, it produces a detailed error report.

If a message from OScAR is answered with '2' <NAK>, '3' <NAK>, in any other way or not at all, the system will not repeat the message. The system immediately produces a detailed error report.

#### 8.3.1.2 Regarding Pos. 3.1 of the ESPA specification: 'Polling'

The OScAR device address can be set to a number between '0' and '9'.

OScAR is not the 'control station'.

#### 8.3.1.3 Regarding Pos. 4.2 and Pos. 4.3 of the ESPA specification

The headers and records that are supported are different for a nurse call and a PLC interface and described in detail in separate chapters.

#### 8.3.1.4 Pos. 5 of the ESPA specification: 'Hardware specification'

With ESPA the operation should be conducted in keeping with the protocol, that is to say with 7 data bits, even parity and 2 stop bits.

For more information:

➤ see Section 8.2 "Layer 1, independent of the type of interface selected"

## 8.3.2 Functionality

OScAR-Pro 300 has a maximum of 8 serial ports for nurse call interfaces.

OScAR-Pro 200 has a maximum of 2 serial ports for nurse call interfaces.

The nurse call interface enables calls to individual participants and entire subscriber groups:

- with output of a variable text
- with evaluation of the record type 'Priority'
- with evaluation of the record type 'Call-Type', incl. support of the call type 'Page' and to determine if the callback functionality is available and if so, the kind of callback (usually to a calling patient):
  - Callback directly to the patient's bedside telephone (connected to the PBX) or to the intercom of the patient's room (connected to the nurse call system)or
  - Callback by room to the room loudspeaker (connected to the nurse call system)
- with deletion of calls from the nurse call system, including synchronization at restart
- including expanded reports (= status information)

Status information are transmitted either upon selective enquiry or automatically, insofar changes have occurred:

- call in processing
- callback initiated
- call ended with/without success (detailed)
- call ended after call to patient,
  if needed with call processing information (save/delete call)

OScAR supports the following interfaces for callback calls to nurse call system:

- analog or digital
- with or without dial-thru capability
- one- or multi channel per station
- if needed with a DTMF decoder:
  - to accept details identifying the patient room loudspeaker that shall be called (by the nurse call system) and
  - for signaling between the nurse or caregiver and the patient, during the active and ongoing call (here, OScAR assumes the conversion of the keypad information from the nurse's telephone to DTMF).

To enable this functionality the ESPA specification has been expanded by adding, among other things, the following:

- additional record types ('Call-ID' and 'Nurse call interface') as well as
- additional data within the record types that were already defined in keeping with the ESPA specification.

## 8.3.3 The behavior of OScAR in detail

### 8.3.3.1 General

Configure Broadcast groups in OScAR, with each group consisting of either only one or many members (subscribers). The relevant group is addressed or selected by way of its identifier (= call address).

OScAR:

- accepts commands that trigger Broadcasts via the serial interface,
- writes the Broadcast requests into an internal queue,
- carries out the pertinent Broadcasts, and
- reports back the status and/or the results, via the serial interface.

Note:
If the external system requires an instant feedback, e.g. because it is otherwise unable to start a new Broadcast, OScAR can also return a positive result immediately after receipt of the Broadcast request. In this case, reports concerning the progress or the final results of the Broadcast are, of course, no longer available.

➤ see Section 6.7 "Configure serial interfaces and virtual serial interfaces"

The system can process a maximum of 50 Broadcast requests in the queue. Up to 10 Broadcasts can be active and processed in parallel. If needed, the queue can also be downsized.

➤ see Section 6.7 "Configure serial interfaces and virtual serial interfaces"

Depending on their individual configuration, Broadcasts are carried out in OScAR like this:

- with parallel and/or sequential dial-up of subscribers
- with or without a request to the called person to identify himself by PIN
- with or without confirmation (in the active connection or by callback)
- normally with output of the most recent display/text messages from the external system
- with Broadcast message(s) and advisory messages for the operation and acknowledgement
- if needed with the option to callback a call initiator (= patient).

For more information on the processing and sequences of Broadcasts see:

➤ "OScAR-TT User Manual"

Broadcast requests are removed from the queue:

- immediately after a status message with a final result
  ➤ see Section 8.3.7 "Status messages"
- 2 minutes after the Broadcast end
- 2 minutes after the Broadcast is canceled (e.g. by the operator or by a high-priority activity)
- 2 minutes after failure to start the Broadcast that was to be launched,
  e.g. if the phone connection(s) to the PBX was/were lost
- when OScAR considers the external system (nurse call system) as no longer active. This is always the case if OScAR is not polled for 10 minutes in a row and does not receive a valid dataset during this time, either.

#### 8.3.3.2 Automatic callback to the initiator (patient)

The callback functionality is only available in combination with the corresponding order item.

➤ see Price List HiPath OScAR

Callback calls are initiated:

- If there is only one callback destination that can be called (to a HiPath telephone or to the nurse call system):
  – by pressing '5' or '6'
- If there are two callback destinations that can be called (to a HiPath telephone and to the nurse call system):
  – by pressing '5' to the HiPath telephone and
  – by pressing '6' to the nurse call system

Callbacks can only be made if the below group-specific OScAR settings are made:

- The 'Number of subscribers to reach' must be set to '1' (sequential or parallel dialing by the system).
- With parallel dialing the flag 'end when target reached' must be set.
- It must be possible to confirm negative.
- the subscriber must confirm in the connection by pressing a key.

➤ see "OScAR-TT User Manual"

If the callback call failed because the line of the callback destination was busy or could not be reached, or because it failed to accept the call, had no authorization to be called again, or because OScAR had no more channels available:

- the target is played 5 short tones,
- the target is then again played the Broadcast announcement + the request announcement,
- during this time, the target can again press 0, 1, 5 and/or 6.

If no callback connection is established the called user (the nurse) has, if available, several options to signal, for example to decide:

- 'Delete call' or
- 'Save call'.

For this you can configure in OScAR the special signalings during a callback call that shall be evaluated (none, only '#', only '1', '1' and '#'), and which of these will automatically end the call.

➤ see Section 6.7 "Configure serial interfaces and virtual serial interfaces"

The system releases also the connection to the called patient when the nurse ends the callback call by going on hook or by pressing the corresponding key (key is configurable, see below).

If the call is ended because the patient hangs up or by the nurse call interface, the connection to the nurse will be retained for another 8 seconds. After that, OScAR releases the call. During these 8 seconds, the nurse can still signal by pressing the pound key '#' or '1'.

When the system calls subscribers in parallel, all parallel calls are ended as soon as the telephone interface connects, i.e. when the call is through-connected.

In combination with nurse call interfaces with a DTMF decoder (typical for 'TotalWalther medicall 800'), OScAR enables a transparent dialog between the nurse and the nurse call interface for callback calls, incl. the conversion of keystrokes as keypad information from the nurse's digital HiPath telephone to DTMF signals, and the transmission of this information to the nurse call interface.

However, in combination with a nurse call interface without DTMF decoder, or for callback calls to HiPath telephones, it is the nurse who signals to OScAR via keystroke. After that, a corresponding message is output through the nurse call interface.

In combination with 'Total Walther medicall 800' the signaling is currently carried out as follows:

- Key '1' indicates:
  'Call processed', call is not automatically ended (terminated)
- Key '#' indicates:
  'Terminate' with automatic hang-up on the side of the telephone interface
  (faster than busy tone detection; no busy tone over the loudspeaker)

## 8.3.4 Activation of OScAR calls

### 8.3.4.1 General information, header

Calls are activated via the header 'Call to pager' ('1'). The data identifiers or record types described below can be sent in any order.

If the same call activation with an identical record type data is sent again while the it is already being processed in the OScAR queue, OScAR will accept the dataset with <ACK> but not process it any further.

### 8.3.4.2 Record type 'Call Address', data identifier '1'

The call address must be sent; otherwise OScAR responds with '3' <NAK>.

The call address must be numeric with 1 to 4 digits, otherwise OScAR responds with '3' <NAK>.

The call address must correspond to the group identifier of a Broadcast group as configured in OScAR, otherwise OScAR will respond to the data record with <ACK> but not add it to the queue of calls to process.

### 8.3.4.3 Record type 'Display message', data identifier '2'

If no display message is sent, OScAR outputs the relevant text message as already stored in OScAR.

If a display message is sent, it can be 0....160 characters long (the ESPA protocol actually allows only 128 characters).

Display messages that exceed this length are answered by OScAR with '3' <NAK>.

Both the text message that is shown to a called subscriber and the option whether or not the subscriber can initiate a callback call with the redial button function or with a one-key-function depend on these factors:

- The structure of the 'Display Message',
- The specific parameters of the OScAR Broadcast group,
- The ESPA record type 'Call-Type' = enable callback calls,
  ➤ see Section 8.3.4.5 "Record types 'Call Type', data identifier '4'",
- The nurse's handset.

In order to callback patients through redial:

- The terminal (handset) must support this function,
- The 'Display message' must begin with the calling number of the patient + <Space>, and
- In the group-specific OScAR parameter 'Display', the 'Number for other participants' must be set to 'Cost center'. *) *)

For callback to a telephone by single key function via OScAR:

- These types of callback calls must be enabled by ESPA,
  ➤ see Section 8.3.4.5 "Record types 'Call Type', data identifier '4'"
- The display message must also again begin with the patient's calling number + <Space>, and
- The configuration must be made in OScAR to the effect that:
  – the Broadcast is ended as soon as one subscriber has been reached
  – a negative report is possible and
  – in the active connection the reached subscriber may confirm by pressing a key.

*) Background:

Only if the 'Display message' begins with up to 6 numbers + <Space> will the numeric sequence become the 'Cost center', the space be and the rest (after the space) become the initiator-specific text information. Otherwise, the entire 'Display Message' would be processed by the Broadcast like an initiator-specific text information (i.e. like a contact name, a 'Calling name', or a subscriber-specific text), and the default cost center would be entered as the cost center.

#### 8.3.4.4 Record type 'Beep-Coding', data-identifier '3'

'Beep coding':

- does not need to be sent,
- is answered with '3' <NAK> if sent without any data or with data that is invalid,
- may be sent with the data '0'...'9' and is then evaluated as follows:
  - '0'...'5', '8' or '9'
    don't care
  - '6'
    emergency call signaling if the Broadcast group parameters require emergency call signaling for that subscriber; otherwise alarm signaling by way of external call
  - '7'
    always alarm call signaling

#### 8.3.4.5 Record types 'Call Type', data identifier '4'

'Call Type':

- does not need to be sent,
- if not sent, the system applies 'Standard call' (see below),
- is answered with '3' <NAK> if sent without any data, or with data that is invalid.

The 'Call type' is evaluated as follows:

| Data | Significance acc. to ESPA | Effect |
|---|---|---|
| '0' | Reserved | like 'Standard call' |
| '3' | Standard call | no callback possible |
| '1' | Reset (cancel) call | Cancel call (separate chapter)<br>➤ see Section 8.3.5.1 "Reset call" |
| '11' | Reset all calls | Delete all calls from queue for system restart (own chapter)<br>➤ see Section 8.3.5.2 "Reset all calls" |
| '2' | speech call *) | Depending on whether or not a 'Nurse call interface' was specified:<br>- if no, same as '21'<br>- if yes, same as '22' |
| '21' | OScAR specific *) | Callback call over the phone enabled<br>Prerequisites:<br>- callback call functionality is enabled in the OScAR system<br>- callback number is specified in 'Display message' |
| '22' | OScAR specific *) | Callback to the nurse call system supported<br>Prerequisites:<br>- callback functionality is enabled in OScAR<br>- 'Nurse call-Interface' identified |
| '23' | OScAR specific *) | Callback over the phone and to the nurse call system possible<br>Prerequisites:<br>- for callback over the phone - see data '21'<br>- for callback through the nurse call system, see data '22' |
| '4' | Page (OScAR specific) | Same as 'Standard call', but with the following specialty:<br>The call is not saved on the ESPA side and can therefore not be polled (no status information returned to the host or nurse call system). |

Table 8-1 Call type evaluation

*) same as standard call, if callback calls are not enabled

#### 8.3.4.6 Record type 'Number of transmissions', data identifier '5'

'Number of transmissions':

- does not need to be sent,
- may be sent with data '0'...'9',
- is answered with '3' <NAK> if sent without any data, or with data that is invalid.
- is currently not evaluated.

#### 8.3.4.7 Record type 'Priority', data identifier '6'

'Priority':

- does not need to be sent,
- may be sent with data '0'...'3',
- is answered with '3' <NAK> if sent without any data, or with data that is invalid.

When priority '1' is sent (= Alarm, Emergency), OScAR will always activate the 'Special dialing options', e.g. urgent call signaling and forced release in active and ongoing calls.

This is applied even if the flag was not originally enabled when the group was not originally configured in OScAR.

If priority '2' (= High) is sent and the group-specific 'Special dial options' were not enabled, OScAR will, if needed, apply the functions camp on or intrusion for busy lines.

- OScAR applies the intrusion feature:
  - when 'Intrusion' is generally enabled for the subscriber's connection type and
  - When a Broadcast intrusion message has been assigned and is also available.
- OScAR applies the camp on feature:
  - when 'Camp on' is generally enabled for the subscriber's connection type and
  - when intrusion is not possible.

As an example of the above, only one Broadcast group needs to be configured if it is always the same subscribers that need to be called, be it in normal calls, calls with a higher priority, or emergency calls. This results from the fact that the different ways in which OScAR calls these subscribers can be determined case by case, based on the level of 'Priority' given by the nurse call system.

#### 8.3.4.8 Record type 'Nurse call interface'

For callbacks to the nurse call system you need to specify the proper interface. The data identifier to specify the 'Nurse call interface' reads: 'E' ($45).

The below 'Nurse call Interface' data must be transmitted:

- Connection type, 3 ASCII characters
  - must correspond to the connection type as configured in the OScAR Server
- Where applicable, separators, either: comma, colon or <Space>
  - only if followed by the callback number
- Where needed the callback number that is evaluated by the nurse call system
  - up to 10x: characters 0...9, * or #

#### 8.3.4.9 Record type 'Call ID'

The 'Call ID':

- simplifies the identification of a call in dialogs between OScAR and the nurse call system.
- makes it possible to assign commands to several calls at the same time (e.g. delete).
- is indispensable for the transfer of certain status information.
- designates an 'Event'.
- needs not itself be unequivocal or unique, i. e. several calls can share the same Call ID.
- must be unique together with the 'Call Address'.

If the nurse call system again sends a call request with the same 'Call ID' and the same 'Call Address', while a call with this Call ID and Call address is already being processed in the OScAR queue (waiting or already active), OScAR accepts the dataset with <ACK> but not process it any further.

The 'Call ID' has the data identifier 'I' ($49), the 'Call ID's' data (i.e. the event number) is 4-digit numeric and ASCII coded ('0000' … '9999').

## 8.3.5 Deletion of OScAR Broadcast calls

### 8.3.5.1 Reset call

You can also delete individual or several single or group calls, i.e.:

- the calls are either not started at all if they are still waiting in the internal OScAR queue or
- the calls are ended if they are currently active (with a corresponding message sent to the subscribers with whom OScAR is presently connected in a call).

This command immediately removes the calls from the queue. After that, status requests are no longer possible, see below.

If the callback is already active and ongoing, the parties can end it normally, i.e. it will not be interrupted. In this case also, status reports are no longer possible.

This feature is particularly useful if a call is canceled irrespective and independent of the alarm that was raised over the phone (e. g. directly in the patient room), while a call request has already been addressed to OScAR.

If the system is operating with 'Call ID' and all calls with a certain 'Call ID' shall be deleted, the deletion command must consist of:

- Header = Call to Pager ('1')
- Record-Type 'Call-Type' ('4') = Reset (cancel) call ('1')
- Record-Type 'Call-ID' ('I') = Event number

If the system is operating with 'Call ID' and a single subscriber call or group call shall be deleted, the deletion command must consist of:

- Header = Call to Pager ('1')
- Record-Type 'Call-Type' ('4') = Reset (cancel) call ('1')
- Record-Type 'Call-ID' ('I') = Event number
- Record-Type 'Call-address' = Group identifier

If the system is operating without 'Call ID' and a single subscriber call or group call shall be deleted, the deletion command must consist of:

- Header = Call to Pager ('1')
- Record-Type 'Call-Type' ('4') = Reset (cancel) call ('1')
- Other record types and their entries:
  - Make sure they are identical to those of an existing call so that OScAR can allocate them to the relevant call.
  - The order in which they are sent can be random (any).

### 8.3.5.2 Reset all calls

This command is used to synchronize the Host system and the OScAR server, for example after a system restart of the Host- or nurse call system.

The system continues to process all active calls and activates all calls that are already waiting in the queue but have not yet been started.

However, OScAR no longer sends any status information to the host or nurse call system, i.e. no status information regarding these calls.

Independent of whether or not a 'Call ID' is used, this global cancel command consists of:

- Header = Call to Pager ('1')
- Record-Type 'Call-Type' ('4') = Reset all Calls ('11')

## 8.3.6 Status request

### 8.3.6.1 Without 'Call ID'

If no 'Call ID' is used, you can only retrieve the status of one single call.

The command consists of:

- Header = Status request ('3')
- Record types and their entries:
  - Must be fully identical to those of an existing call so that OScAR can allocate them to the relevant call.
  - The order in which they are sent can be random (any).

### 8.3.6.2 With 'Call ID'

If a 'Call ID' is used, the external system can:

- either can retrieve the status of a single subscriber or group call,
- or can ask OScAR to send one or more status messages for calls with changed statuses.

In order to retrieve a single subscriber or group call, following command is required:

- Header = Status-Request ('3')
- Record-Type 'Call-ID' ('I') = Event number
- Record-Type 'Call-address' = Group identifier

OScAR can be prompted to send several status infos on calls with changed statuses:

- either use a command that consists of only one Header = Status request ('1')
  = global status request
- or by the nurse call system simply polling OScAR, without sending a 'Status request' command beforehand.

### 8.3.7 Status messages

Status messages are carried out:

- either dedicated for a single call after appropriate 'Status request'
- or for up to 5 calls with changed statuses at the same time, either following a pertinent 'Status request' or merely by polling OScAR.

After a status request without a 'Call ID' for a certain call, OScAR sends the following status message:

- Header = Status message ('2')
- These record types and their data (in this order):
  - Call address ('1')
  - Display-Message ('2') (only if specified...
  - Beep coding ('3') in the previous...
  - Priority ('6') status request.)
  - Call status ('7')

After a status request sent with a 'Call ID' for a certain call, OScAR sends this status message:

- Header = Status message ('2')
- These record types and their data (in this order):
  - Call ID ('I')
  - Call-address ('1')
  - Call Status ('7')

For a global 'Status request' or when the system is polled without a preceding 'Status-request' OScAR sends up to 5 'Status messages' with each message able to be:

- either a result of a certain call like a status request with 'Call ID' (see above),
- or a message on an active callback (see below),
- and finally EOT.

Messages on current callback calls are only sent in combination with nurse call interfaces that either offer dial-thru capability or that offer a DTMF decoder, i.e. nurse call interfaces which did not state a callback number in the record type 'Nurse call interface'. Due to the fact that the timing of these messages is critical, they are given a higher priority in global event messages/status request.

No message on an active callback is sent until at least the state 'Alerting' ("ringing") has been reached.

An information on an active callback call contains:

- Header = Status message ('2')
- The following record types and their data (in the below order):
  - Nurse call interface ('E')
  - Call ID ('I')
  - Call-address ('1')

OScAR supports the following defaults for the 'Call status':

- '2' (in queue):
  - The call has either not yet started or is currently active; no final results are available yet.
- '3' (paged) *) Call ended, final results positive:
  - The Broadcast has ended without exact number of specified subscribers,
  - For a Broadcast with an exact number of specified subscribers sufficient subscribers have been reached.
- '5' (Call terminated) *) Call terminated, final results negative:

  - Unable to contact sufficient number of subscribers for a Broadcast with a defined number of subscribers that must be reached
- '8' (Fault indications):
  - failure to find the requested dataset in the OScAR queue, e.g. because it has already been deleted,
  - The Broadcast was canceled *) *1)
  - The Broadcast could not be started * ) *1)

In addition, more (deactivatable) detailed status values are possible for Broadcasts that are ended as soon as one subscriber was successfully reached:

- '9N' (negative) *) — The call was ended, the results were negative, either no subscriber was reached or no subscriber confirmed positive
- '9P' (positive) *) — The call was ended, the results were positive, the subscriber was reached, there was no callback call
- '9K' (key) *) — The call was ended, the results were positive, the subscriber has at least confirmed by pressing a key, no callback call was made
- '9S' (speech) *) — The call was ended, there was a callback call, no special signaling was made during the call
- '91' (speech + 1) *) — The call was ended, there was a callback call, the alerted subscriber pressed '1' during the active call *2)
- '9#' (speech + #) *) — The call was ended, there was a callback call, the alerted subscriber pressed '#' during the active call *2)

*) These call status values immediately remove the data record (Broadcast request) from the queue.

*1) For these two results OScAR Release 3E sent 'Call terminated'.

*2) The evaluation of the keystrokes '1' and '#' is individually adjustable (see below); a signaling can still be made even if the patient or the nurse call system has already released the connection (timeout = 8 seconds); if '1' and '#' were pressed and both are assessed, the system answers back '91'.

In OScAR you can configure:

➤ see Section 6.7 "Configure serial interfaces and virtual serial interfaces"

| Parameter/ monitor output | Possible values | Significance |
|---|---|---|
| Extended Status | 0/1 | 1 defines that OScAR will, if needed, send the status values in the 9. group as status information. For '0' OScAR sends call status '3', even after the call connection (for external systems that do not support the status values '9', '91', '9#'). |
| Keypad echo | 0/1 | 1 defines that all keypad information (from the nurse) is converted to DTMF, and sent to the telephone interface of the nurse call system as DTMF signals. |
| '1' Evaluation | 0/1 | 1 defines that the keystroke '1' (pressed by a nurse) during an active callback call to a patient is interpreted. |
| '1' Disconnects | 0/1 | 1 defines that the callback call is automatically released after keystroke '1' (only in comb. w. setting '1' Evaluation). |
| '#' Evaluation | 0/1 | 1 defines that the keystroke '#' (pressed by a nurse) during an active callback call to a patient is interpreted. |

Table 8-2 Configurations in OScAR

| Parameter/ monitor output | Possible values | Significance |
|---|---|---|
| '#' Disconnects | 0/1 | 1 defines that the callback call is automatically released after the keystroke '#' (only in combination with activated setting '#' Evaluation). |

Table 8-2 Configurations in OScAR

### 8.3.8 Coupling of 'Tunstall NewLine C201' with callback

Within the OScAR server one dial-thru code per nurse call system is setup as callback waiting position.

When a patient call is received, it is this dialthru code that is called by the telephone interface of the Tunstall nurse call system, to prepare a callback.

The OScAR Server supports up to 3 such callback waiting positions for 3 separate call systems.

Dial the Tunstall telephone interface:

- <OScAR phone number>
- <dial-thru code for the relevant callback waiting position> (1 to 4 digits)
- <station no.> (always 2 digits)
- <group no. of the broadcast group> (1 to 4 digits)

OScAR accepts the call without playing an announcement and waits for a corresponding ESPA data record "Call to Pager".

In this context the following special behavior is applied:

- Only one call is possible per station.

  A second simultaneous call with the same station number gets a line busy signal.
- The total number of simultaneous calls to callback waiting positions per nurse call system is configurable on the side of OScAR (= parameter "Number of waiting pos.").

  Excess calls get a line busy signal.

  Irrespective of this number, OScAR does not support more simultaneous calls from all Tunstall interfaces than half of the number of all currently available channels.

  Excess calls get a line busy signal.
- After the call, OScAR waits for a maximum of 10 minutes for the matching ESPA data record.

  If the record is not sent within this safety timeout, OScAR disconnects.
- If the specified <group no. of the broadcast group> does not exist or no group data is sent, OScAR will signal line busy.

If OScAR receives, through the ESPA interface, a "Call to Pager" whose <station no.> *) and <group no. of the broadcast group> (sent as "Call-Address") match an already existing connection in the wait position, the system proceeds as follows:

- The OScAR call is released when the connection is terminated by the Tunstall telephone interface (does not apply to safety timeout).
- If the nurse presses "5" to initiate a callback call:
  - the connection is switched through to the telephone interface and
  - from now on, the entire keypad information from the nurse's handset, including the key '5' that was just pressed, is sent to the telephone interface as DTMF tones.

*) The station number is part of the "display message", and transmitted as follows:

- 1st and 2nd character of the "display message": <station no.>
- 3rd character of the "display message": | (= separator: hex 7C)

Note:
If the "display message" begins with 2 digits plus the separator |, these 3 characters are not sent to the display of called nurses.

### 8.3.9 Parameterization of the nurse call interface with callback

In combination with certified nurse call systems (Siemens 'HiCall', Ackermann 'clinocom 21', TotalWalther 'medicall 800' and Tunstall 'NewLine C201'), the nurse call interface can be installed for the function callback.

To do so, configure the pertinent interface as follows:

➤ see Section 6.7 "Configure serial interfaces and virtual serial interfaces"

- Interface functionality: NUC+ (nurse call with callback)
- Interface parameters:
  - baud rate 1200
  - parity E
  - data bits 7
  - stop bits 2
  - protocol ESPA
  - interface RS232
  - option 1 1 (ESPA address of the nurse call system)
  - option 2 2 (ESPA address of the OScAR Server)
  - option 3 0 (no immediate positive ACK)
  - option 4 20 (length of the process queue, e.g. = 20)

Configure the additional behavior of the ESPA interface as follows:

➤ see Section 6.7 "Configure serial interfaces and virtual serial interfaces"

| | Siemens HiCall | Ackermann clinocom 21 | TotalWalther medicall 800 | Tunstall NewLine C201 |
|---|---|---|---|---|
| extended status | 1 | 1 | 1 | 0 |
| Keypad echo | 0 | 0 | 1 | 1 |
| '1' Evaluation | 1 | 1 | 1 | 0 |
| '1' Disconnects | 0 | 0 | 0 | 0 |
| '#' Evaluation | 1 | 1 | 1 | 0 |
| '#' Disconnects | 1 | 1 | 1 | 0 |

Table 8-3 Configure ESPA interfaces

## 8.4 PLC interface with ESPA protocol

### 8.4.1 General

The configuration is carried out in the OScAR Server: Protocol ESPA, function PLC.

### 8.4.2 General info on Broadcasts started via the PLC interface

The 'Commentary reg. ESPA specification' of Section 8.3.1 "Comments on the ESPA specification" also apply here.

When using the 'PLC interface' with ESPA protocol, individual contact activations are transmitted to the OScAR Server where they are evaluated like contact inputs.

Within OScAR there is an input contact administration that can assign individual functions or activities to each input, mostly to activate a predefined Broadcast with or without individual announcement and/or display information (numeric and alphanumeric). Up to 10 Broadcasts can be active and processed in parallel. If the number of pending activity requests exceeds the number of requests that can be processed at any given time, the requests are buffered and processed sequentially so that nothing is lost.

For more information on the processing and sequences of Broadcasts:

➤ see "OScAR-TT User Manual"

### 8.4.3 Regarding Pos. 4.2 of the ESPA specification: 'Headers'

- OScAR supports for the PLC interface only the Header '1' = Call to Pager (from the external system).
- OScAR responds with '3' <NAK> when it received a message that carries a header it does not support.

### 8.4.4 Regarding Pos. 4.3 of the ESPA specification: 'Records' - Header '1', 'Call to Pager'

Here, the data that is received from the ESPA interface is verified in the same way as with the nurse call interface, but here it is only the 'Call address' that is of relevance.

- For the data identifier '1' = Record type 'Call address':
  - The call address must be sent; otherwise OScAR responds with '3' <NAK>.
  - The call address must be numeric with 1 to 4 digits and may contain leading zeros, i.e.: '1' = '01' = '001' = '0001'
  - In case of a missing or syntactically wrong 'Call address' OScAR responds with '3' <NAK>.
  - the call address must correspond to the number of a contact input set up in OScAR, CallAddr '1' -> Profibus input 1 CallAddr '2' -> Profibus input 2 etc., otherwise OScAR sends <ACK> in response to the record, but no action will follow.
- For the data identifier '2' = Record type 'Display message':
  - A display message must not necessarily be sent.
  - If a display message is sent, it can be 0....160 characters long (the ESPA protocol actually allows only 128 characters).
  - A display message that is too long receives the response '3' <NAK>.
  - The display message is not evaluated by the PLC interface.
- For the data identifier '3' = Record type 'Beep coding':
  - A beep coding must not necessarily be sent.
  - The beep coding may be sent with the data '0'...'9'.
  - A beep coding with no data or with invalid data is answered with the response '3' <NAK>.
  - The beep coding is currently not evaluated.
- For the data identifier '4' = Record type 'Call type':

  - A call type must not necessarily be sent.
  - The call type may be sent with the data '0'...'3'.
  - A call type with no data or with invalid data is answered with the response '3' <NAK>.
  - The call type is currently not evaluated.
- For the data identifier '5' = Record type 'Number of transmissions':
  - The number of transmissions must not necessarily be sent.
  - The number of transmissions may be sent with the data '0' to '9'.
  - A number of transmissions with no data or with invalid data is answered with the response '3' <NAK>.
  - The number of transmissions is currently not evaluated.
- For data- identifier '6' = Record type 'Priority':
  - A priority must not necessarily be sent.
  - A priority can be sent with the data '0'...'3'.
  - A priority with no data or with invalid data is answered with the response '3' <NAK>.
  - The priority is currently not being evaluated.
- The sequence of the data identifier/record type can be in any order
- If the same contact input is activated again before the Broadcast assigned to this input is started, or while the assigned Broadcast is still active, OScAR will accept this dataset with <ACK> but not process it any further.

## 8.5 Nurse call interface with FTI1 and VIT1 protocol

Interface configuration in the OScAR Server: Protocol FTI1 or VIT1, function NUC

### 8.5.1 General

The OScAR behavior is on the whole identical to that of the nurse call interface with ESPA protocol:

- Here, too, Broadcast groups must be administrated, with the individual group size ranging from one to many subscribers/members.
- Here, too, the relevant group is addressed or selected on the basis of its identifier.
- Here, too, a variable output text can be transmitted.

However, there is no information returned on the success/failure of the notification over the telephone, only a confirmation for the receipt of the command.

This protocol can be realized using a simple printer output (of the external system).

### 8.5.2 The behavior of OScAR in detail

OScAR:

- accepts commands that trigger Broadcasts via the serial interface,
- writes the Broadcast requests into an internal queue,
- carries out the pertinent Broadcasts, and
- reports the status/result.

The system can hold and process a maximum of 50 Broadcast requests in the queue. If needed, the queue can also be downsized.

➤ see Section 8.3.4.2 "Record type 'Call Address', data identifier '1'"

Up to 10 Broadcasts can be active and processed in parallel.

Depending on the way in which they are configured in OScAR, the Broadcasts are carried out:

- with parallel and/or sequential dial-up of subscribers
- with or without a request to the called person to identify himself by PIN
- with or without confirmation (in the active connection or by callback)
- normally with the most recent display text messages from the external system
- with Broadcast announcement(s) and where app. guiding announcements for operation/ confirmation

### 8.5.3 'FTI1' = fixed number of characters, text preceding the identifier

In the 'FTI1' mode, the following must be sent:

- First, exactly n characters (n = 0...160) that are not evaluated (= information not relevant for OScAR).
- Next, precisely m characters (m = 0...160) display message.
- Next, the identifier of a configured group (with precisely 4 digits, if needed filled up with zero characters or spaces).
- Next, (and only with the 'Expanded FTI1 mode'), additional k characters (k = 0…160), that are not evaluated (!! m+k < 164 !!).
- Next, approx. 1 check character (deactivatable), either (Motorola)checksum or Block-Check-Character = EXOR throughout the data.

  With the calculation made for all data, i.e. throughout the irrelevant data, the display message and the identifier, where applicable incl. filler characters.
- Finally <cr> <lf>.

OScAR starts the evaluation after reception of <cr> + <lf>.

The timeout in a dataset, i. e. the maximum time between 2 characters, is 2 seconds. If OScAR does not receive a character for 2 seconds, the characters already received by OScAR are automatically discarded.

Use the service menu of the OScAR Server to adjust the protocol-specific parameters: n, m, confirmation y/n, and the check character.

➤ see Section 6.1 "General parameters"

### 8.5.4 'VIT1' = variable number of characters, identifier preceding text

In the 'VIT1' mode, the following must be sent:

- first, a specific and adjustable trigger character, e.g. '<' or <STX>, *)
- then the identifier of a predefined group (1...4 digits)
- then a separator, alternatively slash ( / ), minus character ( - ) or space
- then the display message with 0...160 characters *)
- then a specific adjustable end character, e. g. '>' or <ETX> *)
- finally, where needed a 1 check character (deactivatable), either (Motorola-) checksum or block-check-character = EXOR for the data, with the calculation carried out for all data between the trigger character and the end character.

OScAR waits for the trigger character and continues to accept characters until the end character is received. After that, the system carries out the evaluation. *)

The timeout in a dataset, i. e. the maximum time between 2 characters, is 2 seconds. If OScAR does not receive a character for 2 seconds, the characters already received by OScAR are automatically discarded.

Use the service menu of the OScAR Server to adjust the protocol-specific parameters, the trigger characters, the end characters, the confirmation yes/no, and the check characters.

➤ see Section 6.1 "General parameters"

*) Neither the trigger nor end character may be used in the message!

### 8.5.5 Confirmation of a dataset or after timeout

The confirmation procedure is the same as with the ESPA protocol and can be deactivated.

When a dataset is received correctly by OScAR, the system confirms with <ACK>.

This is applied even if the selected group is not configured or cannot be started.

Upon incorrect reception OScAR answers as follows:

- '1' <NAK> for transmission error
- '2' <NAK> for queue full
- '3' <NAK> for syntax error or timeout during receipt

# 8.6 PLC interface with DUST protocol

## 8.6.1 Broadcasts started via the PLC interface

The use of the 'PLC interface' makes it possible to transmit up to 704 contact states to the OScAR Server in the form of bit information, and to have them evaluated there just like contact inputs.

Only 2 records are exchanged between the programmable controller and OScAR for this purpose:

- information on current contact states to OScAR
- reply information on the proper receipt of the dataset in the direction of the PLC

The normal contact input administration is done in OScAR, which makes it possible to assign a function or activity to every data bit individually:

- either a prepared Broadcast to be activated with optional individual announcement and/or display text messages (numeric and alphanumeric)
- or a conference to be activated, if needed with individual text display messages (numeric and alphanumeric)
- or a switching function (Info Telephone profile or hot standby)

If the number of pending activity requests exceeds the number of requests that can be processed at any given time, the requests are buffered and processed sequentially so that nothing is lost.

Active/Inactive:

- After the first record is received, OScAR considers the interface to be 'active'.
- If no data is send for a period of 120 seconds, the interface is considered to be 'inactive' again.
- The 'active' and 'inactive' states can be output via optocoupler [option].
- State transitions are logged via the printer port.

A data record containing the current contact information should thus be sent:

- each time a bit changes (for fast further processing)
- cyclically, e.g. every 10 seconds (for synchronizing and keeping the interface 'active')

After a data record is sent, the programmable logic controller (PLC) must wait for the OScAR response with a timeout = 5 s (5 seconds), before it may send a new dataset.

## 8.6.2 Structure of the datasets of the PLC interface

The record from the external system consists of:

- 10 bytes of introductory data that is not evaluated
- 2 ASCII characters representing the record ID: 'PB' (first 'P' and then 'B')
- up to 88 bytes of contact information

The contact information is coded as follows:

- The number of the Profibus inputs that are enabled in the software key divided by 8 equals the number (n) in bytes in the contact information.
- To every byte 8 Profibus inputs are e.g. assigned:
  1. Byte = Profibus input 1... 8 with Bit 0 = Input 1 ... Bit 7 = Input 8
  2. Byte = Profibus input 9...16 with Bit 0 = Input 8 ... Bit 7 = Input 16
  etc.

OScAR sends the following in response:

- Provided the record identifier ('PB') and the length of the data record (12 + n bytes) are correct:
  4 NULL characters, i.e.: $00 $00 $00 $00,
- Otherwise 3 NULL characters and $FF as 4th character
  i.e.: $00 $00 $00 $FF.

The maximum time between receiving the data record and sending the response is 2 seconds.

### 8.6.3 Protocol description of the DUST interface of OScAR

The protocol is inspired by the data transfer control 3964R;
OScAR supports 3 versions:

- Version 'BCC' (standard),
- Version 'With payload volume' (increased failure-free operation), and
- Version 'CRC' (superior failure-free operation).

The external system determines whether the version 'BCC' or the version 'CRC' is applied, i.e. the OScAR Server automatically adapts to the version that is selected by the third party system.

Note that the version 'With payload volume' must be set explicitly.

Due to its maximum level of failure-free operation, we recommend you select the version 'CRC' whenever possible!

The below table covers the protocols of the versions 'BCC' (standard) and 'CRC':

| | |
|---|---|
| Baud rate | Variable: 1200, 2400, 4800, 9600 baud; usually 9600 |
| Data bits, parity bit, stop bits | Variable, mostly 8, even, 1 or 8, no, 1<br>(Modems usually do not support "8, even") |
| Character encoding | 8-bit in keeping with IBM-2 character set |
| Request to send a transmission block | <STX> (= $02) |
| Response to <STX> | • Positive response:<br><DLE> (= $10)<br>• Negative response:<br><NAK> (= $15)<br>(To prevent the two devices from sending NAKs back and forth, the external system never answers to a NAK.)<br>• No response:<br>The server is currently not ready to receive data (e.g. when the external system sends <STX> before the prior command was processed). |
| Maximum waiting time for <DLE> after <STX> | 2 seconds |
| Maximum waiting time after <DLE> for the beginning of the transmission block | 1 second (can be extended on a project-spec. basis) |
| Max. time between characters in the transm. block | 200 ms |
| Payload in dataset | 00..$FF, one <DLE> in the dataset is sent as <DLE> <DLE> |
| End of a transmission block, version 'BCC' | <DLE> <ETX> <BCC> |
| End of a transmission block, version 'CRC' | <DLE> <EOT> <CRC> |
| Max. no. of characters per record | 280 between <STX> and <DLE> <ETX> <BCC> |
| Block check character <BCC> | 8-bit EXOR for all data sent after <STX> and including <DLE> <ETX> |
| CRC check <CRC> | 16-bit CRC computation in keeping with CCITT, applied to all data sent after <STX>, including <DLE> <ETX> |

Table 8-4 Protocol versions BCC and CRC

| | |
|---|---|
| Answer to the end of the transmission block | - positive: <DLE><br>- negative: <NAK> |
| Max. wait time for <DLE><br>after transmission block | 2 seconds |
| Number or retries in the case of errors | 3 (i.e. max. 4 attempts in total for each data block) |
| Response to initiation conflict | The OScAR Server is high priority, i.e.:<br>• If the OScAR server receives as <STX> in response to an <STX>, the system will ignore it.<br>• The server then waits for <DLE> from the external system.<br>• The external system must immediately cancel its own dispatch routine, respond with <DLE> and accept the data from OScAR. |

Table 8-4 Protocol versions BCC and CRC

Special considerations for the 'with payload volume' version

This version is based on the version 'BCC', with the payload volume (<#Data>) additionally transmitted.

Note:
Corresponds to the payload volume, not the number of data transmitted.

Compared to version 'CRC', this version offers the a lower insensitivity towards interferences, yet might be easier to realize in the external system.

<#Data> is transmitted between <ETX> and <BCC>.

The data format is 'Word' in this order: high bytes first, low bytes second.

With this version, a <DLE> is not sent twice.

With this version, the <BCC> calculation includes <#Data>, therefore:

8-bit EXOR for all data sent after <STX> and including <DLE> <ETX> <#Data>.

This makes it possible to detect on the protocol level a wrong length (caused e.g. by a faulty start bit in a null character), and treat it like a BCC error.

# 9 Data Interfaces via LAN

Overview

This chapter covers the special features that apply to the various connectable ESPA-X host systems, but also the functionality of the TR500 interface, including its protocol characteristics and parameterization.

Contents

This chapter consists of the following sub-sections:

# 9.1 ESPA-X

## 9.1.1 General

ESPA-X is an open message protocol to control the telecommunication alarm processes within the OScAR Server.

ESPA-X uses TCP/IP as a transport layer and transfers the data XML-encoded. This enables the readability of datasets as well as a flexible evolutionary structuring of the transmitted data.

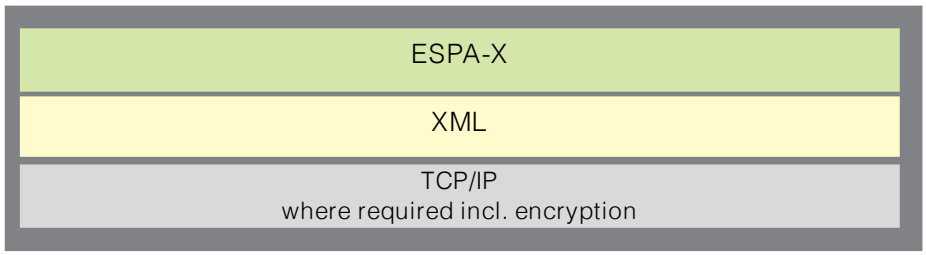



Image 9-1 Layer Model ESPA-X

With ESPA-X the host-systems - such as e.g. nurse call systems - constitute the EXPA-X Clients and the OScAR Server the ESPA-X Server.

The ESPA-X Clients logon to the ESPA-X Server, i.e. they establish a session and then communicate with the OScAR Server within the framework of that session.

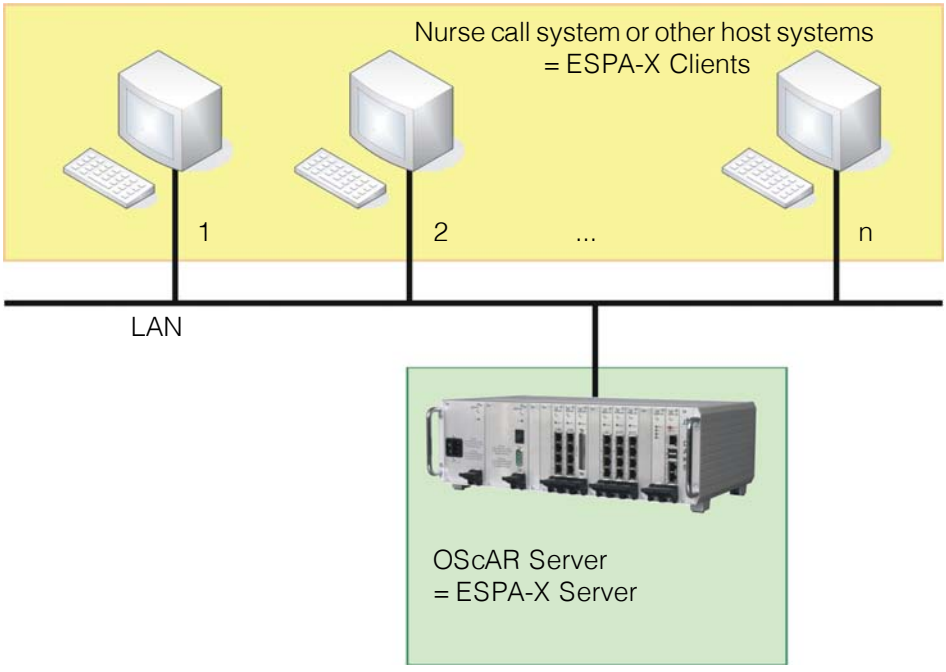



Image 9-2 Block diagram ESPA-X

In addition and for backup reasons (redundancy), the Clients can of course access several OScAR Servers. This higher-level functionality, however, is outside the regular range of functions of ESPA-X.

For more information on ESPA-X:

- ➤ see the ESPA-X Homepage: www.espa-x.org
- ➤ see the ESPA-X Protocol Description

The below sections cover both the configuration and the special features of the different ESPA-X Clients.

### 9.1.2 Setup

To operate with ESPA-X, the following configurations must first be made in the OScAR Server:

- Basic setup of the ESPA-X service
  ➤ see Section 6.10.10 "ESPA-X"
- Configuration of the Broadcast settings
  ➤ see "OScAR-TT User Manual"

### 9.1.3 Nurse call interface 'HiMed IP Nurse Call' (Siemens A&D)

The nurse call system HiMed IP Nurse Call offers special settings:

- 'Network Services/ESPAX/timeout' > 60 seconds
- 'Network Services/ESPAX/Session 1..20/enable callback' = yes

➤ see Section 6.10.10 "ESPA-X"

HiMed IP Nurse Call allows for each group (e.g. for every station) maximally one active

ESPA-X call. HiMed IP Nurse Call processes nurse calls received in parallel via ESPA-X, successively one nurse call after the other.

If HiMed IP Nurse Call receives a negative Broadcast result from the OScAR Server within the permissible escalation time (this time is configurable in IP Nurse Call), IP Nurse call will launch the same Broadcast again.

HiMed IP Nurse Call does not support connection to redundant OScAR Server.

For callback calls to patients the system supports the following functions:

- Key "#": End the nurse call ('Cancel')
- Key "1": Prioritize nurse call ('Priority')
- Hang up with no key: Save nurse call ('Save')

The maximum number of processes to be started (across all wards) can be restricted in HiMed IP Nurse Call. This configuration must be smaller or equal to the max. number of processes that can be started, set in the OScAR Server.

➤ see Section 6.10.10 "ESPA-X"

HiMed IP Nurse Call operates with the connection type 'intern' in the OScAR Server.

➤ see "OScAR-TT User Manual"

The following call signaling options are used at the telephones:

- Internal call signal for nurse calls, malfunctions, service calls
- External call signal for emergency and alarm calls (activated in presence of nurse)
- Emergency alarm call signal when triggered with a special button in HiMed IP Nurse Call

The following priorities are applied:

- For service calls the system applies the priority 'Standard'.
- For nurse calls and malfunctions the system applies the priority 'Medium'.
- For alarm and emergency calls (activated in presence of nurse) the system applies the priority 'High'.
- For alarm calls (triggered through a special button in HiMed IP Nurse Call), the system applies the priority 'Emergency'.

## 9.2 TR500 Service

### 9.2.1 Protocol description

The protocol is UDP-based and uses as default the port no. 1200 (configurable).

OScAR communicates with several computers simultaneously (number unrestricted)

The protocol uses the UDP version of the ALCATEL interface in keeping with the ALCATEL System General Description: Paging Emulation 3BA 59000 0016 DTZZA.

In the basic configuration, only the message type 'Call with message' is supported, incl. the relevant reporting functions.

Here, the below details apply (corresponds, with some restrictions, to the ALCATEL documentation).

➤ Section 9.2.2.1 "Standard message 'Call with message'"

The following expansions are supported on an optional basis:

- An expanded 'Call with message' type that:
  - utilizes additional OScAR features (e.g. alerting with prepared, selectable announcements, transmission of the PIN independent of the calling number), and
  - also allows longer call numbers.

  This enables for example external alerting.
  ➤ see Section 9.2.2.2 "Message 'Call with message' w. DAKS-specific expansions"
- group alerting of OScAR Broadcast groups
- The 'Stop message' (in keeping with the ALCATEL documentation), both to alert individual (single) subscribers as well as large groups of subscribers,
  ➤ see Section 9.2.2.3 "Message 'Call with messages' w. DAKS-spec. expansions and composed announcements"

The CRC that is sent at the end of all data records is computed as follows ($ = hexadecimal):

- Exclusive OR over all characters modulo $80
- In case the final result is < $20: result = result + $20
- 1. CRC character = result / 16
- 2. CRC character = result modulo 16

## 9.2.2 Messages

### 9.2.2.1 Standard message 'Call with message'

| Name | No. Bytes | Parameters | Comments |
|---|---|---|---|
| identifier | 1 | "0" = $30 | |
| type | 1 | "C" = $43 | 'Call with message' |
| frame number | 3 | xxx | From "000" to "zzz"<br>Where needed without header zeros and filled with $20.<br>Every call request is identified by the 'frame number'.<br>The 'frame number' is only unique in combination with the sender's IP address. |
| destination | 1 | "T" = $54 or<br>"G" = $47 | Subscriber call or<br>Group call (option) |
| call type | 1 | "N" = $4E or<br>"U" = $55 | normal (N = normal) or<br>urgent (U = urgent) |
| number | 10 | nnnnnnnnnn | Either subscriber call number<br>(destination "T")<br>or group number<br>(destination "G"; option)<br>each left-aligned, filled with $20 |
| ack | 1 | "T" = $54<br>or<br>"P" = $50<br>or<br>"A" = $41 | Type of confirmation:<br>T send 'TAKEN message' immediately<br>P same as T, but send with 'Acknowledgement message', if results available<br>A same as P, but requiring different subscriber behavior (with confirmation/ACK) |
| info message | max. 128 | | ASCII character<br>If 'ack' = "A" (with confirmation), an "!" is prepended to the display text. |
| CRC | 2 | pp | CRC-character (= checksum) |

Table 9-1 Standard message 'Call with message'

### 9.2.2.2 Message 'Call with message' w. OScAR-specific expansions

| Name | No. Bytes | Parameters | Comments |
|---|---|---|---|
| identifier | 1 | "0" = $30 | |
| type | 1 | "C" = $63 | OScAR-specific expanded 'Call with message' |
| frame number | 3 | xxx | From "000" to "zzz"<br>Where needed without header zeros and filled with $20.<br>Every call request is identified by the 'frame number'.<br>The 'frame number' is only unique in combination with the sender's IP address. |
| destination | 1 | "T" = $54 or<br>"G" = $47 | Subscriber call or<br>Group call (option) |
| call type | 1 | "N" = $4E or<br>"U" = $55 | normal (N = normal) or<br>urgent (U = urgent) |
| number | 20 | nnnnnnnnnn<br>nnnnnnnnnn | Either subscriber call number<br>(destination "T")<br>or group number<br>(destination "G"; option)<br>each left-aligned, filled with $20 |
| ack | 1 | "T" = $54 or<br>"P" = $50 or<br>"A" = $41 | Type of confirmation:<br>T send 'TAKEN message' immediately<br>P same as T, but also send 'Acknowledgement message' when result is available<br>A same as P, but requires different subscriber behavior (with confirmation/ACK) |
| announcement | 4 | xxxx | ID number of the announcement<br>(4 ASCII characters, where needed filled with <Spaces> = $20 as fill character) |
| PIN | 6 | xxxxxx | PIN to query the SMS memory<br>(6 ASCII characters, where needed filled with <Spaces> = $20 as fill character) |
| | 12 | "000000000000" | 12 Bytes $30 (= "0") as fill character |
| info message | max. 128 | | ASCII character<br>If 'ack' = "A" (with ACK),<br>an "!" is prepended to the display text |
| CRC | 2 | pp | CRC-character (= checksum) |

Table 9-2 Message 'Call with message' with OScAR-specific expansions

### 9.2.2.3 Message 'Call with messages' w. OScAR-spec. expansions and composed announcements

Message 'Call with messages' incl. OScAR-specific expansions and composed announcements.

| Name | No. Bytes | Parameters | Comments |
|---|---|---|---|
| identifier | 1 | "0" = $30 | |
| type | 1 | "d" = $64 | OScAR-specific expanded 'Call with message' |
| frame number | 3 | xxx | from "000" to "zzz"<br>where needed without header zeros and filled with $20<br>Every call request is identified by the 'frame number'.<br>The 'frame number' is only unique in combination with the sender's IP address. |
| destination | 1 | "T" = $54 or<br>"G" = $47 | Subscriber call or<br>Group call (option) |
| call type | 1 | "N" = $4E or<br>"U" = $55 | normal (N = normal) or<br>urgent (U = urgent) |
| number | 20 | nnnnnnnnnn<br>nnnnnnnnnn | either subscriber call number<br>(destination "T")<br>or group number<br>(destination "G"; option)<br>each left-aligned, filled with $20 |
| ack | 1 | "T" = $54 or<br>"P" = $50 or<br>"A" = $41 | Type of confirmation:<br>T send 'TAKEN message' immediately<br>P same as T, but send additional 'Acknowledgement message' when results available<br>A same as P, but requires different subscriber behavior (with confirmation/ACK) |
| announcement | 16x5 | xxxxx | ID numbers of the announcement<br>(16 x 4 ASCII characters, for shorter IDs the rest is filled up with <Spaces> = $20 as fill character, + one 1 <Space> inserted as separator inbetween the IDs) |
| PIN | 6 | xxxxxx | PIN to query the SMS memory (6 ASCII characters, where needed filled with <Spaces> = $20 as fill character) |
| | 12 | "000000000000" | 12 Bytes $30 (= "0") as fill character |
| info message | max. 128 | | ASCII character<br>If 'ack' = "A" (with ACK),<br>an "!" is prepended to the display text |
| CRC | 2 | pp | CRC-character (= checksum) |

Table 9-3 Message 'Call with messages' with composed announcements

#### 9.2.2.4 Stop message

| Name | No. Bytes | Parameters | Comments |
|---|---|---|---|
| identifier | 1 | "0" = $30 | |
| type | 1 | "S" = $53 | 'Stop message' |
| frame number | 3 | xxx | Fame number of the call that shall be stopped.<br>From "000" to "zzz", where needed without header zeros and filled with $20.<br>➤ see Section 9.2.2.1 "Standard message 'Call with message'"<br>➤ see Section 9.2.2.2 "Message 'Call with message' w. DAKS-specific expansions" |
| CRC | 2 | pp | CRC-character (= checksum) |

Table 9-4 Stop message

### 9.2.3 Verification of received messages and status information

Due to the fact that OScAR only supports 'Call with message' (optionally also the OScAR-specific 'Call with message' and the 'Stop message'), the system proceeds as follows:

- OScAR discards the message in each of these cases:
  - if the CRC is wrong.
  - if the 'identifier' is "0".
  - if the 'type' (message type) is "C", "c", "S", "A" or "E".
  - if the 'frame number' has a wrong syntax.
  - if another 'Call with message' with the same 'frame number' is already being processed (could be a doubled UDP packet).
  - if the 'stop message' is not supported, or if no call is currently in processing that is assigned to this stop message.
- OScAR answers directly with a 'TAKEN message' incl. 'KO' status, and does not process the request any further in each of these cases:
  - if the 'type' (message type) is = "A" or "E".
  - if the 'destination' is "T" (or if needed "G", provided group calls are enabled).
  - if the 'call type' is "N" or "U".
  - if the syntax of the 'number' (subscriber call number) is wrong.
  - if the 'ack' is "T", "P" or "A".
  - if not at least one telephone interface is available.
  - if the process memory is full and 'ack' = was set to "T" (because in this case, there is no further message).
  - if the matching group was not configured in OScAR for the group alerting, and 'ack' = was set to "T".
- In all other cases, OScAR answers directly in form of a 'TAKEN message', incl. 'OK' status, and processes the request.

If for the request, the setting 'ack' = was set to "P" or "A", OScAR again responds with 'Acknowledgement message' (usually after the notification) and as described below.

For the alerting of subscribers:

| Action/result | Parameter 'status' | Parameter 'cause' |
|---|---|---|
| Subscriber reached in keeping with the reached criterion | "O" (o.k.) | "N" (no cause) |
| Process memory full (is sent immediately) | "K" | "V" (overflow) |
| Call number invalid (if detectable) or Connection type ID wrong | "K" | "U" (undefined user) |
| Subscriber logged off (poss. available in future) | "K" | "S" (out of service) |
| Subscriber not logged in (if detectable) or failed to take the call | "K" | "C" (out of coverage) |
| Subscriber was busy, hung up too early or all trunks busy | "K" | "N" (no cause) |
| Subscriber sent negative confirmation | "K" | "N" (no cause)<br>"X" (neg. conf.) a) |
| No connection to PBX | "K" | "V" (overflow) |
| Other negative result | "K" | "N" (no cause) |

a. Display depends on the configuration of the TR500 parameters: 'Cause X upon negative confirmation'

For the alerting of groups:

| Action/result | Parameter 'status' | Parameter 'cause' |
|---|---|---|
| Group notification completed with positive final results | "O" (o.k.) | "N" (no cause) |
| Process memory full (is sent immediately) | "K" | "V" (overflow) |
| Group does not exist | "K" | "U" (undefined user) |
| Unable to start group:<br>No group members currently available to call (for system dial-up), announcement not available etc. | "K" | "S" (out of service) |
| Group notification finished with negative final results | "K" | "N" (no cause) |
| No connection to PBX | "K" | "V" (overflow) |
| Other negative result | "K" | "N" (no cause) |

### 9.2.4 Parameterization of the TR500 service

The parameterization of the TR500 service is carried out in 2 steps:

- 1. With the configuration of the OScAR Administrator-Tool and
- 2. With the parameterization via VCON.
  ➤ see Section 6.10.4 "TR500"

Check these parameters in the OScAR Administrator-Tool or configure them now if needed:

- In the Basic settings the field "Maximum no. of parallel calls'"
- In the connection types, the connection type that is used by the TR500-service (usually: "INT")
- The 'Announcement for called subscribers' requested in the TR500 service as well as the messages assigned to the individual Broadcast parameters (see below)
  ➤ see "OScAR-TT User Manual"
- In the Broadcast parameters:
  – in the tab 'Other': 'No. of simultaneous broadcasts'
  – in the tab 'Timing', 'Common announcements':
    – 'Interval if busy'
    – 'Interval if no answer'
    – 'Minimum seizure'
    – 'Maximum seizure'
  – in the tab 'Timing', 'Only for broadcasts with parallel dialing': 'Maximum ringing time'
  – in the tab 'Announcements':
    – 'Override announcement'
    – Announcement 'With pos. confirmation'
    – Announcement 'With nos. confirmation'
    – Announcement 'Pos. or neg. confirmation request'
    – the number of 'Max. dial attempts with confirmation request'
  ➤ see "OScAR-TT User Manual"
- In addition, if the SMS retrieval service is available and if this service shall be used:
  – in the 'Basis parameters', tab 'Enhanced':
    – 'Max. length of SMS'
    – 'Max. time to live of SMS'
    – 'User guidance message'
  – in the 'Dialthru codes':
    – set 'Dialthru code to retrieve SMS messages with 16 characters'
    – set 'Dialthru code to retrieve SMS messages with 24 characters'
  ➤ see "OScAR-TT User Manual"
- For the printout, select the editable default printer texts 20-23
  ➤ see "OScAR-TT User Manual"

For more information:

➤ see "OScAR-TT User Manual"

## 9.2.5 Process

The call number-specific queue lists for every subscriber his/her oldest message. In addition the system offers, if needed, for every call number (phone number) a sub-queue with further messages for the same subscriber, all listed in chronological order (wait positions).

As a rule, OScAR always processes the wait positions of the queue in turn.

After a message for a subscriber is processed, the next oldest message is lifted from the sub-queue to the queue. Here you can define a minimum pause between the last call with the previous, and the first call with the new message.

A subscriber will remain in the queue until there is no more message for him/her.

In total OScAR can, irrespective of the number of subscribers or call numbers, process up to 1,000 messages in parallel.

This safeguards that the FIFO method is guaranteed for each and every subscriber.

The group alerting draws on the same queue and subqueue as the subscriber alerting, and is enqueued there.

This ensures that one and the same group is activated only once, and that the FIFO method as also adhered to for the group notifications or the group alerting.

The below illustration shows both the queue and the subqueue:

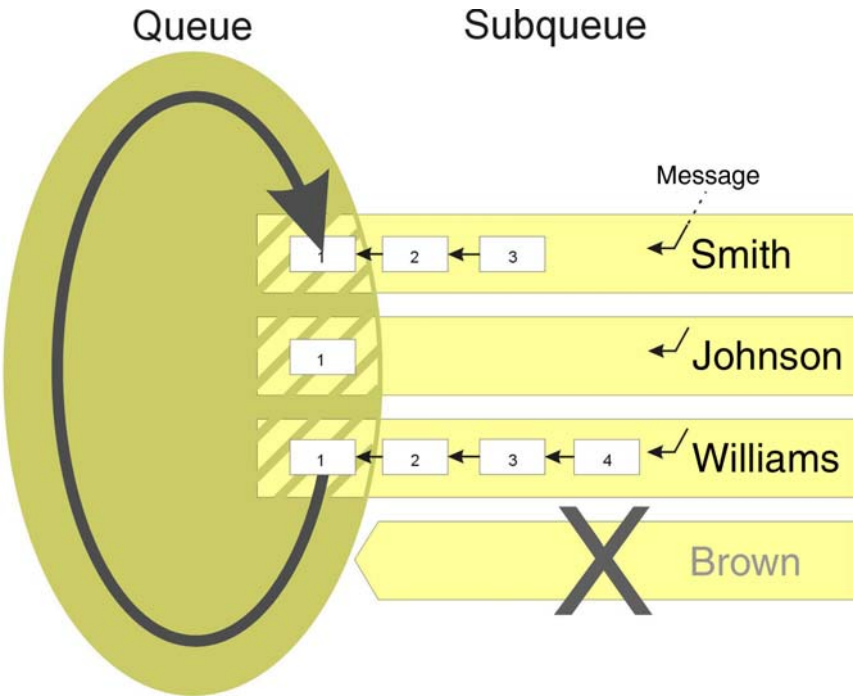



Image 9-3 Queue/Subqueue process

## 9.2.6 Notify subscribers depending on their type of confirmation

Irrespective of the confirmation type, a subscriber can always scroll through his/her display text with the "*" (up) and "#" keys (down).

The maximum time until forward disconnect is at least 30 seconds. Every scroll command resets the countdown timer to at least 30 seconds.

➤ see "OScAR-TT User Manual"

➤ Provided there has sufficient memory space available, the SMS text messages are always added to the SMS memory after the last call attempt.

For more information on the OScAR SMS retrieval service:

➤ see "OScAR-TT User Manual"

The actual position in the SMS memory and the PIN to retrieve the messages result from:

- for standard notification 'Call with message' derived from the phone number's last digits (up to 6),
  ➤ see Section 9.2.2.1 "Standard message 'Call with message'"
- for the OScAR-specifically enhanced notification 'Call with message' directly from the field 'PIN',
  ➤ see Section 9.2.2.2 "Message 'Call with message' w. DAKS-specific expansions"

### 9.2.6.1 No special confirmation (for 'ack' = "T")

Here, the subscriber must accept the call and meet the minimum reached criterion (time or number of cycles defined in the OScAR Administrator-Tool 'Broadcast Parameters').

If the subscriber hangs up early, he will be called again instantly; if he/she hangs up once more his response will lead to a negative notification result.

If the subscriber does not hang up and the maximum time is exceeded, OScAR will disconnect and consider the subscriber as reached.

### 9.2.6.2 Disconnection required (for 'ack' = "P")

If the subscriber hangs up early, the same behavior is triggered as described here.

➤ Section 9.2.6.1 "No special confirmation (for 'ack' = "T")"

However, the subscriber must here hang up by himself/herself before the maximum time elapses; if not, the system will consider him/her as not reached (to avoid that a call is taken by an answering machine).

### 9.2.6.3 Confirmation by key press with the possibility of negative confirmation (for 'ack' = "A")

The subscriber must accept the call and confirm by key press, either positive (1) or negative (0).

If the subscriber neither confirms nor hangs up before the maximum time has elapsed, he/she will be considered as not reached and will not be called again.

This is to avoid that a call accidentally runs into and is taken by an answering machine.

If the subscriber hangs up too early without giving any confirmation, he will be called again instantly; if he/she hangs up early once again the system will send a negative notification result.

# 10 SNMP Implementation

This chapter covers the SNMP service of OScAR. It constitutes an SNMP agent that can be queried by SNMP managers.

Contents

This chapter consists of the following sub-sections:



## 10.1 Supported protocol versions

The SNMP implementation of the OScAR server supports the protocol versions:

- SNMPv1,
- SNMPv2c and
- SNMPv3.

It exclusively uses MIB-2 branches in keeping with the RFC1213 "Management Information Base for Network Management of TCP/IP-based internets: MIB-2" or it successor RFC 3418 "Management Information Base (MIB) for the Simple Network Management Protocol".

The required SNMP system information, such as the name of the device and the location, is administrated in the SNMP manager from where it is transferred to OScAR.

The SNMP functionality operates e.g. in combination with the HiPath Fault Manager.

Specific events, in particular the buildup and the breakdown of a connection, but also the system's reboot, the activation or deactivation of a session and false community strings generate so-called traps, i.e. independent and autonomous messages that can be queried and shown.

In addition, it is possible to query the present status of all OScAR interfaces.

## 10.2 Output of OScAR connections and functions using traps

Whenever a connection is build up or lost, but also when a function becomes active/inactive, taps can be generated (configurable).

They include:

- First network connection active (again)
- Second network connection active (again)
- First through fifth ESPA-X interface active/inactive
- Sixth through fourtieth ESPA-X interface active/inactive (only for OScAR-300)
- First and second serial interface active/inactive
- Third through eighth serial interface active/inactive (only for OScAR-300)
- First through fourth SIP trunk active/inactive
- Process server active/inactive
- SMS modem active/inactive
- X-Link interface active/inactive
- DEKI interface active/inactive
- eAlarm interface active/inactive
- DECT Pos interface active/inactive
- One to twenty-two Profibus modules (only for OScAR-300)
- ISDN line A active/inactive

- ISDN line B active/inactive
- ISDN line C active/inactive
- ISDN line D active/inactive
- First board (only for OScAR-300)
- Second through fifth board (only for OScAR-300)
- A partial breakdown of the PSU occurred
- USB contact I/Os active/inactive (only for OScAR-200)
- SieCare active/inactive
- Hot standby active/inactive

In addition, traps are automatically sent when these events occur:

- upon a reboot
- upon any incorrect community string

## 10.3 Configuration of the SNMP parameters

The SNMP parameters of  are configured through the service tool VCON.

They include:

- the list of all trap receivers (max. 5)
- the list of all systems that are authorized to access OScAR' SNMP service (max. 5 or no control)
- the Trap Community String
- the  Public Community Strings (max. 5 different ones)
- the Private Community Strings (max. 5 different ones)
- where applicable, an alternative IP address of OScAR (for NAT)
- the SNMP listen port
- the traps that shall be sent when certain connections are established or lost, or in response to other selected incidents (see above)

## 10.4 Numbering of the OScAR Serverinterface

Irrespective of their availability in the delivered OScAR Server, the various interfaces of the OScAR Server carry different numbers.

These are:

- 1...4 — $S_0/S_{2M}$ interface on the 1st ISDN interface board
- 5...8 — $S_0/S_{2M}$ interface on the 2nd ISDN interface board
- 9...12 — $S_0/S_{2M}$ interface on the 3rd ISDN interface board
- 13...16 — $S_0/S_{2M}$ interface on the 4th ISDN interface board
- 17...20 — $S_0/S_{2M}$ interface on the 5th ISDN interface board
- 48...55 — serial interfaces 1 - 8
- 60 — SieCare
- 64 — Ethernet A, Master CPC-41/CPH-42
- 65 — Ethernet B, Master CPC-41/CPH-42
- 66 — Ethernet A, Slave CPC-41/CPH-42
- 67 — Ethernet B, Slave CPC-41/CPH-42
- 70 — Hot standby
- 71 — Partial breakdown of the PSU
- 80 — GSM-SMS modem
- 81 — OScAR-TT Process server

- 84 xLink-100e
- 85 DEKI
- 86 eAlarm
- 110 DECT Pos
- 115 IOG module
- 128...149 Profibus modules
- 160-179 ESPA-X 1 - ESPA-X 40
- 200 VoIP

# 11 The Gateway Function of OScARpro for Mc800

Overview

This chapter covers the subswitch/gateway functionality of the OScAR Server to connect Medicall 800 or EZ-Care to the telecommunications network.

Contents

This chapter consists of the following sub-sections:

## 11.1 General

The subswitch/gateway functionality of the OScAR Server makes it possible to connect Medicall 800 or EZ Care, respectively (abbreviated in the following with: Mc800) to the telecommunications network of a hospital.

In this way, Mc800 devices with voice communication unit can be called from the telecommunications network, like a telephone.

Also, Mc800 devices can call telephones located within the telecommunications network or within the converged voice/data network, respectively.

Note:
Whenever the telecommunications network of a hospital is mentioned in this document, it shall always also include a converged voice/data network.

Note:
The configuration of Mc800 for operation with the OScAR Server is not part of this document.

The OScAR Server realizes the gateway function to various PBX systems or softswitches with a firmly specified interface to Mc800. As a result, the interface on the side of Mc800 to the IP-TCP/IP gateways of Mc800 is independent of the digital trunk to the telecommunications network.

Seen from the side of the hospital's telecommunications network, the Mc800 system looks like a telephone subswitch with a digital trunk to the hospital's telecommunications network.

This digital trunk can be addressed via a tie trunk code, followed by a DDI number dialed afterwards.

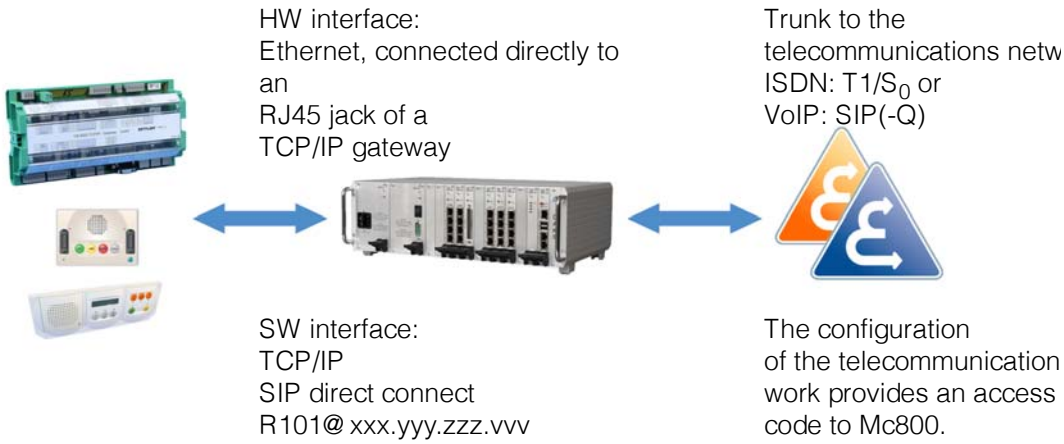



Image 11-1 Overview of the Subswitch/Gateway functionality

## 11.2 Features of the OScAR Server

The main features of the OScAR server include:

- The gateway for Mc800 with one (several) digital TDM/ISDN trunk(s) or one (several) digital VoIP trunk(s) to the hospital's telecommunications network.
- Up to 60 parallel audio connections (can be expanded, option).
- The "Middleware" between several 2-channel IP-TCP/IP gateways and the telecommunications network.
- The translation table between Mc800 identifier and the call number, with a maximum of up to 2000 entries.

## 11.3 Application and Functionality Details

### 11.3.1 Translation table

Instead of telephone numbers and registration procedures, the OScAR Server uses 'Identifier' and 'Domain' information from a translation table to communicate with Mc800.

Here, the translation table takes the telephone number that is used on the network's side and translates it into the 'Identifier' and 'Domain 'information (SIP:<Identifier>@ <Domain>), i.e. the 'SIP Invite' in the direction of Mc800 is created by way of a predefined 'Identifier' and a predefined 'Domain' information.

The translation table can comprise up to 2000 entries. It is made available by file (e.g. via memory stick), and uploaded to the OScAR Server through the VCON service and configuration tool.

The significance of the 'Identifier' as part of the entry can take different forms:

| Identifier | Description | Examples |
|---|---|---|
| Access to an Mc800 destination, with or without bed no., with or without discretion mode | | |
| <Mc800 location>,<br><bed no>,<br><discretion><br><br>Note:<br>Commas are only used if more information follows. | <Mc800 location>:<br>location details<br>max. 6 characters incl. special characters<br><br><bed no.>:<br>**B1…B6** = Bed 1 … Bed 6<br>no info = Terminal<br>or Terminal 1, resp.<br>(the Terminal in Room 1)<br>for 2-Room solution<br>**T2** = Terminal 2<br>(the Terminal in Room 2)<br>for 2-Room solution<br><br><discretion>:<br>**0** or no info: Audio bidirectional<br>**1**: only audio from initiator active | **R_101,B2** =<br>Voice connection bidirectional<br>to Room 101, Bed 2<br><br>**R1204** =<br>Voice connection bidirectional<br>to Terminal in Room 1204<br><br>**R1204,,1** =<br>Voice connection<br>to Terminal in Room 1204<br>in discretion mode, i.e.<br>only the initiator's audio active |

Table 11-1 Translation table OScAR Server

| Identifier | Description | Examples |
|---|---|---|
| Access to the most important call of a certain ward or group | | |
| # <ward>,<group>,<br><discretion><br><br>Note:<br>Commas are only used if more information follows. | <ward>:<br>**1…15**:<br>Most important call from Ward 1 to 15<br><br><group>:<br>**1…5:**<br>Most important call from Group 1 to 5<br>No info:<br>Most important call from Station, see above<br><br><discretion>: see above | **#7.3** =<br>Most important call from Ward 7, Group 3 |
| #Test | Caution!<br>**#Test** is reserved exclusively for the test function, see Section 11.3.4 "Test function" | |
| General public-address (PA) announcement or public-address to a specific Group, Ward, or Room type, or to a Presence 1/2, also mixed (AND functionality) | | |
| * <ward>,<group>,<br><presence>,<br><room type><br><br>Note:<br>Commas are only used if more information follows. | <ward>:<br>**1…15**:<br>Public-address (PA) announcement to Ward 1..15<br><group>:<br>**1…5**:<br>Public-address (PA) announcement to Group 1..5<br>no info:<br>Public-address (PA) announcement to the Station, see above.<br><presence>:<br>**1**: Public-address (PA) announcement to Presence 1<br>**2**: Public-address (PA) announcement to Presence 2<br>no info: no Presence selected<br><room type>:<br>**1…5:** Public-address (PA) announcement to Room Type 1…5<br>no info: no Room Type selected | ***3,,1** =<br>Public-address (PA) announcement to every Presence 1 within Ward 3<br>***1.2,,1** =<br>Public-address (PA) announcement to all Rooms of the Type 1, in Group 2 of Ward 1 |
| ** | General public-address (PA) announcement<br>(interrupts all other calls) | |

Table 11-1 Translation table OScAR Server

The entries are structured as follows:

<Identifier> <Tab> <Domain> <Tab> <Phone-no> <Tab> <calls> <CR-LF>

The following applies to individual components:

| Components | Explanations, structure, range of values |
|---|---|
| <Identifier> | Identifier with up to 24 characters (any), except <Tab> (in keeping with ISO 8859-1). For more details on the significance of the identifier see the table above. |
| <Tab> | ASCII character <Tab> (ASCII character code 09) as separator, if further details follow. |
| <Domain> | IP addresses and communication details with up to 3 elements, namely:<br>**<IP-Addr>:<Port>:<TCP/UDP>**<br>**<IP-Addr>** The IP address of the communicating contact; this info is compulsory and must be given<br>**<Port>** The port number (numeric) used to communicate; this info is not mandatory; if no data is indicated, this port is used: Port 5060<br>**<TCP/UDP>** **UDP** = **UDP** or **TCP** = TCP communication; if not specified: application of UDP<br>Note: The colon at the end may be omitted. |
| <Phone-no> | 1...6 ASCII characters with the phone number used on the network's side |
| <Calls> | Overview of the calls that are allowed from the point of view of Mc800:<br>**I** = Incoming: Only calls from the telecommunications network to Mc800<br>**O** = Outgoing: Only calls from Mc800 to the telecommunications network<br>**B** = Bidirectional: Calls in both directions<br>**<Calls>** no information means "Bidirectional" |
| <CR-LF> | ASCII characters CR and AF as end marker of the entry |

Table 11-2 Components of the translation table entries

Examples:

| | | | | |
|---|---|---|---|---|
| **R1234** | **192.168.1.77** | **1010** | | Voice connection with the Terminal in Room 1234 (or Terminal 1, if 2-Room solution) via 192.168.1.77, Port 5060, UDP; bidirectional connection buildup allowed. |
| **R6124** | **192.168.1.55** | **61240** | **I** | Voice connection to Terminal in Room 6124 (or Terminal 1, if 2-Room solution) via 192.168.1.55, Port 5060, UDP; connection buildup only allowed in the direction of Mc800. |
| **R6124,B1** | **192.168.1.55** | **61241** | | Voice connection to Room 6124 Bed 1 via 192.168.1., Port 5060, UDP; bidirectional connection buildup allowed. |
| **R7890,B4,1** | **192.168.1.22** | **7890** | | Voice connection to Room 7890 Bed 4 with discretion (one-directional from initiator) via 192.168.1.22, Port 5060, UDP; bidirectional connection buildup allowed. |

| | | | |
|---|---|---|---|
| **R101,T2,1** | **192.168.1.22** | **1011** | Voice connection to Room 101, Terminal 2 (Terminal in Room 2 for 2-Room solution) with discretion (one-directional from initiator) via 192.168.1.22, Port 5060, UDP; bidirectional connections allowed. |
| ***2** | **192.168.1.77::UDP** | **1122I** | Public-address (PA) announcement to Group 2 via 192.168.1.77, Port 5060, UDP; connection buildup only allowed in the direction of Mc800. |
| | **192.168.33.33::TCP** | | Allow IP-address for any calls from Mc800 to the telecommunications network via 192.168.33.33, Port 5060, TCP. |

Bear in mind that when you upload the table, the OScAR Server will verify the syntax, but not the left-aligned uniqueness of the call number, nor the uniqueness of the identifier.

## 11.3.2 Calls from telecommunications network to Mc800 device

### 11.3.2.1 Background

When a call is received from the side of the telecommunications network, the OScAR Server will check the translation table for an entry with this number (= **<Phone-no>**). If it is able to find a match, the OScAR Server will also check if calls from the telecommunications network are allowed (**<Calls>** = not indicated, **I** or **B**).

Only when an entry is found, and only if calls may be received from the network for that particular entry, will the call be routed to Mc800 with the <**Identifier**> details as the destination information, and with the <**Domain**> details as the route or communication information, respectively.

Examples (in keeping with the above translation table):

- When dialing the call number 1010, the OScAR Server sends the following "Invite":
  **SIP:R1234@192.168.1.77** via Port 5060 using UDP
- When dialing the call number 1122, the OScAR Server sends the following "Invite":
  **SIP:*2@192.168.1.77** via Port 5580 using UDP

### 11.3.2.2 Process, function

The OScAR Server starts searching upon the first digit that is received and, ends the search once 6 digits have been received. If more than 6 digits were sent from the network's side, the OScAR Server will only evaluate the first 6 digits.

The OScAR Server will send in the direction of the telecommunications network:

- As "Connected Number" or as numeric "Contact Information":
  - the configured default prefix + the dialthru code (i.e. the 1…6 evaluated digits)
- As the "Connected Name" or alphanumeric "Contact Information":
  - the entire **<Identifier>** entry, provided the **<Identifier>** from the translation table does NOT begin with '#' or '*',
  - in all other cases: the default Calling/Connected Name as defined within the OScAR Server.

The OScAR Server sends in the direction of Mc800:

- As numeric "From" and "Contact Information": the "Calling Number" received from the network.
- As alphanumeric "From" and "Contact Information": the "Calling Name" received from the network.

If no entry can be found in the translation table, the OScAR Server will reject the connection and send a reply stating that the number is not available.

If calls from the side of the telecommunications network are not allowed for the entry, the OScAR Server will reject the call with a reply stating that the connection request is not allowed.

## 11.3.3 Calls from Mc800 devices to phones in the telecommunications network

### 11.3.3.1 Background

Some Mc800 devices can call telephones in the hospital's telecommunications network. Here, Mc800 sends an "Invite" with a SIP dataset "sip:User@ <IP Addr. (OScAR Server)>" through an IP-TCP/IP gateway, to the OScAR Server. Due to the fact that the IP-TCP/IP gateway cannot alter the source address (i.e. the "sip:From" information) on a per-call basis, the field "sip:User" is used to transmit all information that is needed by the OScAR Server for the buildup of the call to the hospital's telecommunications network.

This information includes::

- a Called Number (the number to call),
- a Calling Number (numeric information on the caller), and
- a Calling Name (text information on the caller).

The OScAR server obtains this information in the user field, separated by | (= ASCII-Code 124 decimal), and in form of:.

- Userfield-To-Number (compulsory information),
- Userfield-From-Identifier (can be omitted), and
- Userfield-From-Name
  - can be omitted; if omitted, the preceding separator | is also omitted!

Fro example: "**sip:1234|R101|Zettler@192.168.1.13**" signifies:

- The Userfield-To-Number "1234" within the hospital's telecommunications network is called.
- The Userfield-From-Identifier within Mc800 reads "R101".
- The Userfield-From-Name reads "Zettler".

#### 11.3.3.2 Process, function

Provided this is not a Test function (➤ see 11.3.4 Test function), the OScAR Server runs through the translation table in 2 steps and browses for a matching entry and as described below:

- Run-through 1:
  - the source IP address must match the "Domain IP address" (= **<IP-Addr>** ) and
  - this entry must have an **<Identifier>** that must be identical with the "Userfield-From-Identifier" right up through the 2nd comma.
    For example: **<Identifier>** = **R101,B1,1**
    (The system only uses R101,B1 for the comparison against the "Userfield-From-Identifier").
- Run-through 2 (only if no results were obtained during the run-through 1):
  - the source IP address must match the "Domain IP address" (= **<IP-Addr>**), and no **<Identifier>** may be given.

If no entry could be found, the OScAR Server will reject the connection request and send the response code 404 "not found".

If an entry is found, and if calls into the telecommunications network are not allowed **(<Calls>** = **I**), the OScAR Server will reject the connection request and send the response code 403 "forbidden".

If an entry was found, and if calls into the telecommunications network are allowed **(<calls>** = not specified, **O** or **B**), but the interface to the telecommunications network is not available, the OScAR Server will reject the connection request and send the response code 480 "temporarily not available".

If an entry was found and the interface to the telecommunications network is available, and provided calls from Mc800 may be made into the telecommunications network (**<calls>** = not specified, **O** or **B**), the OScAR Server will respond as follows:

- As "Calling Number" or as numeric "From" and "Contact Information", resp.:
  - if the "Userfield-From-Identifier" is not provided or begins with '**#**' or '*****', the configured default prefix plus the "Default Calling/Connected Number" that is already configured in the OScAR Server,
  - in all other cases the configured default prefix, followed by the entry **<Phone-no>**
- As "Calling Name" or as alphanumeric "From" and "Contact Information", resp.:
  - if the "Userfield-From-Name" was provided: this info as "Calling Name",
  - otherwise, and on condition the "Userfield-From-Identifier" was provided: this info as "Calling Name",
  - in all other cases: the "sip:From" information as "Calling Name".

The OScAR Server sends in the direction of Mc800:

- As numeric "Contact Information": the numeric "Contact Information" received from the network, or the "Connected Number" received from the network,
- As alphanumeric "Contact Information": the alphanumeric "Contact Information" as received from the network, or the "Connected Name" as received from the network

## 11.3.4 Test function

### 11.3.4.1 Syntax

Mc800 can verify if the interface to the telecommunications network is available (normally every 60s if no call to the OScAR Server is currently active).

This is done by way of a special call launched by Mc800, more specifically from a any registered IP-TCP/IP gateway.

In this case the User field contains, separated by | (= ASCII-Code 124 decimal):

- No Userfield-To-Number,
- **#Test** as Userfield-From-Identifier, and
- No Userfield-From-Name

For example: "**sip:|#Test@192.168.1.13**"

### 11.3.4.2 Process, function

The OScAR Server runs through the translation table to check if the source IP address matches a "Domain IP address" (= <IP-Addr>), that is already listed in the table.

If it is unable to find an entry, the OScAR Server will reject the connection request and send the response code 488 "you are not found".

If it is able to find an entry, the OScAR Server will reject the connection request as follows:

- If the interface to the telecommunications network is not available: with the response code 480 "temporarily not available".
  Note: This leads to an error message within Mc800.
- In all other cases with the response code 403: "forbidden".
  Note: This signifies "Test = OK".

## 11.3.5 Callback calls, call transfers, call forwarding

These functions are currently not supported on the side of Mc800. Whenever information of this type is received by the OScAR Server from the side of the telecommunications network, it is not forwarded to Mc800.

## 11.3.6 SIP options inquiry

No inquiry of the SIP options is made in the direction of Mc800.

## 11.3.7 Character set

### 11.3.7.1 RFC2396 specification

Note that in keeping with the RFC2396 specification, the following characters are not allowed in the "User Part":

| % , < > " ; / \ ? : @ & = + $ # <Space> <Tab> <Return> <LineFeed> |
|---|

Instead, these characters must be sent as:

**% <ASCII value hex code>** (z.B. **<Space>** = **%20**).

In the "User-Part", alphanumeric characters are allowed in keeping with the RFC2396 specification, as well as these special characters:

| - _ . ! ~ * ' ( ) |
|---|

### 11.3.7.2 Character set from Mc800 deviating from the RFC2396 specification

Deviating from the RFC2396 specification, the following characters are, in the communication between the OScAR Server and the IP-TCP/IP gateways of Mc800, not sent or received as % <ASCII value hex code>, but sent and received directly as ASCII characters, instead:

| , ; / ? = + |
|---|

All other characters are sent and received in keeping with the RFC2396 specification.

### 11.3.8 Activity outputs (Logging)

The activity output or the logging of the OScAR server takes place in the terminal window "OScARpro 300 on CPC-41/CPH-42" or in the terminal window "OScARpro 200 on CSM-01".

The OScAR Server outputs at the end of every call, at the end of every failed dial attempt and at the end of every Test call a specific activity information in the application window.

In this process, all of the individual components of these outputs, with the exception of the last, have the same fixed length so that outputs with the same or with a similar significance will always be listed right underneath one another to make these outputs easier to read for the user.

Also, a <Space> is inserted and shown between the individual components.

Outputs for dial attempts or connections from the telecommunications network in the direction of Mc800:

- date / time / trace mask
- **PBX -> MC:** (output of the call direction)
- results (20 characters) (see below)
- <Identifier> from the translation table, if found (24 characters)
- <Phone-no> from the translation table (6 digits)
- call number 1 in the telecommunications network (here: calling number), (22 digits)
- call number 2 in the telecommunications network (last Connected Number), (22 digits)
- name in the telecommunications network (last Connected Name) (max. 30 characters)

Outputs for dial attempts or connections from Mc800 in the direction of the telecommunications network:

- date / time / trace mask
- **MC->PBX**: (output of the call direction)
- results (20 characters) (see below)
- <Identifier> from the translation table (24 characters)
- <Phone-no> from the translation table (6 digits)
- call number 1 in the telecommunications network (here: Called Number), (22 digits)
- call number 2 in the telecommunications network (last Connected Number), (22 digits)
- name in the telecommunications network (last Connected Name) (max. 30 characters)

As result the OScAR Server outputs for call requests or calls:

- **entry not found** — no matching entry found in the translation table
- **user not answered** — subscriber failed to take the call
- **user busy** — subscriber line was busy
- **conversation ended** — call was thru-connected and ended
- **not possible** — call request is not allowed or possible
- **user not available** — subscriber cannot be reached at the moment
- **problem (M:xxx)** — switching error on the side of Mc800 (xxx = error code for the 2nd and 3rd Level Support)
- **problem (P:xxx)** — switching error on the side of the telecommunications network or PBX system (**xxx** = error code for the 2nd and 3rd Level Support)

As result the OScAR Server outputs for the text function:

- **Mc800: PBX not available** PBX system/softswitch not available
- `Mc800:PBX available 1 Trunk(s) E1/T1 , 0 Trunk(s) S0 , 0 Trunk(s)` (PBX system/softswitch available incl. indication how many E1/T1/S0/VoIP trunks are currently available.)

In addition, the OScAR Server generates the following outputs:

- Date/ Time / Trace Mask — Mc800: **`xxx table entries loaded`**
- Date / Time / Trace Mask — **`Mc800 trunk enabled`**
  The trunk is enabled and this output appears as soon as the translation table has at least one entry.
- Date / Time / Trace Mask — **`Mc800 trunk disabled`**
  The trunk is disabled (blocked) and this output appears as soon as no entries are found (any longer) in the translation table.
- Date / Time / Trace Mask — **`Mc800:active`**
  This output appears as soon as a special test call is made from Mc800 to the OScAR Server.
- Date / Time / Trace Mask — **`Mc800:inactive`**
  This output appears if no special test call from Mc800 to the OScAR Server has been made for 120 seconds and no more active call to Mc800 is currently ongoing.

## 11.4 Start-up, configuration and service

Both the configuration of the OScAR server and the service work at the OScAR Server is via LAN and the VCON service and configuration too.

This includes:

- the configuration of either the SIP or the ISDN trunk to the PBX system,
- the configuration of the SIP trunks to Mc800 and
- the upload of the translation table.

Note:
The configuration of the OScAR-Pro application "Gateway" is carried out via the OScAR-TT Administrator-Tool.

### 11.4.1 Startup of the OScAR Server via VCON

Note:
To put DAKS Server into operation via VCON, you need to have the authorization 'service' to make all the settings that are needed.
This authorization is preconfigured ex works as default.
➤ see Section 4.1.2 "User administration"

Caution!
Bear in mind that in order to connect the DAKS Server to redundant softswitches, you may need to make additional configurations and settings.
➤ see separate documentation "OScAR Server-Redundant Softswitches-1.pdf“

To configure the Gateway functionality and startup of the DAKS Server, follow the instructions.

Optional steps may be omitted where applicable.

Startup the OScAR Server via VCON, step by step:

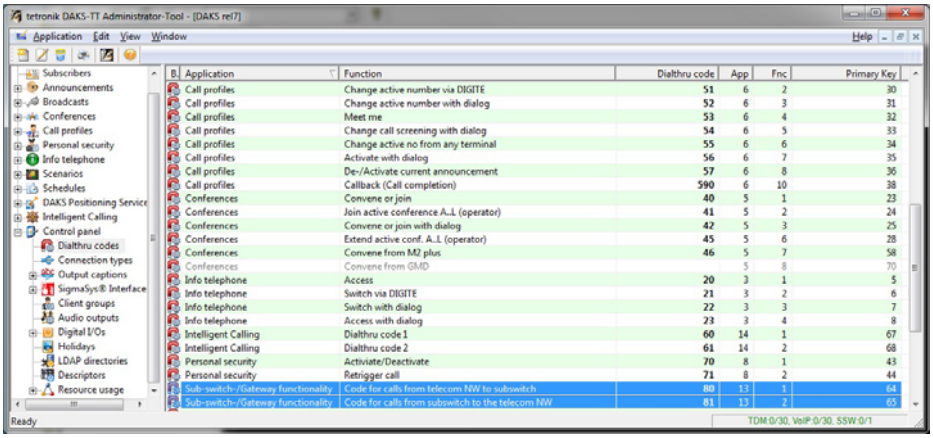
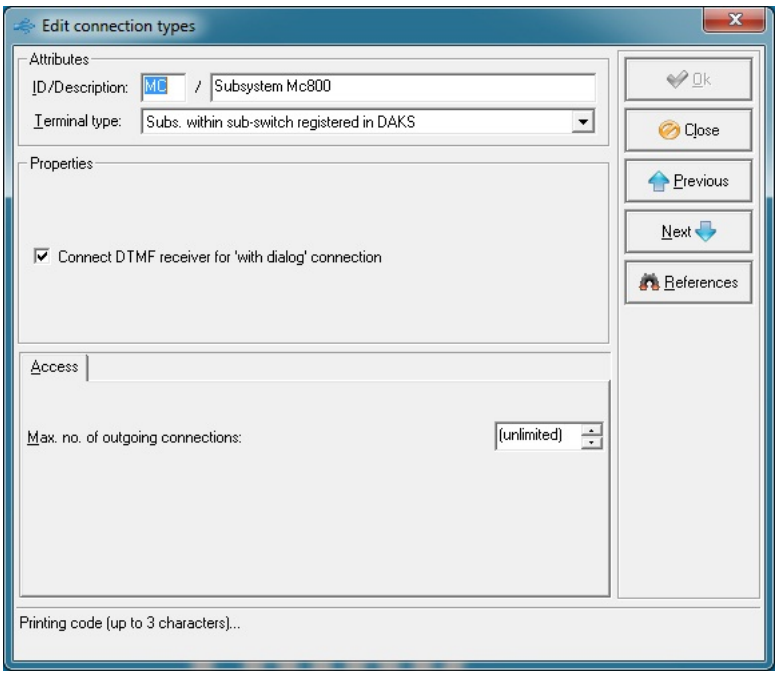
| Configuration of the Gateway functionality in the OScAR-TT Administrator-Tool | |
|---|---|
| No. | Task |
| 1. | Under Control Panel -> Dialthru codes, make sure that the dialthru codes for the subswitch/gateway functionality match the below settings and are enabled, and correct any false entries if necessary.<br>• Calls to telecom network: <80><br>• Calls to subswitch: <81><br>  |
| 2. | Under Control Panel -> Connection types, configure a new connection type for the Mc800 coupling.<br>• ID: <MC><br>• Description: <Subsystem Mc800><br>• Terminal type: <Subscriber registered at subswitch><br>• Tick the box "Connect DTMF receiver for 'with dialog' connection".<br>  |

Table 11-3 Startup the OScAR Server via VCON

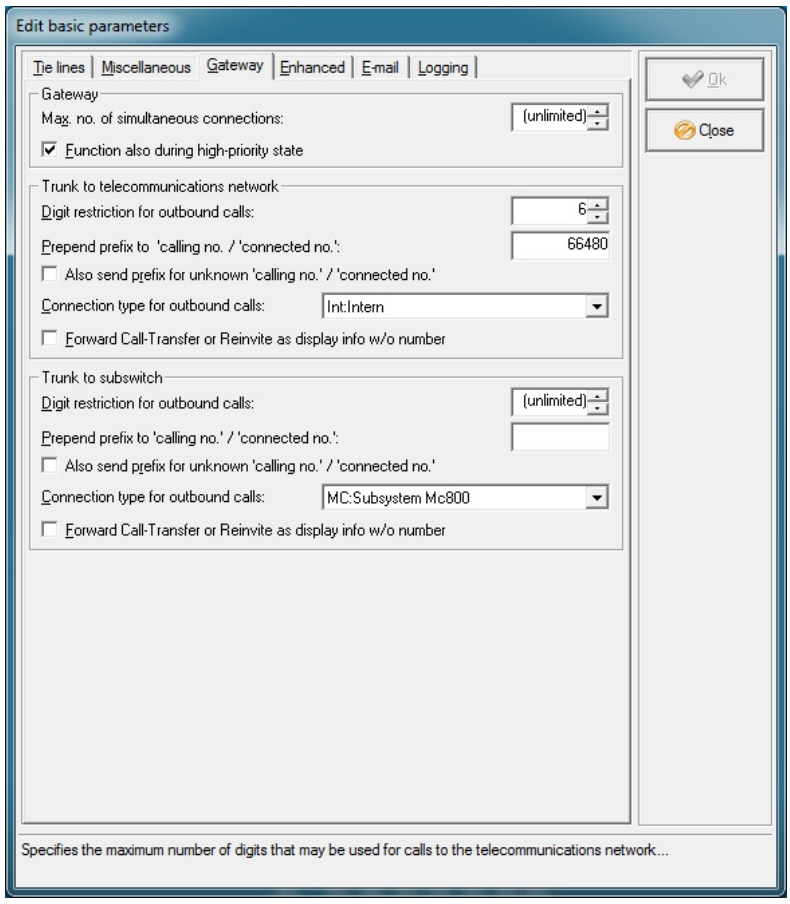
| Configuration of the Gateway functionality in the OScAR-TT Administrator-Tool | |
|---|---|
| 3. | Go to the Basic parameters -> Gateway and check is the settings there match the settings made for the gateway function, and correct any false entries if necessary.<br>In the window area "Trunk to telecommunications network" enter the following values:<br>• "Digit restriction for outbound calls": Enter the max. number of digits of digits of a telephone number in the hospital's telecommunications network, e.g. "6".<br>• "Prepend prefix to 'calling no.' / 'connected no.'":Enter the trunk code (here e.g. "664"), followed by the dialthru code 'Calls to subswitch' (here e.g. "80") that is used to call the OScAR Server from the side of the telecommunications network.<br>Note: Contact your administrator of the PBX system for this code.<br>In the window area "Trunk to subswitch" enter the following values::<br>• "Connection type for outbound calls": Enter the already selected connection type, e.g. "MC:Subsystem Mc800".<br>  |

Table 11-3 Startup the OScAR Server via VCON

| Configuration of the PBX system interface to the OScAR Server | |
|---|---|
| No. | Task |
| 4. | For this configuration, provide the service technician in charge of the PBX system with the pertinent Configuration instructions (separate document), for example:<br>"OScAR Server-HiPath3000V6-V9-QSIG-S0-1.pdf" for:<br>– PBX system: Unify HiPath 3000 V6-V9<br>– Connection: ISDN<br>– Protocol: QSIG<br>– via trunks: S0<br>"OScAR Server-HiPath3000V9-VoIP-SIPQ-1" for:<br>– PBX system: Unify HiPath 3000 V9<br>– Connection: VoIP<br>– Protocol: SIP-Q<br>"OScAR Server-OpenScape4000V1-V7-CorNetNQ-S2M-1" for:<br>– PBX system: Unify OpenScape 4000V1-V7<br>– Connection: ISDN<br>– Protocol: CorNet-NQ<br>– via trunks: S2m<br>"OScAR Server-OpenScape4000V4-V7-VOIP-SIPQ-1" for:<br>– PBX system: Unify OpenScape4000 V4-V7<br>– Connection: VoIP<br>– Protocol: SIP-Q<br>"OScAR Server-Redundant Softswitches-1.pdf"<br>.... |

Table 11-4 Configuration of the PBX system interface to the OScAR Server

| Configuration of the Gateway functionality in VCON | |
|---|---|
| No. | Task |
| 5. | Connect your Service PC to the same LAN segment that is also used the OScAR Server. |
| 6. | If VCON is not yet installed on your service PC, install VCON now.<br>➤ see Section 4.2.1 "The installation of VCON"<br>Boot the service and configuration tool VCON and connect with the OScAR Server.<br>➤ see Section 4.3 "Start VCON"<br>➤ see Section 4.3.1 "Connect with the DAKS Server" |
| 7. | If VCON is not able to connect with the OScAR Server, check the following:<br>• If no access is possible:<br>– Configure the OScAR Server with a terminal emulation program via RS232.<br>➤ see Chapter 5, "Basic Configuration of the DAKS Server"<br>• The VCON version is not compatible with the OScAR Server:<br>– Install the latest VCON version.<br>➤ see Section 4.2.1 "The installation of VCON"<br>Return to Step 6. |

Table 11-5 Configuration of the Gateway functionality in VCON

| Configuration of the Gateway functionality in VCON | |
|---|---|
| 8. | Set the clock of the DAKS Server.<br>Open the Terminal window of the process "OScAR-Pro 200/300". Enter the command `settime` and press enter `<enter>`.<br>The following output will appear:<br>`enter time 'dd.mm.yyyy hh:mm:ss'`<br>Now adjust the time manually and confirm with `<enter>`.<br>The system will now output the new time with the date and the hour, e.g.:<br>`2012-02-23 09:14:00` |

Table 11-5 Configuration of the Gateway functionality in VCON

| Setup of the SIP trunk to Mc800 | |
|---|---|
| 9. | Configure a new SIP trunk for the connection between Mc800 and the OScAR Server.<br>Open the user window with the properties and settings of the process "SIP on vsip", e.g. by making a double click on the process "SIP on vsip" in the process list.<br>➤ see Section 4.9.1 "Example view of a Processes list"<br>Switch to "number of trunks" and increase the value by 1.<br>➤ see Section 4.9.2 "Properties/settings"<br>The system automatically adds the new SIP trunk #n.<br>Switch to the newly added SIP trunk #n, go to the "SIP subprotocol" and set this value to: "SIP-Medicall 800". |

Table 11-6 Setup of the SIP trunk to Mc800

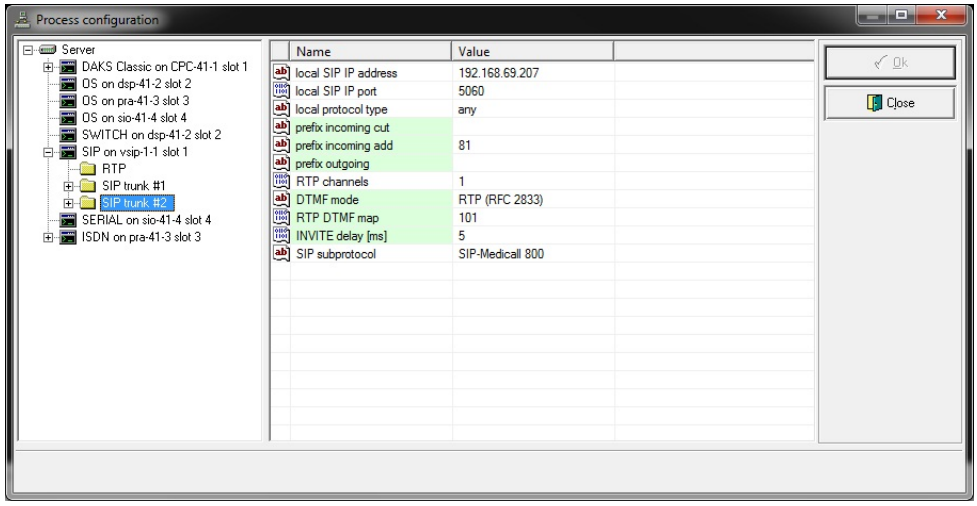
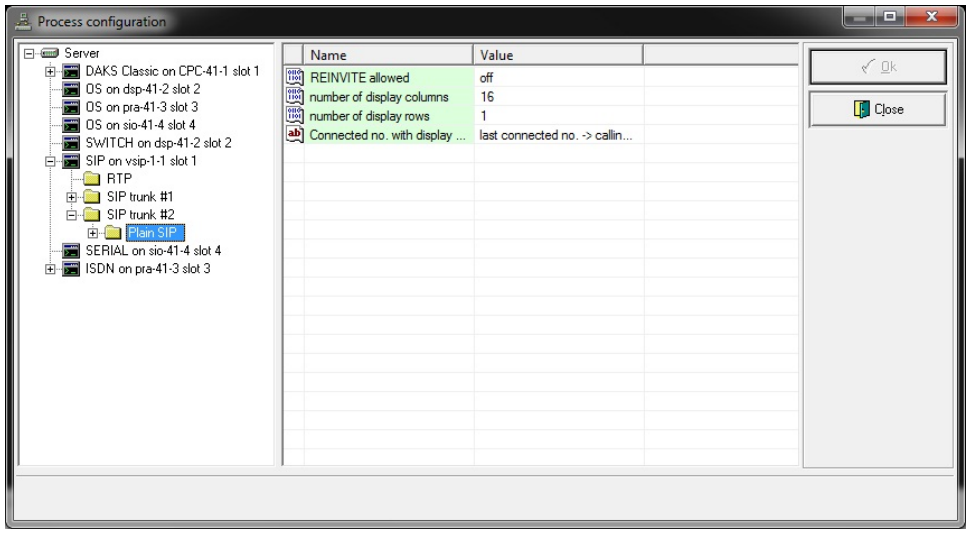
| Setup of the SIP trunk to Mc800 | |
|---|---|
| 10. | Check if the SIP trunk settings for the connection between Mc800 and the OScAR Server correspond to the following Basic settings and correct any false values if necessary.<br>• Prefix incoming add: <81><br>• "RTP channels": Enter the maximum number of purchased VoIP channels from/to the subswitch, e.g. <4> (corresponds to the "No. of channels from resp. to SSW resp. DR subs." in your license data)<br>• SIP subprotocol: <SIP Medicall 800><br>  <br><br>  <br> |

Table 11-6 Setup of the SIP trunk to Mc800

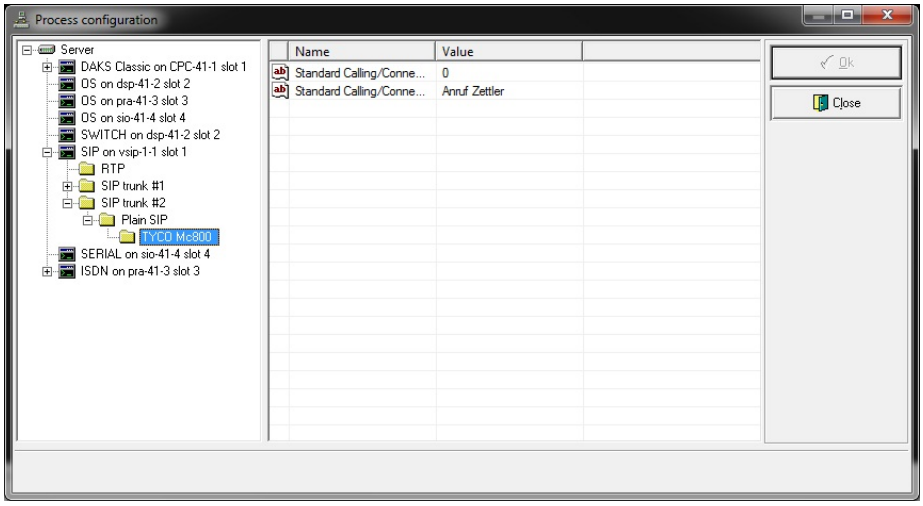
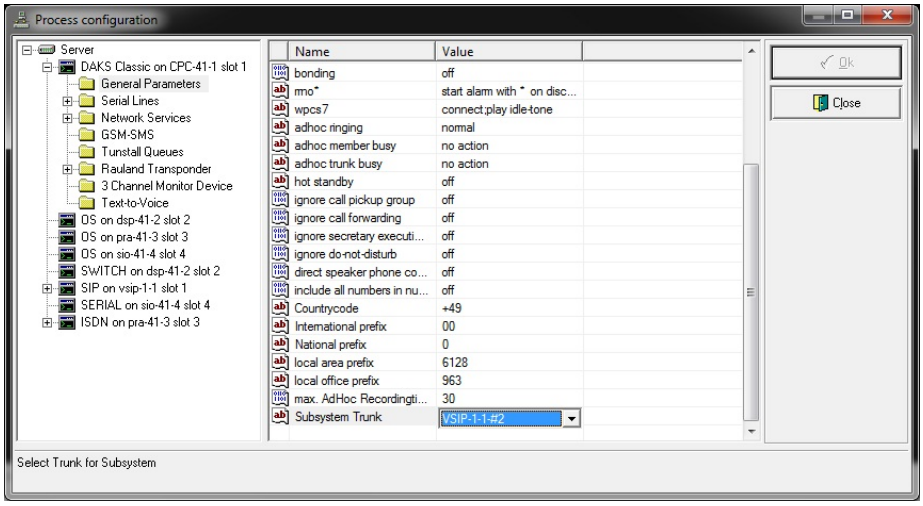
| Setup of the SIP trunk to Mc800 | |
|---|---|
| 11. | Check if the special SIP settings for TYCO Mc800 correspond to the following settings and correct any false values if necessary.<br>  |
| 12. | Check if the special settings for Subsystem Trunk correspond to the following settings and correct any false values if necessary.<br>Open the user window with the properties and settings of the process "OScAR-Pro 300..." or "OScAR-Pro 200...", e.g. by double-clicking the process "OScAR-Pro..." in the process list.<br>➤ see Section 4.9.1 "Example view of a Processes list"<br>Switch to the "General Parameters" and select under "Subsystem Trunk" the SIP trunk you configured above in Step 9.<br>➤ see Section 4.9.2 "Properties/settings"<br>  |
| 13. | Now save the edited VCON configuration.<br>The OScAR Server will automatically reboot.<br>The reboot at this moment is necessary to activate the new configuration and to carry out the next steps. |

Table 11-6 Setup of the SIP trunk to Mc800

| Upload a translation table to the OScAR Server via VCON | |
|---|---|
| 14. | In VCON go to the menu item:<br>Tyco -> load translation table<br>Next, upload the translation table to the OScAR Server.<br>➤ see Section 4.14 "Upload an Mc800 translation table"<br>If the translation was uploaded with success, the following output will appear:<br>`2012-02-20 11:56:02.2099 [00000238]:SYS:VSIP-1-1 Line B Layer 2 established`<br>`2012-02-20 11:56:02.2152 [00000238]:Mc800 trunk enabled`<br>`2012-02-20 11:56:02.2398 [00000238]:Mc800 : 15 table entries loaded`<br>If a translation table was already entered before, the following additional output will appear:<br>`2012-02-20 11:56:02.1948 [00000238]:SYS:VSIP-1-1 Line B Layer 2 released`<br>`2012-02-20 11:56:02.2032 [00000238]:Mc800 trunk disabled` |

Table 11-7 Upload a translation table to the OScAR Server via VCON

| Configure and test the connection to the PBX system | |
|---|---|
| 15. | Configure the telecommunications interface in keeping with the PBX interface settings (separate documents).<br>➤ see Section 7.1 "Basic information on the PBX interfaces of DAKS" |
| 16. | Verify with your PBX service technician if the PBX system is fully configured to connect the DAKS Server.<br>This configuration is the prerequisite for the following steps. |
| 17. | Verify if the interface(s)/trunk(s) to the PBX system is/are operational.<br>• Connection via VoIP/SIP(-Q)<br>➤ see Step 18<br>• Connection via ISDN/$S_0$<br>➤ see Step 18b |

Table 11-8 Configure and test the connection to the PBX system

| Configure and test the connection to the PBX system | |
|---|---|
| 18. | Open the Terminal window of the process "SIP on vsip".<br>➤ see Section 4.11 "The Terminal window"<br>Check if the SIP trunk to the PBX system is activated and connected.<br>Enter the command `trunk` and press `<enter>`.<br>The following output will appear:<br>`SIP-Trunks:`<br>`----------`<br>**`SIP trunk #1:`** `192.168.69.207:5060 -> <- 30 channels (0 used)`<br>**`Enabled:`** `yes,` **`peer active:`** `yes`<br>`peer:one, watchdog active: 192.168.7.20:5060`<br>`peer #1: 192.168.7.20:5060 prio=1 ok`<br>**`Mc800 SIP trunk #2:`** `192.168.69.207:5060 -> <- 10 channels (0 used)`<br>**`Enabled:`** `yes,` **`peer active:`** `yes`<br>`tablesize: 15`<br>In this context, bear in mind the following details (in bold print):<br>• The information "**`Mc800 SIP trunk #2"`** describes the SIP trunk to Mc800.<br>• The information "**`SIP trunk #1"`** describes the SIP trunk to the PBX system.<br>• The information "**`peer #1`**" describes the "peer SIP IP address" on the side of the softswitch, including the "peer SIP IP port".<br>• The information "**`30 channels`**" or "**`10 channels`**", respectively, indicates the number of channels that are assigned and depends on the activation or on the configuration, respectively.<br>• The information "**`Enabled:`** `yes,` **`peer active:`** `yes`" indicates that the trunk is enabled and that the corresponding peer is connected.<br>The SIP trunk is active and ready for operation. |

Table 11-8 Configure and test the connection to the PBX system

| Configure and test the connection to the PBX system | |
|---|---|
| 18b | Connect the ISDN-PBX to the S0/S2M interface(s) of the DAKS Server.<br>Make sure you stick to the pin assignment of the ISDN interfaces.<br>➤ see "Hardware Service Manual"<br>Make sure you stick to the wiring plan of the ISDN interfaces.<br>➤ see "Hardware Service Manual"<br>Open the Terminal window of the process "ISDN".<br>➤ see Section 4.11 "The Terminal window"<br>Check if the ISDN trunk is activated and connected.<br>Enter the command <l3status 0> for the interface ISDN 1 or <l3status n> for the interface ISDN and press <enter>.<br>The following output will appear:<br><br>l3status 0<br>***** Layer-3 status:<br>====================<br>trunk name \| ISDN #1<br>name of buend \| ISDN Trunk 1<br>----------+----------<br>Layer-1 status \| **ok**<br>Layer-2 status \| **established**<br>Layer-3 status \| **running**<br>----------+----------<br>sum of all B-Channels: \| 30<br>- bidirectional: \| 30 ( 0)<br>- incoming: \| 0 ( 0)<br>- outgoing: \| 0 ( 0)<br>- not used: \| 0 ( 0)<br>- locked: \| 0 ( 0)<br>----------+----------<br>active connections (all) \| 0<br>active connections (B-Channel) \| 0<br>reserved connections (all) \| 0<br>reserved connections (B-Channel)\| 0<br>----------+----------<br>In this context, bear in mind the following details (in bold print):<br>• Layer 1 status = **ok**<br>• Layer 2 status = **established**<br>• Layer 3 status = **running**<br>The ISDN digital trunk is connected, tested and ready for operation. |

Table 11-8 Configure and test the connection to the PBX system

| Test thee application 'Gateway' | |
|---|---|
| 19. | Test an Mc800 connection to the telecommunications network.<br>Use an Mc800 device to call a terminal in the telecommunications network.<br>Check if the voice connection has been established. |

Table 11-9 Test thee application 'Gateway'

| Test thee application 'Gateway' | |
|---|---|
| 20. | Test a connection from the telecommunications network to Mc800.<br>Use a terminal in the telecommunications network to call a number in the Mc800 network:<br>The number consists of:<br>• the digital trunk number of the trunk to the OScAR Server,<br>• followed by the dialthru code "Calls to subswitch" (subswitch/gateway functionality),<br>• followed by the number (`Phone-no`) from the translation table.<br>➤ see Section 11.3.1 "Translation table"<br>Check if the voice connection has been established. |

Table 11-9 Test thee application 'Gateway'

| OScAR ServerSave the configuration in a backup | |
|---|---|
| 21. | Save the configuration.<br>➤ see Section 4.7.2 "Save the configuration in a backup"<br>Create a server configuration report for your documentation.<br>➤ see Section 4.9.3 "Output server and process configuration" |
| 22. | Save the entire system in a backup file for a possible later system recovery.<br>➤ see Section 4.7 "Upload installation, update and license files" |

Table 11-10 OScAR ServerSave the configuration in a backup

# 12 Management of Certificates via VCON and TLS/MTLS

Overview

This chapter covers the application of the Transport Layer Security (TLS) and the certificate within the OScAR server. The parameterization of TLS and the management of the certificate is carried out through the service tool VCON.

Contents

This chapter consists of the following sub-sections:



## 12.1 General

To transmit signaling data (SIP/SIP-Q) safely and securely between the OScAR Server and the PBX system or the end device, the OScAR server utilizes the protocol Transport Layer Security (TLS).

Here, all signaling data is transferred from one point to the other in an encrypted form (end-to-end signaling security), and both parties verify the identify of the other partner on the basis of certificates, i.e. via mutual authentication (Multiplexed Transport Layer Security, MTLS).

Optionally, OScAR can also operate without authentication (TLS).

Any transfer of data through the TLS protocol with authentication requires valid certificates of the communication partners.

The encryption algorithm used for TLS is negotiated during the connection build up. Here, the Advanced Encryption Standard (AES) is applied, with a code length of 256 bit.

To transfer voice data (RTP and RTCP data streams) safely and securely between OScAR and the communications partner (e.g. PBX systems, telephones and other end devices), the Framework Secure Real-Time Transport Protocol (SRTP) is used.

In this process, the Advanced Encryption Standard (AES) with the SDES code-exchange procedure for data encryption is applied. The code length (master key length) is 128 bit. The message authentication is effected through HMAC-SHA1 (Hash Message Authentication Code-Secure Hash Algorithm).

## 12.2 Management of certificates through VCON

General details

VCON can be used for the administration of certificates, with the following listed functions:

- Upload certificates to the so-called memory of trusted certificates
- Generate a self-signed certificate
- Create a certificate signing request (CSR) for signing by a certificate authority, e.g. VeriSign
- Export a OScAR machine and CA certificate (machine certificate or CA certificate)

➤ see Section 6.14 "SSL"

Note:
The OScAR server exclusively supports PEM (Base64)-encoded X.509 certificates.

### 12.2.1 Configure and manage Certificates

#### 12.2.1.1 Menu item: "Trusted certificates"

Use this menu item to import a certificate to the OScAR server via VCON, e.g the certificate of a PBX system.

The system will automatically add the imported certificate to the memory of trusted certificates.

How to import certificates, step by step:

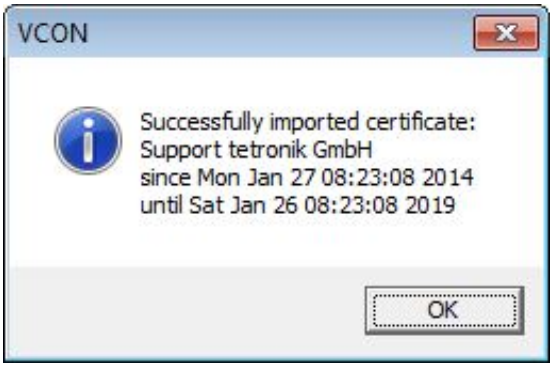
| No. | Task |
|---|---|
| 1. | Give the focus to the Terminal window "SSL".<br>To do so, go to the Processes list and click the process "SSL". |
| 2. | Click the menu item:<br>Trusted certificates ➤ Import certificate... |
| 3. | Next, select the certificate you want to import.<br>Confirm with OK. |
| 4. | The certificate is imported into the OScAR server.<br>There, it is saved in the folder "Trusted Certificates".<br>➤ see Section 6.14 "SSL"<br>The following message will pop up:<br>  <br>Confirm with Ok. |

Table 12-1 Import certificates via VCON

#### 12.2.1.2 Menu item "Self-signed certificate"

Use this menu item to:

- create a tetronik-CA signed certificate and
- export the tetronik-CA certificate.

How to create a tetronik-CA signed certificate, step by step:

A self-signed certificate is, for example, always needed when the IP address of the OScAR servers is changed and the PBX system must verify the IP address in the OScAR certificate.

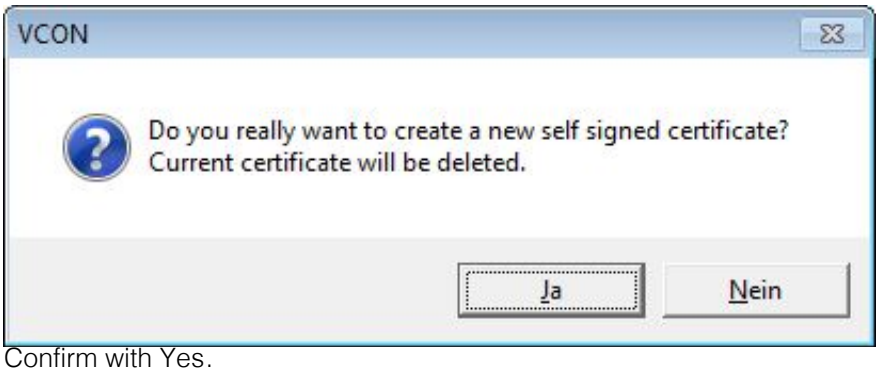
| No. | Task |
|---|---|
| 1. | Give the focus to the Terminal window "SSL".<br>To do so, go to the Processes list and click the process "SSL". |
| 2. | Click the menu item:<br>Self-signed certificate ➤ Create tetronik-CA signed certificate... |
| 3. | The following message will pop up.<br>  <br>Confirm with Yes. |
| 4. | A new, self-signed certificate is generated and stored in the OScAR server, where it is added to the folder "Machine Certificate":<br>➤ see Section 6.14 "SSL" |

Table 12-2 Create tetronik-CA signed certificate

How to export a tetronik CA certificate, step by step:

Use this menu item to export the tetronik-CA certificate in order to upload it to the PBX system. With this certificate, the OScAR server can authenticate itself to the PBX system.

| No. | Task |
|---|---|
| 1. | Give the focus to the Terminal window "SSL".<br>To do so, go to the Processes list and click the process "SSL". |
| 2. | Click the menu item:<br>Self-signed certificate ➤ Export tetronik-CA... |
| 3. | This will open a user window to enter a the wanted name of the certificate.<br>Click Save to save your entries. |

Table 12-3 Export tetronik-CA certificate

### 12.2.1.3 Menu item: "Certificate signing request"

Use this menu item to:

- create a certificate signing request (CSR) and
- upload a certificate created by a certificate authority (CA).

How to create a certificate signing request (CSR), step by step:

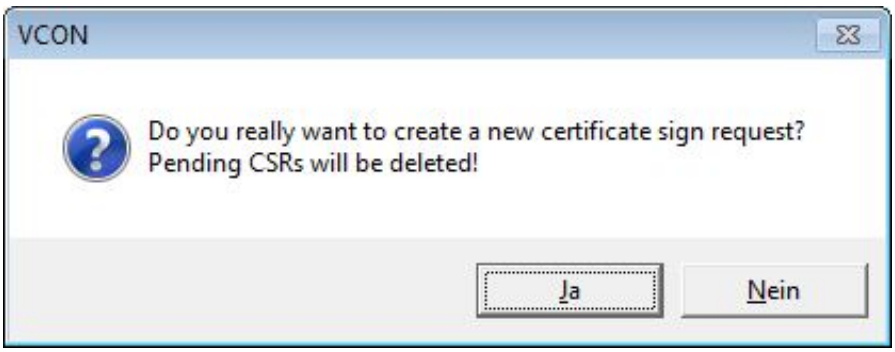
| No. | Task |
|---|---|
| 1. | Give the focus to the Terminal window "SSL".<br>To do so, go to the Processes list and click the process "SSL". |
| 2. | Click the menu item:<br>Certificate signing request ➤ Create certificate signing request (CSR)... |
| 3. | The following message will appear:<br>  <br>Confirm with Yes. |
| 4. | This will open a user window to enter a the wanted name of the certificate signing request (CSR), (not shown here).<br>Finally, click "Delete". |

Table 12-4 Create certificate signing request (CSR)

How to import signed certificates, step by step:

| No. | Task |
|---|---|
| 1. | Give the focus to the Terminal window "SSL".<br>To do so, go to the Processes list and click the process "SSL". |
| 2. | Click the menu item:<br>Certificate signing request ➤ Import signed certificate... |
| 3. | Choose the signed certificate you want to import.<br>Confirm with Yes. |

Table 12-5 Import signed certificates

#### 12.2.1.4 Menu item: "Export currently used own certificate"

Use this menu item to export your own certificate which you are currently using to upload it to the PBX system so that the PBX system can authenticate the OScAR server.

How to save the own certificate you are currently using, step by step:

| No. | Task |
|---|---|
| 1. | Give the focus to the Terminal window "SSL".<br>To do so, go to the Processes list and click the process "SSL". |
| 2. | Click the menu item:<br>Currently used own certificate ➤ Save currently used own certificate... |
| 3. | This will open a user window to enter a the wanted name of the certificate.<br>Click Save to save your entries. |

Table 12-6 Save currently used own certificate

## 12.3 Mutual Transport Layer Security (MTLS)

Make sure the below requirements are met to enable communication between OScAR and the PBX system via MTLS.

Step 1:

Make sure that both the OScAR Server and the PBX system have valid certificates and that both parties are able to authenticate one another.

To do so, the certificate of the PBX system is usually imported to the OScAR Server and vice versa.

Step 2:

Configure the OScAR Server and the PBX system for the operation with MTLS.

While you do so, please be mind that other ports and PBX peer addresses are utilized for the communication via TLS.

## 12.4 Management of certificates in VCON

VCON provides an overview of all certificates that are available in the OScAR server, including their contents. This makes it possible to verify their details whenever needed, e.f. their validity, CA and organization.

### 12.4.1 Example: Machine certificate in VCON

| Tree structure | Name | Example | Description |
|---|---|---|---|
| +SSL | | | |
| + Machine Certificate | | | |
| + tetronik GmbH | | | |
| | Serial Number | 1382947901 (0x526e1c3d) | Serial number of certificate |
| | CN (Common Name) | 192.168.96.202 | IP address of OScAR server |
| | Organization | tetronik GmbH | Name of the organization or business. |
| | Organizational Unit | tetronik GmbH | Unit of organization/business. |
| | alt IP | 192.168.96.203 | Alternative IP address of the OScAR-Sever. |
| | Address | DE, Hessen, Taunusstein | Address of the organization or business. |
| | Mail | info@ tetron-ik.com | The e-mail address of the organization or business. |
| | Function | SSL CLI, SSI SRV | Function of the certificate. |
| | Hash | 0xf59e2703 | The "Hash" of the certificate. |
| | Valid since | Mon Oct 28:08:11:19 2013 UTC | The date and time since when the certificate has been valid. |
| | Valid until | Sat Oct 27:08:11:19 2014 UTC | The date and time since upon which the certificate will become invalid. |
| | Certificate status | OK | The status of the certificate:<br>• OK<br>The certificate is valid<br>• expired in x days<br>Starting 60 days prior to the expiry of the "Valid until" date, the system will signal how many more days the certificate will remain valid.<br>• expired<br>The certificate is no longer valid.<br>• not valid yet<br>The certificate is not yet valid. |

Table 12-7 Example of Certificate