Avaya Solution & Interoperability Test Lab

Application Notes for the Interoperation of NovaLink NovaConf with Avaya Communication Server Integral 55 LX - Issue 1.1

Abstract

These Application Notes describe the necessary configuration steps for the successful interoperation of the NovaLink NovaConf with the Avaya Communication Server Integral 55 LX (I55 LX).

NovaLink NovaConf is a proprietary conference solution which complements other applications from NovaLink.

An Avaya Communication Server I55 LX with software version L03 GA was used as the hosting PBX for the NovaConf system.

Information in these Application Notes has been obtained through Developer*Connection* compliance testing and additional technical discussions. Testing was conducted via the Developer*Connection* Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

This document specifies the configurations and tests used to verify compatibility and interoperability between the NovaLink NovaConf server with an Avaya Communication Server Integral 55 LX (I55 LX). The NovaConf Server is a proprietary conference solution from NovaLink. With its scope of services it supplements NovaAlert and NovaMail. The NovaConf server initiates conferences among telephones attached to the Avaya I55 LX via a Basic Rate (BRI) or a Primary Rate Interface (PRI) with QSIG protocol.

Various types of conferences can be configured, dependent on conference participants' needs:

"Incoming Conferences" allow users to dial in to conferences held at a specific time.

"Outgoing Conferences" can be configured to automatically call a pre-defined list of conference participants at a specific time.

Ad-hoc conferences can be created to meet an immediate need.

The figure below shows the interconnection of the NovaLink NovaConf system with the Avaya I55 LX.

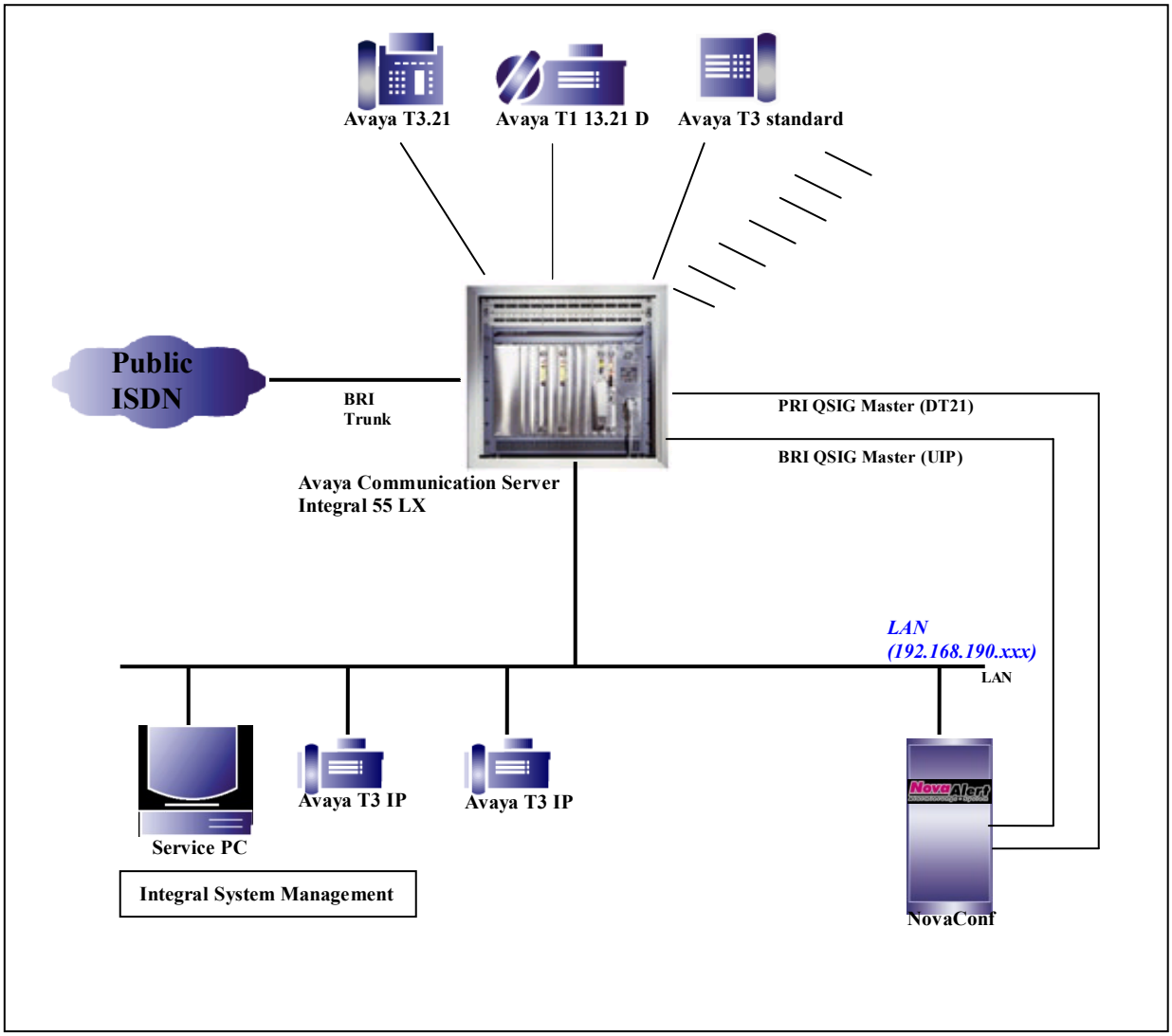


Figure 1: Avaya I55 LX with NovaLink NovaConf server

2. Equipment and Software Validated

The following equipment and software were used for the sample configuration provided:

Equipment	Software
Avaya™ Communication Server Integral 55 LX	L030V00_1_5.1
Avaya™ DT21 circuit pack	Loading list: DT200100 SW-File: DT210016.ICP
Avaya™ UIP circuit pack	Loading list: UIP05100 1.SW-File:UIPOB051.ICP 2.SW-File:UIPOB151.ICP
Avaya™ ACB circuit pack	Platform version: V4.0.16
Avaya™ CF22 circuit pack	Loading list: MSC20201 1.SW-File:MSC2S001.ICP 2.SW-File:MSC202T3.ICP 3.SW-File:MSC202D3.ICP 4.SW-File:MSC20204.ICP
Avaya™ ASCEU circuit pack	Loading list:ASCEU000 1.SW-File:ASCCD002.ICP 2.SW-File:ASCEU023.ICP
Avaya™ Integral System Management (ISM)	V13.003
Avaya™ ComMan	V4401
Avaya™ ICU Editor	V13.004
Avaya™ T3 IP Comfort	Bootloader: B01.03 SW: T323_0DE.h3i
Avaya™ T3.21	Bootloader: V00.09 SW: T314_0DE.hx1
Avaya™ T3 analogue phone (standard)	-
Avaya™ D3 mobile	SW: 17-00-26 EE17-04
Service PC Dell optiplex gx270	Microsoft Windows XP Professional SP2
Deutsche Telekom BRI ISDN trunk (point to point)	-
Numbering plan: 4 digits	-
NovaLink NovaConf Server	V.7.5 SP1a
Gerdes Primux ISDN card 1xPRI / 4xBRI	V3.6.4389

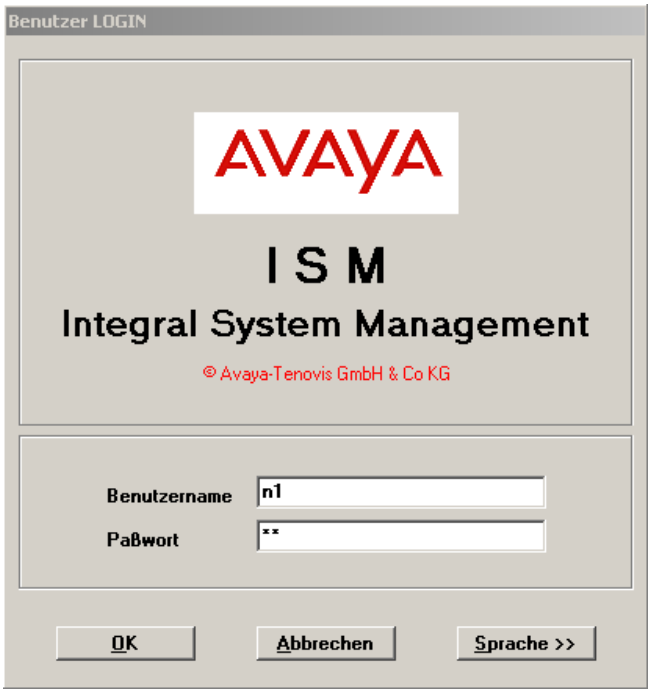
3. Configuration the Avaya I55 LX

The configuration of the Avaya I55 LX is done via the Integral System Management (ISM) and its components which are running on a Service PC connected to the system via the LAN. ISM is the basic service tool for administrating the Avaya I55 systems. It is an application running under Windows-2000 or Windows-XP operating system. The following ISM components are used for the configuration:

ICU Editor - For administrating the various circuit packs of the system.

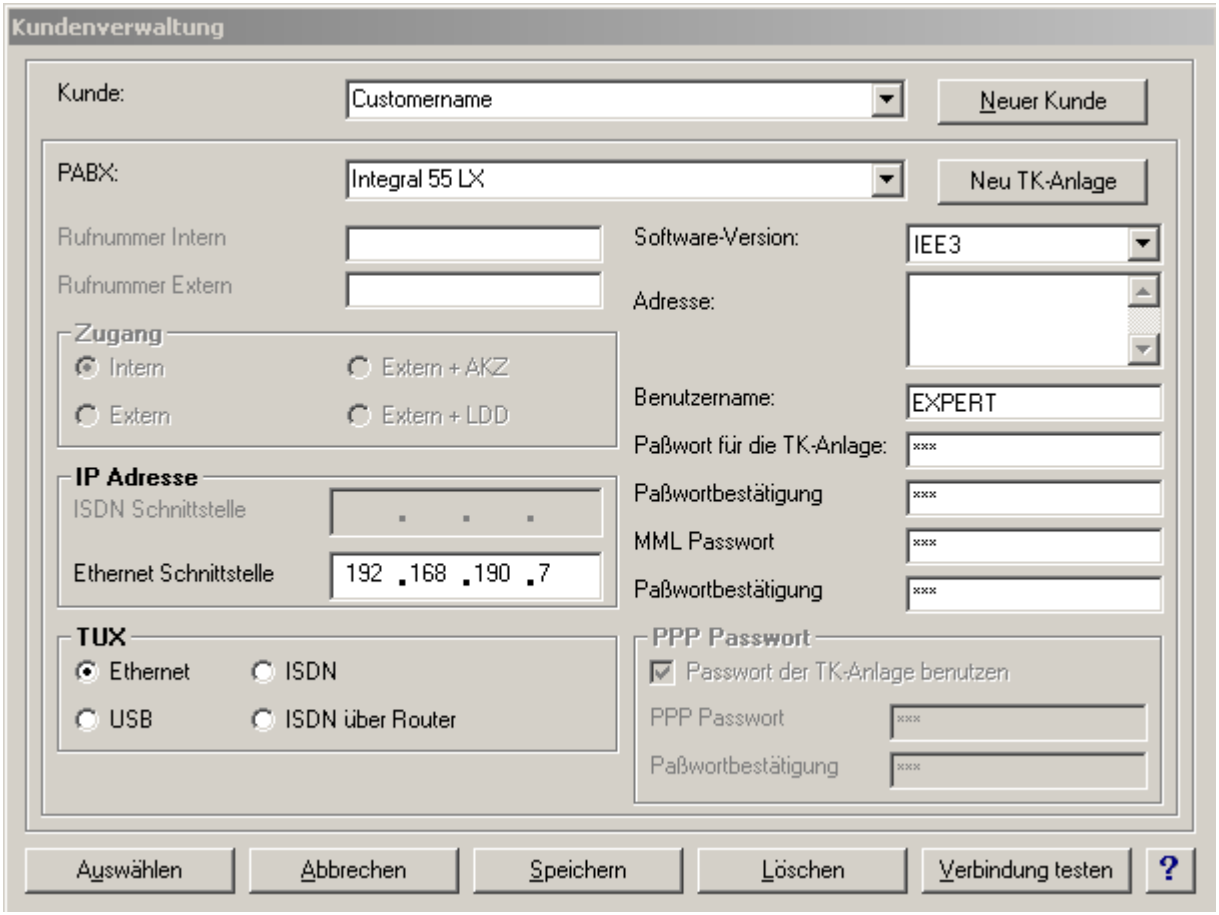
Transparent console **MML** - For administrating the entire Avaya I55 LX system.

The ISM is opened by default with username n1 and password p1.



In order to access the Avaya I55 LX via the LAN, Customer Administration data must be entered:

Software version: IEE3
User name: xxxxxx (default username)
Password: xxxxxx (default password)
MML password: xxxxxxxxxx (default MML password)
IP Address of the system



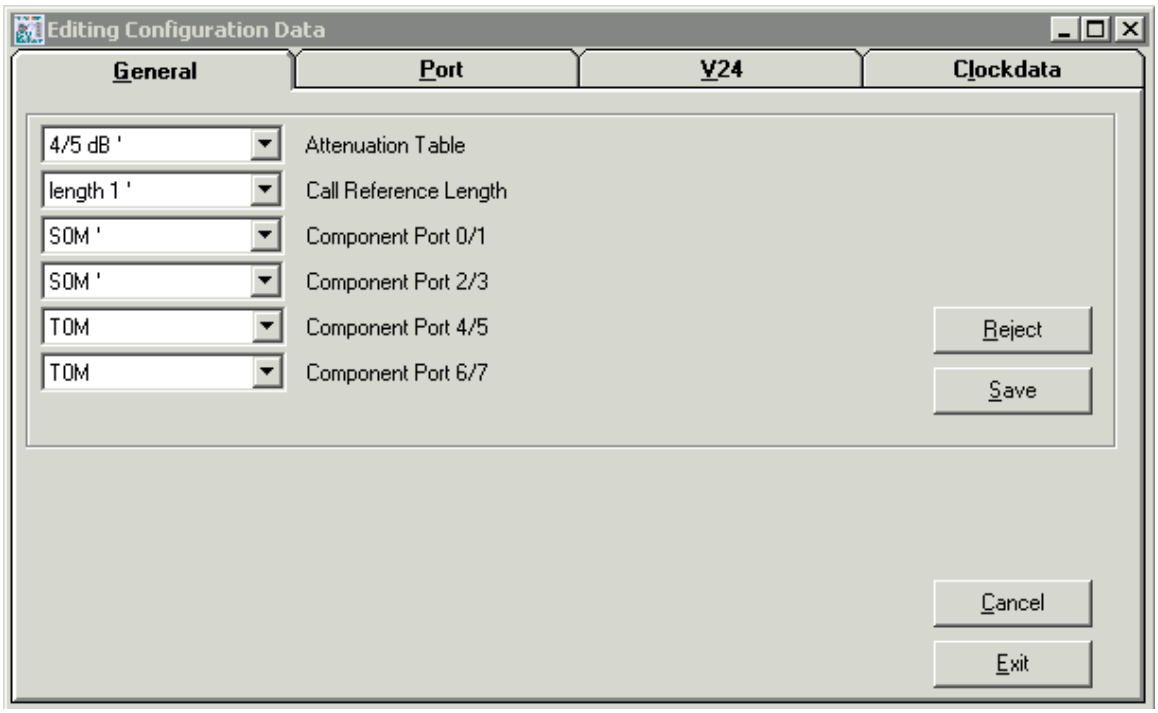
3.1. Configuration of the I55 BRI (QSIG) on the UIP circuit pack

3.1.1. ICU-Editor

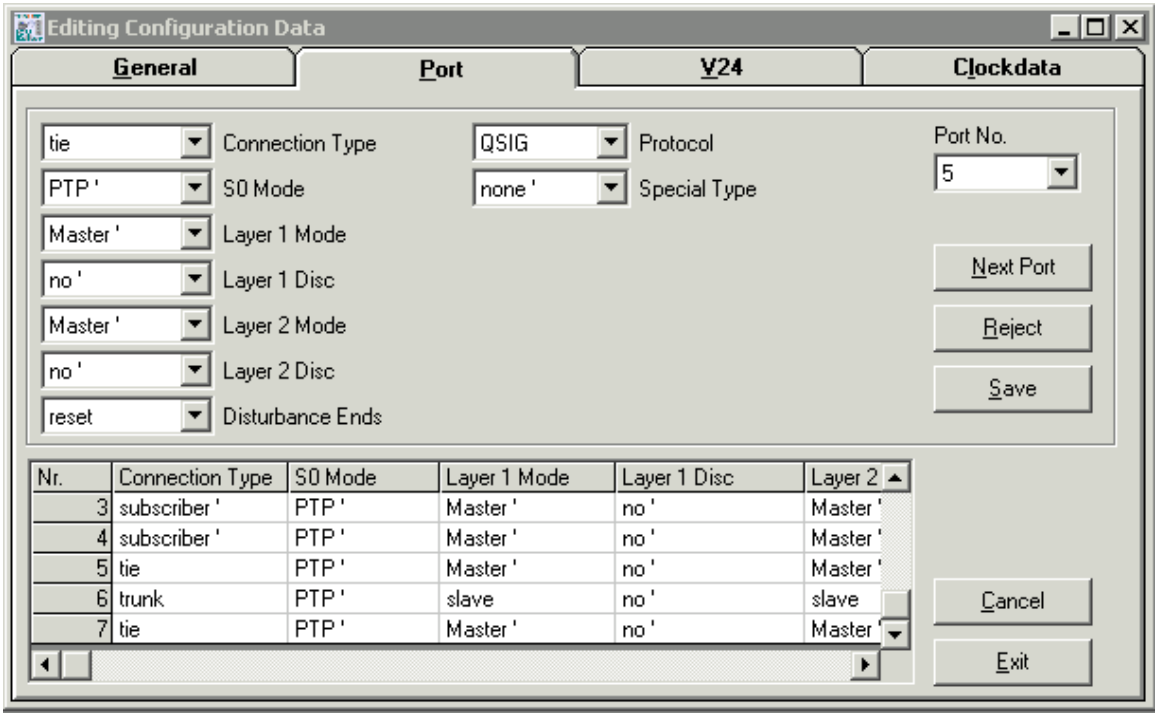
The BRI with QSIG protocol is to be configured with the ICU Editor. The ICU Editor is an integrated tool in ISM. The ICU editor can be opened via the following way:
PABX-Administration - Board - SW Exchange Config Data - selection of the board number of the UIP circuit pack. Once the necessary changes are made: Save and Exit.

Important settings according to guidelines from NovaLink are shown below:

– General:
The Component Port 4/5 has to be set to T0M (for the point-to point BRI).



– Port:
Port No: 5
Connection Type: tie
S0 Mode: PTP (point to point connection)
Layer 1 and Layer 2 Mode: Master (clock generator)
According to this, the connected application (NovaLink) is Slave.
Protocol: QSIG, Special Type: none.



3.1.2. Overview of the System Configuration by MML

Overview of the QSIG line F9000 configured by MML (in the system task AOGD):
Important settings:
Call No.: arbitrary Call No.
Hardware address: 01-01-04-05 (system-module-slot-port)
AO type: BAN (basic access network)
Protocol: QSIG version 0
AO state: must be "In Operation"
Service data:
tlp (telephony), dat (data), gen (general) must be arranged with own dial and traffic groups.
B-channel data:
Allocation code:: NSTA (PABX)
Deliberation code: Active (B-channel negotiation)

```
AOGD<anzg:f9000;
================================================================================
                                                                  22.03.07  10:37:19
Connecting circuit
------------------
Call No.                    : F9000 - F9001
Slot / HWA                  : 01-01-04-05
AO type                     : BAN
================================================================================

General ADS data
----------------
Name                        :
Accounting section          : 00000
Protocols                   :
                               Protocol  | Version | faulty | busy 2| error
                               ----------+---------+--------+-------+------
                                QSIG     | 0       | OFF    | OFF   | OFF
Overload priority           : 0
Public bar. unit gr.        : 1
Colisee bar. unit gr.       : 0
DISA-group                  : 0
Dealergroup                 : 0
CN alloc. HKZ line & tie    :
Category                    : -1
Waiting field maximum       : 10
Reserved
Connection memory           : 1
Service memory              : 3
AO state                    : IN OPERATION
Service block               : sv-free
Call number block           : Off
================================================================================

Service data
------------

                 |     TLP      |     DAT      |     GEN      |              |
-----------------+--------------+--------------+--------------+--------------+
Status           | RELEASED     | RELEASED     | RELEASED     |              |
Dial group       | 5            | 5            | 5            |              |
Traffic group    | 1            | 1            | 1            |              |
Switchover group | 0            | 0            | 0            |              |
Code dial group  | 0            | 0            | 0            |              |
LCR-group        | 0            | 0            | 0            |              |
Dial retrieval   | DEACTIVE     | DEACTIVE     | DEACTIVE     |              |
Backward rel.    | DEACTIVE     | DEACTIVE     | DEACTIVE     |              |
================================================================================

B channel data
--------------
Allocation code      : NSTA
Deliberation code    : ACTIVE
```

Overview of enabled AO-features in the system task AOLM for the services TLP (telephony), DAT (data), and GEN (general) for the QSIG line:

Authorization for the line: SWF4 is the authorization for worldwide telephony in the configured services TLP, DAT and GEN. It is set in the system task SPWE.

```
AOLM<aalm;
                                                          21.03.07  17:04:28
  AO-Number  AO - Perform. features ( Service: TLP, DAT u. GEN )
-------------------------------------------------------------------------------

  F9000      AMT   RULED CIPL0 CIPL1 DQV   PRE   CRF   QBS   QBCFF QIS
AOLM<exit;
AOLM<pgwe:spwe;
Command processing in progress !
SPWE<anbe;
                                                          21.03.07  17:05:05

  AONo     COS ( service : TLP, DAT u. GEN )                  (Customer data )
-------------------------------------------------------------------------------

F9000      SWF4   -   SWF zone 4                   ( SWF4  )
```

Generally, each line must be assigned to a bundle. A mixture of different types of lines (e.g., QSIG, ISDN, etc.) within a bundle is not permitted. Therefore, the QSIG line has to be assigned to its own bundle. The lines can then be seized according to their type by means of a feature access code (FAC / AKZ) defined in the corresponding dial group.

The two QSIG lines are added to bundle 99 in the task BNDL:

Bundle data 99 for the line F9000 – F9001:

```
SPWE<exit;
SPWE<pgwe:bndl;
Command processing in progress !
BNDL<anzg;
BNDL<dbnd:99;
                                                          21.03.07  17:06:19
Bundle number           : 99
Overflow bundle number  : 0
Bundle status           : free
Bundle type             : ALV
ALV stage               : LM overlapp.
Seizure direction       : bothway
Available lines     : 2
Line limit          : 0
Route digit sequence    : -
Postdialing flag           : nein
QSIG Line               : no
Information text        :

- VWZ data
outgoing:
    Allocation digit    : -1,-1,-1,-1,-1,-1,-1,-1,-1,-1
            Selector    : -1
incoming:
    Allocation digit    : -1,-1,-1,-1,-1,-1,-1,-1,-1,-1
            Selector    : -1

FOAC reactions for bundle number
Event     Reaction
------------------
nstf      nein
nstb      nein
kres      nein
uvwa      nein
newa      nein
nbao      nein
anaw      nein
kbne      nein
aoab      nein
nuel      nein

Lines entered :
---------------
F9000  -  seizable             F9001  -  seizable
------------------------------------------------------------
Explanation for FOAC data - FOAC event:
---------------------------------------
NSTF - called extension free      NSTB - called extension busy
KRES - no resources available     UVWA - incomplete dialling
NEWA - invalid dialling           NBAO - called extension not assigned
ANAW - call rejected              KBNE - incoming calls barred
AOAB - out of order               NUEL - network busy
Explanation for FOAC data - FOAC reaction:
```

With the MML task ANLM the important system features for this interface must be enabled:

*ALV System network
*AUL Cut-in line
*AUV Cut-in prevention

*CIPL0 Cut-in protection, no
*CIPL1 Cut-in protection, low
*CIPL2 Cut-in protection, medium
*CIPL3 Cut-in protection, high

*CRF Connection retention flag
*DQV Digital tie line
*GVW Predial alloc. outgoing call
*PRE Path reservation
*QBS QSIG barring supplem. servic.
*QIS QSIG ISO
*QPR QSIG path replacement
* QF7 QSIG future extension 7

The line is configured (see task AOGD above) for dial group 5. The extensions are in dial group 2. To seize the line from the extensions, a FAC / AKZ **(80)** in dial group 2 was configured. This FAC has a reference to bundle 99 to which the lines are actually assigned.

```
WABE<anzg;
WABE<dwgr:2,v;
                                                        21.03.07  17:45:05
Display of dial evaluation data to a dial group
===============================================
 Dial group    :  2
 Dial method   :  Predial

AKZ         Dial    Bndl  AKZ  SA     Co.  LCR    dialing          ext.  LCR  RI-  Num.
            sele.   numb. Info group  nr.  data   conversion       all.  rout SA   Plan
                                         set    digits      sel  cat.  flg  flg
-------------------------------------------------------------------------------------

0           EXTERN  1     -    -      -    -                  0    INIT  ROFF -    -
18          INTERN  -     3    -      -    -                  0     -     -   -    -
2           EXTERN  2     -    -      -    -                  0    INIT  ROFF -    -
3           INTERN  -     3    -      -    -                  0     -     -   -    -
4           INTERN  -     3    -      -    -                  0     -     -   -    -
5           CCC     -     -    -      -    -                  0     -     -   -    -
6           INTERN  -     4    -      -    -                  0     -     -   -    -
78          NETZ    30    3    -      -    -                  0    INIT  ROFF -    -
79          NETZ    33    -    -      -    -                  0    INIT  ROFF -    -
80          NETZ    99    1    -      -    -                  0    INIT  ROFF -    -
83          NETZ    83    4    -      -    -                  0    INIT  ROFF -    -
85          NETZ    85    3    -      -    -                  0    INIT  ROFF -    -
9003        BCA     -     -    -      -    -      -           -     -     -   -    -
E40         RUVA    -     -    -      -    -      -           -     -     -   -    -
E41         RUFB    -     -    -      -    -      -           -     -     -   -    -
E42         RUFA    -     -    -      -    -      -           -     -     -   -    -
E43         RUVB    -     -    -      -    -      -           -     -     -   -    -
E44         RWLDA   -     -    -      -    -      -           -     -     -   -    -
E45         RWLVA   -     -    -      -    -      -           -     -     -   -    -
E46         RUDA    -     -    -      -    -      -           -     -     -   -    -
E47         CFMVA   -     -    -      -    -      -           -     -     -   -    -
E48         CFMDE   -     -    -      -    -      -           -     -     -   -    -
E49         CFMDE   -     -    -      -    -      -           -     -     -   -    -
E50         RNUAK   -     -    -      -    -      -           -     -     -   -    -
E51         RNUDE   -     -    -      -    -      -           -     -     -   -    -
E52         RNUFR   -     -    -      -    -      -           -     -     -   -    -
E53         RNUSP   -     -    -      -    -      -           -     -     -   -    -
E54         CW      -     -    -      -    -      -           -     -     -   -    -
E55         CWZUS   -     -    -      -    -      -           -     -     -   -    -
E56         CWPRV   -     -    -      -    -      -           -     -     -   -    -
E57         CWS2    -     -    -      -    -      -           -     -     -   -    -
E58         CWS1    -     -    -      -    -      -           -     -     -   -    -
E59         CPZEOS  -     -    -      -    -      -           -     -     -   -    -
E60         CPEOS   -     -    -      -    -      -           -     -     -   -    -
E61         CWZP    -     -    -      -    -      -           -     -     -   -    -
E62         EME     -     -    -      -    -      -           -     -     -   -    -
E63         GENLOE  -     -    -      -    -      -           -     -     -   -    -
E64         SADIR   -     -    2      -    -      -           -     -     -   -    -
E65         SAHAK   -     -    -      -    -      -           -     -     -   -    -
```

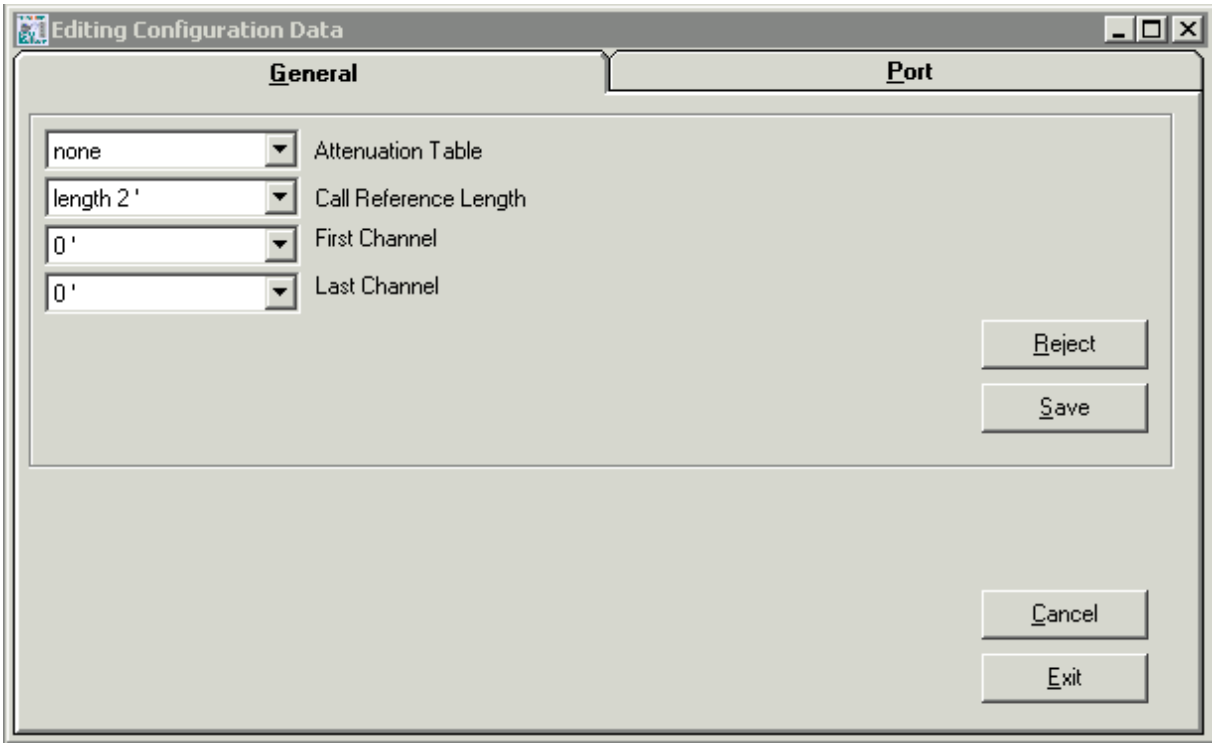
3.2. Configuration of the I55 PRI (QSIG) on the DT21 circuit pack

3.2.1. ICU-Editor

The PRI (Primary Rate Interface) with QSIG protocol is to be configured with the ICU Editor. The ICU Editor is an integrated tool in ISM. The ICU editor can be opened via the following way:
PABX-Administration - Board - SW Exchange Config Data - selection of the board number of the UIP circuit pack. Once the necessary changes are made: Save and Exit.

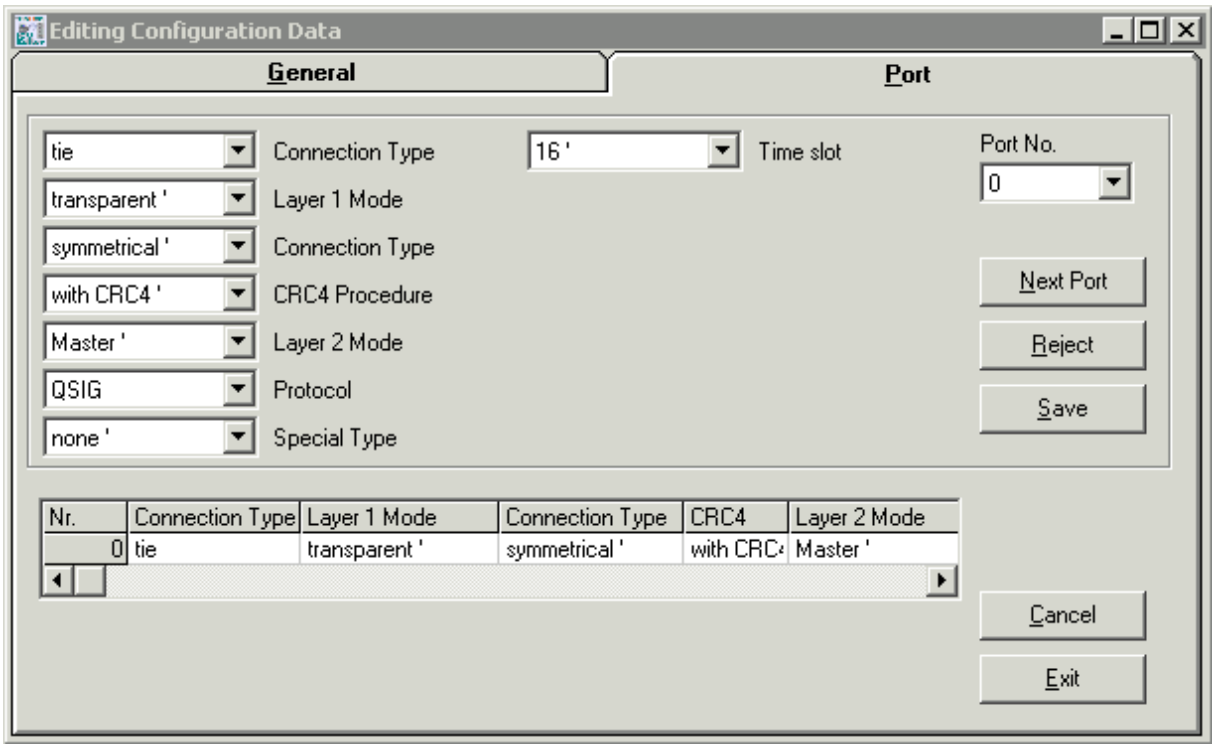
Important settings according to guidelines from NovaLink are shown below:

– General:
Attenuation Table: none
Call Reference Length: length 2.



– Port:
Port No: 0 (the DT21 circuit pack has only one port)
Connection Type: tie
Layer 1 Mode: transparent
Connection Type: symmetrical
Layer 2 Mode: Master

According to this, the connected application (NovaLink) is Slave.
Protocol: QSIG, Special Type: none.



3.2.2. Overview of the System Configuration by MML

Overview of the QSIG PRI configured by MML (system task AOGD) with number D2100 – D2129.
Important settings:
Call No. : arbitrary Call No.
Hardware address: 01-01-12-00 (system-module-slot-port)
AO type: PRN (primary rate network)
Protocol: QSIG version 0

AO state: must be "In Operation"
Service data:
tlp (telephony), dat (data), gen (generally) must be arranged with own dial and traffic groups.
B-channel data:
Allocation code:: NSTA (PABX)
Deliberation code: Active (B-channel negotiation)
All B-channels are in an own bundle with two-way direction. The status must be "enabled" (F).

```
AOGD<2:d2100;
================================================================================
                                                              23.03.07  12:24:39
Connecting circuit
------------------
Call No.                    : D2100 - D2129
Slot / HWA                  : 01-01-12-00
AO type                     : PRN
================================================================================

General ADS data
----------------
Name                        :
Accounting section          : 00000
Protocols                   :
                               Protocol  | Version | faulty | busy 2| error
                               ----------+---------+--------+-------+------
                                QSIG     | 0       | OFF    | OFF   | OFF
Overload priority           : 2
Public bar. unit gr.        : 1
Colisee bar. unit gr.       : 0
DISA-group                  : 0
Dealergroup                 : 0
CN alloc. HKZ line & tie    :
Category                    : -1
Waiting field maximum       : 10
Reserved
Connection memory           : 1
Service memory              : 4
AO state                    : IN OPERATION
Service block               : sv-free
Call number block           : Off
================================================================================

Service data
------------

                |     TLP      |     DAT      |     TLT      |     GEN      |
----------------+--------------+--------------+--------------+--------------+
Status          | RELEASED     | RELEASED     | RELEASED     | RELEASED     |
Dial group      | 5            | 6            | 6            | 6            |
Traffic group   | 1            | 1            | 1            | 1            |
Switchover group| 0            | 0            | 0            | 0            |
Code dial group | 0            | 0            | 0            | 0            |
LCR-group       | 0            | 0            | 0            | 0            |
Dial retrieval  | DEACTIVE     | DEACTIVE     | DEACTIVE     | DEACTIVE     |
Backward rel.   | DEACTIVE     | DEACTIVE     | DEACTIVE     | DEACTIVE     |
================================================================================

B channel data
--------------
Allocation code     : NSTA
Deliberation code   : ACTIVE
```

```
B chan. Bundle Direct  Acc. Status  |  B chan. Bundle Direct  Acc. Status
number  number                      |  number  number
--------------------------------    |  --------------------------------
1       30      W      M     F      |  16      30      W      M     F
2       30      W      M     F      |  17      30      W      M     F
3       30      W      M     F      |  18      30      W      M     F
4       30      W      M     F      |  19      30      W      M     F
5       30      W      M     F      |  20      30      W      M     F
6       30      W      M     F      |  21      30      W      M     F
7       30      W      M     F      |  22      30      W      M     F
8       30      W      M     F      |  23      30      W      M     F
9       30      W      M     F      |  24      30      W      M     F
10      30      W      M     F      |  25      30      W      M     F
11      30      W      M     F      |  26      30      W      M     F
12      30      W      M     F      |  27      30      W      M     F
13      30      W      M     F      |  28      30      W      M     F
14      30      W      M     F      |  29      30      W      M     F
15      30      W      M     F      |  30      30      W      M     F

Number of seizable B channels: 30

Seizure direction                   |  Status
--------------------------------    |  --------------------------------
G - outgoing                        |  B  - BUSY
K - incoming                        |  D  - DEFECT.
W - bothway                         |  EB - EDSS1 BUSY
                                    |  ER - EDSS1 RESERVED
                                    |  F  - FREE
                                    |  G  - FAULTY
Access right                        |  R  - RESERVED
--------------------------------    |  S  - BARRED
M - with                            |  T  - DEFECT./BARRED
O - without                         |  V  - SEIZED/BARRED
================================================================================
```

Overview of enabled AO-features in the system task AOLM for the services TLP (telephony), DAT (data) and GEN (general) for the QSIG PRI D2100.

Authorization for the line. SWF4 is the authorization for worldwide telephony in the configured services TLP, DAT and GEN in the system task SPWE.

```
AOLM<aoau:d2100;
AOLM<aalm;
                                                          23.03.07  12:17:43
  AO-Number  AO - Perform. features ( Service: TLP, DAT, TLT, u. GEN )
--------------------------------------------------------------------------------

  D2100      AMT   CIPL0 DQV   QPR   CRF   QBS   QBCFF QIS

SPWE<anbe;
                                                    23.03.07  12:19:19

  AONo     COS ( service : TLP, DAT, TLT u. GEN )                (Customer data )
--------------------------------------------------------------------------------

D2100      SWF4   -   SWF zone 4                  ( SWF4  )
```

Generally, each line must be assigned to a bundle. A mixture of different types of lines (e.g., QSIG, ISDN, etc.) within a bundle is not permitted. Therefore, the QSIG line has to be assigned to its own bundle. The lines can then be seized according to their type by means of a feature access code (FAC / AKZ) defined in the corresponding dial group.

The thirty QSIG lines are added to bundle 30 in the task BNDL:
Bundle data 30 for the lines D2100 – D2127:

```
BNDL<dbnd:30,j;                                                              :

Bundle number           : 30
Overflow bundle number  : 0
Bundle status           : free
Bundle type             : ---
ALV stage               : LM overlapp.
Seizure direction       : bothway
Available lines      : 30
Line limit           : 0
Route digit sequence    : -
Postdialing flag           : nein
QSIG Line               : no
Information text        :

- VWZ data
outgoing:
    Allocation digit    : -1,-1,-1,-1,-1,-1,-1,-1,-1,-1
             Selector   : -1
incoming:
    Allocation digit    : -1,-1,-1,-1,-1,-1,-1,-1,-1,-1
             Selector   : -1

FOAC reactions for bundle number
Event     Reaction
------------------
nstf      nein
nstb      nein
kres      nein
uvwa      nein
newa      nein
nbao      nein
anaw      nein
kbne      nein
aoab      nein
nuel      nein

Lines entered :
---------------
D2100  -  seizable            D2101  -  seizable
D2102  -  seizable            D2103  -  seizable
D2104  -  seizable            D2105  -  seizable
D2106  -  seizable            D2107  -  seizable
D2108  -  seizable            D2109  -  seizable
D2110  -  seizable            D2111  -  seizable
D2112  -  seizable            D2113  -  seizable
D2114  -  seizable            D2115  -  seizable
D2116  -  seizable            D2117  -  seizable
D2118  -  seizable            D2119  -  seizable
D2120  -  seizable            D2121  -  seizable
D2122  -  seizable            D2123  -  seizable
D2124  -  seizable            D2125  -  seizable
D2126  -  seizable            D2127  -  seizable
```

The same system features (ANLM) as for the BRI are used here:

*ALV System network
*AUL Cut-in line
*AUV Cut-in prevention

*CIPL0 Cut-in protection, no
*CIPL1 Cut-in protection, low
*CIPL2 Cut-in protection, medium
*CIPL3 Cut-in protection, high

*CRF Connection retention flag
*DQV Digital tie line
*GVW Predial alloc. outgoing call
*PRE Path reservation
*QBS QSIG barring supplem. servic.
*QIS QSIG ISO
*QPR QSIG path replacement
* QF7 QSIG future extension 7

The line is configured (see task AOGD above) for dial group 5. The extensions are in dial group 2. To seize the line from the extensions, a FAC / AKZ **(78)** in dial group 2 was configured. This FAC has a reference to bundle 30 to which the lines are actually assigned.

```
WABE<anzg;
WABE<dwgr:2,v;
                                                        21.03.07  17:45:05
Display of dial evaluation data to a dial group
===============================================
 Dial group    :  2
 Dial method   :  Predial

AKZ         Dial    Bndl  AKZ  SA    Co. LCR   dialing          ext. LCR  RI- Num.
            sele.   numb. Info group nr. data  conversion       all. rout SA  Plan
                                       set   digits      sel  cat. flg  flg
-------------------------------------------------------------------------------

0           EXTERN 1      -    -     -   -                 0    INIT ROFF -   -
18          INTERN -      3    -     -   -                 0     -    -    -   -
2           EXTERN 2      -    -     -   -                 0    INIT ROFF -   -
3           INTERN -      3    -     -   -                 0     -    -    -   -
4           INTERN -      3    -     -   -                 0     -    -    -   -
5           CCC    -      -    -     -   -                 0     -    -    -   -
6           INTERN -      4    -     -   -                 0     -    -    -   -
78          NETZ   30     3    -     -   -                 0    INIT ROFF -   -
79          NETZ   33     -    -     -   -                 0    INIT ROFF -   -
80          NETZ   99     1    -     -   -                 0    INIT ROFF -   -
83          NETZ   83     4    -     -   -                 0    INIT ROFF -   -
85          NETZ   85     3    -     -   -                 0    INIT ROFF -   -
9003        BCA    -      -    -     -   -     -           -     -    -    -   -
E40         RUVA   -      -    -     -   -     -           -     -    -    -   -
E41         RUFB   -      -    -     -   -     -           -     -    -    -   -
E42         RUFA   -      -    -     -   -     -           -     -    -    -   -
E43         RUVB   -      -    -     -   -     -           -     -    -    -   -
E44         RWLDA  -      -    -     -   -     -           -     -    -    -   -
E45         RWLVA  -      -    -     -   -     -           -     -    -    -   -
E46         RUDA   -      -    -     -   -     -           -     -    -    -   -
E47         CFMVA  -      -    -     -   -     -           -     -    -    -   -
E48         CFMDE  -      -    -     -   -     -           -     -    -    -   -
E49         CFMDE  -      -    -     -   -     -           -     -    -    -   -
E50         RNUAK  -      -    -     -   -     -           -     -    -    -   -
E51         RNUDE  -      -    -     -   -     -           -     -    -    -   -
E52         RNUFR  -      -    -     -   -     -           -     -    -    -   -
E53         RNUSP  -      -    -     -   -     -           -     -    -    -   -
E54         CW     -      -    -     -   -     -           -     -    -    -   -
E55         CWZUS  -      -    -     -   -     -           -     -    -    -   -
E56         CWPRV  -      -    -     -   -     -           -     -    -    -   -
E57         CWS2   -      -    -     -   -     -           -     -    -    -   -
E58         CWS1   -      -    -     -   -     -           -     -    -    -   -
E59         CPZEOS -      -    -     -   -     -           -     -    -    -   -
E60         CPEOS  -      -    -     -   -     -           -     -    -    -   -
E61         CWZP   -      -    -     -   -     -           -     -    -    -   -
E62         EME    -      -    -     -   -     -           -     -    -    -   -
E63         GENLOE -      -    -     -   -     -           -     -    -    -   -
E64         SADIR  -      -    2     -   -     -           -     -    -    -   -
E65         SAHAK  -      -    -     -   -     -           -     -    -    -   -
```

4. Configuration of the NovaConf Server

The NovaConf offers the following ways of configuration:
For initial configuration, the Configuration & License Manager is used (as described below).
Further configurations or changes can be made by means of a web interface (not described here).
All configurations of NovaConf are saved in the NovaAlert.ini file. This file can also be altered by means of a text editor and restored.

The configuration for NovaConf includes some screen shots and fields that are in German.

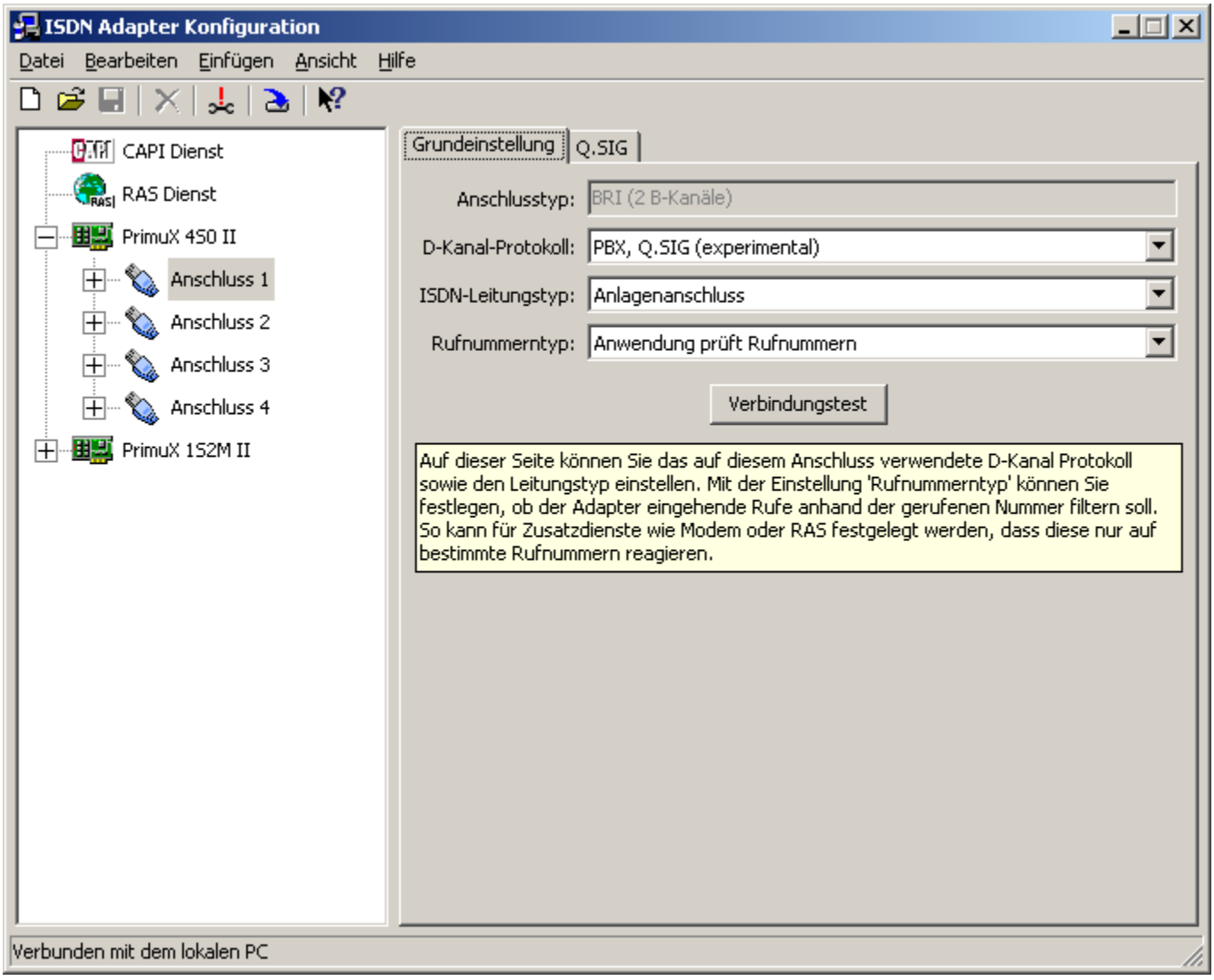
4.1. Configuration of the NovaConf for the BRI

4.1.1. Configuration of the Gerdes PrimuX ISDN Card for BRI

The configuration of the Gerdes PrimuX ISDN Card is done together with the installation of the card:

D-Kanal-Protokoll: PBX, Q.SIG
ISDN-Leitungstyp: Anlagenanschluss
Rufnummerntyp: Anwendung prüft Rufnummern

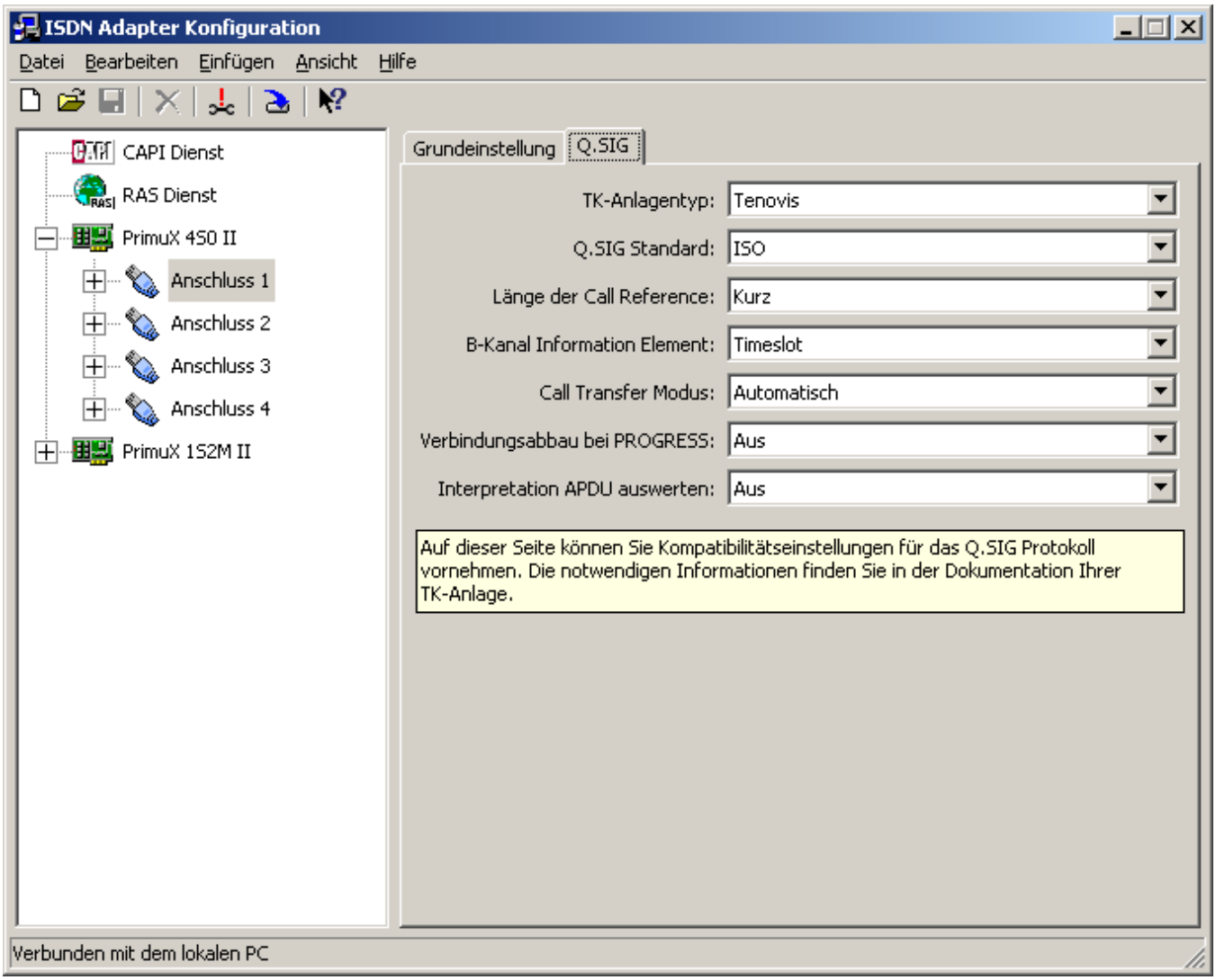
D-channel-protocol: PBX, Q.SIG
Type of ISDN trunk: Trunk (point to point)
Type of number: Application checks call numbers



Under the tab Q.SIG:

TK-Anlagentyp: Tenovis
QSIG Standard: ISO
Länge der Call Reference: Kurz
B-Kanal Information Element: Timeslot
Call Transfer Modus: Automatisch
Verbindungsabbau bei PROGRESS: Aus
Interpretation APDU auswerten: Aus

Type of telecommunication-system: Tenovis
QSIG standard: ISO
Call reference length: short
B-channel information: Timeslot
Call transfer mode: Automatic
Disconnect on PROGRESS: Off
Interpretation APDU evaluation: Off

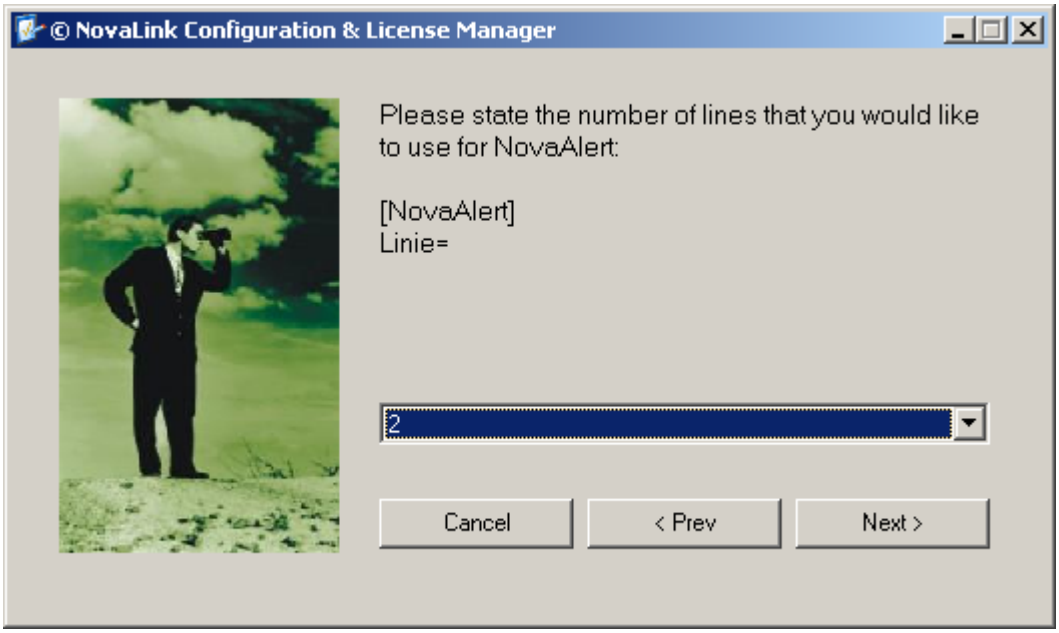


4.1.2. Configuration & License Manager for the BRI

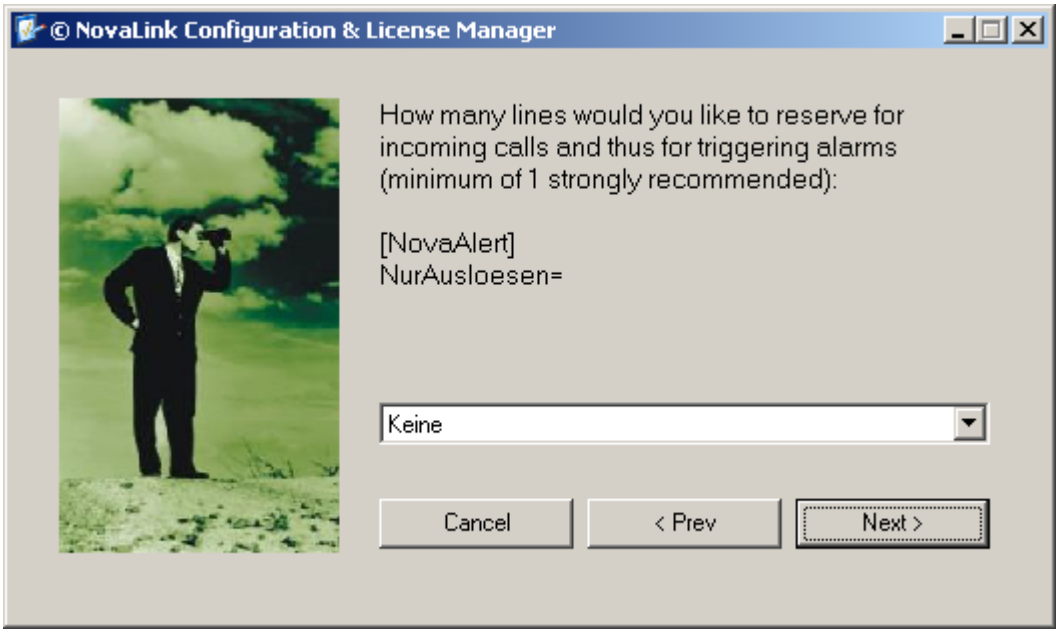
The following screens show the step-by-step configuration of the NovaConf server by means of the Configuration & License Manager.

Configure Server-Settings:

Linie=2
Two lines are used:

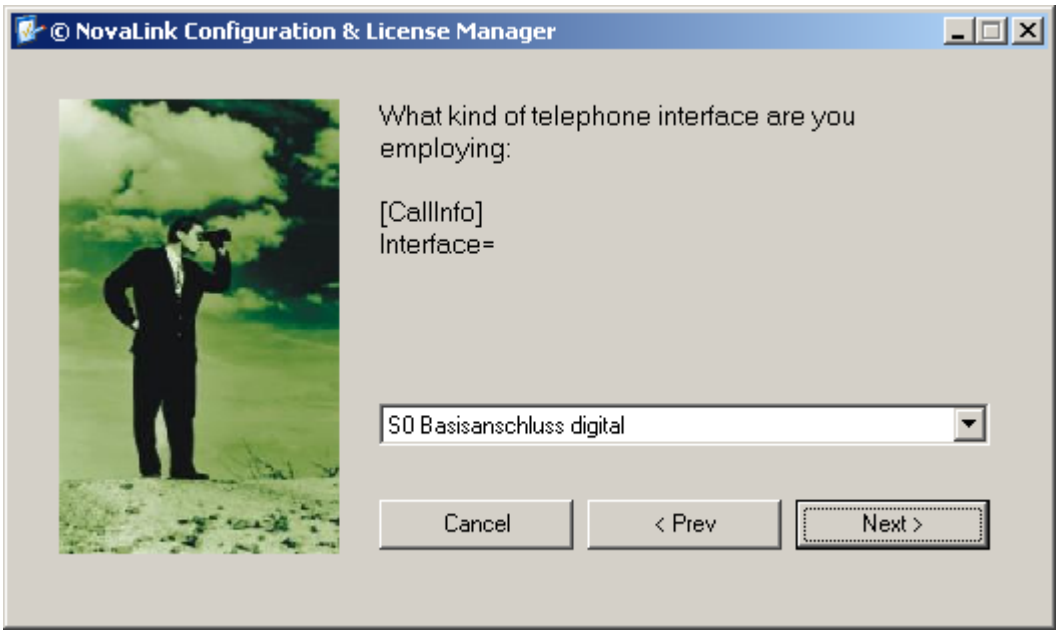


Nur Ausloesen: Keine
Release only= None:



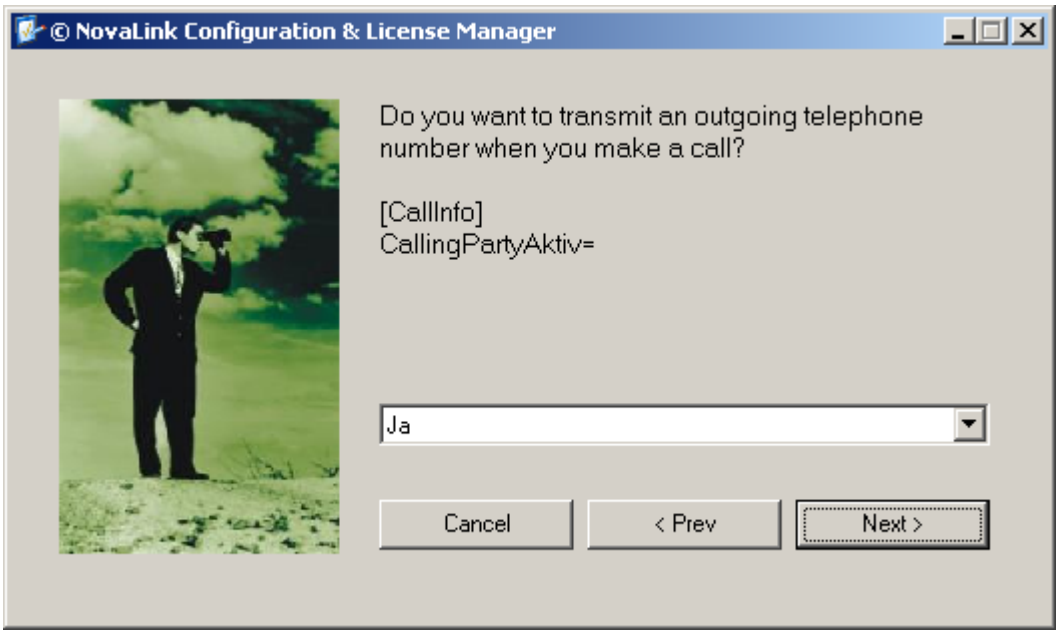
CardDriver= CAPI:

Interface= S0 Basisanschluss digital
Interface= BRI digital

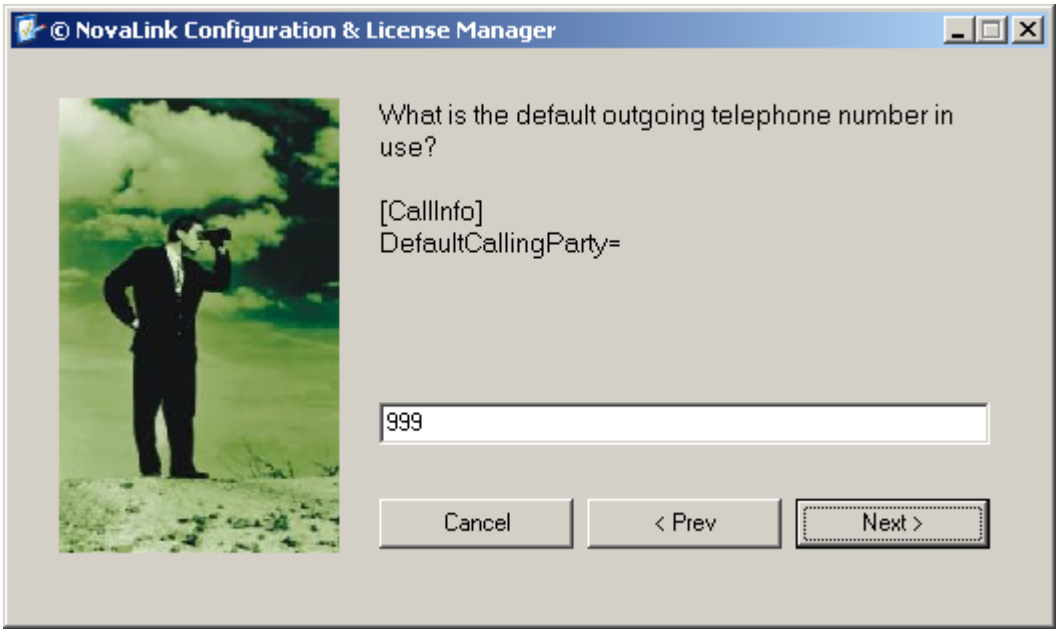


QSIGStandard= QSIG nach ISO
QSIGStandard= QSIG according to ISO (International Standardization Organization)

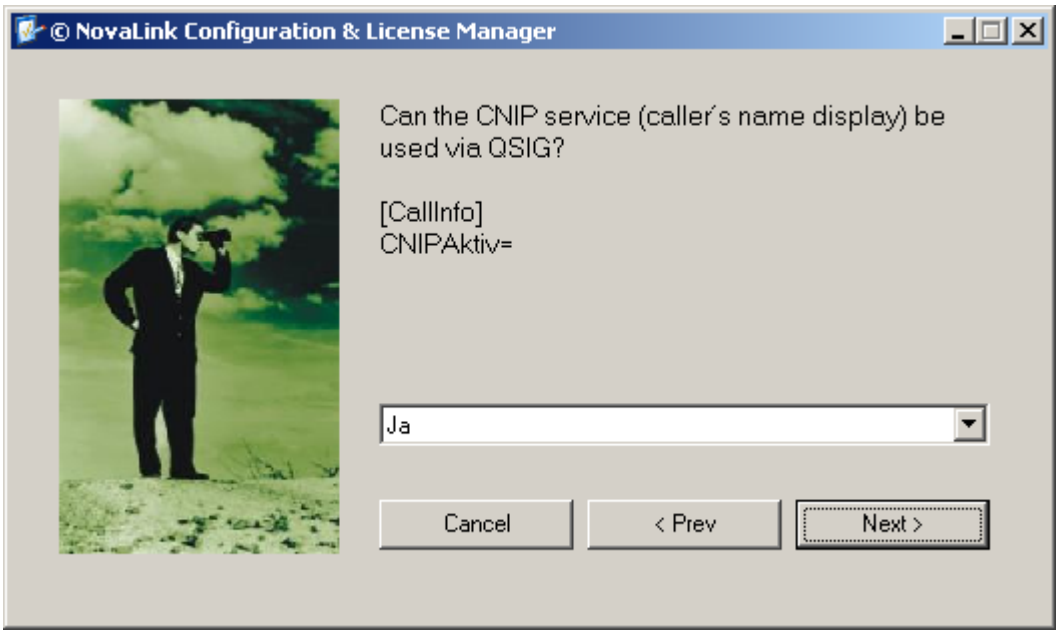
CallingPartyAktiv= Ja
CallingPartyActive= yes



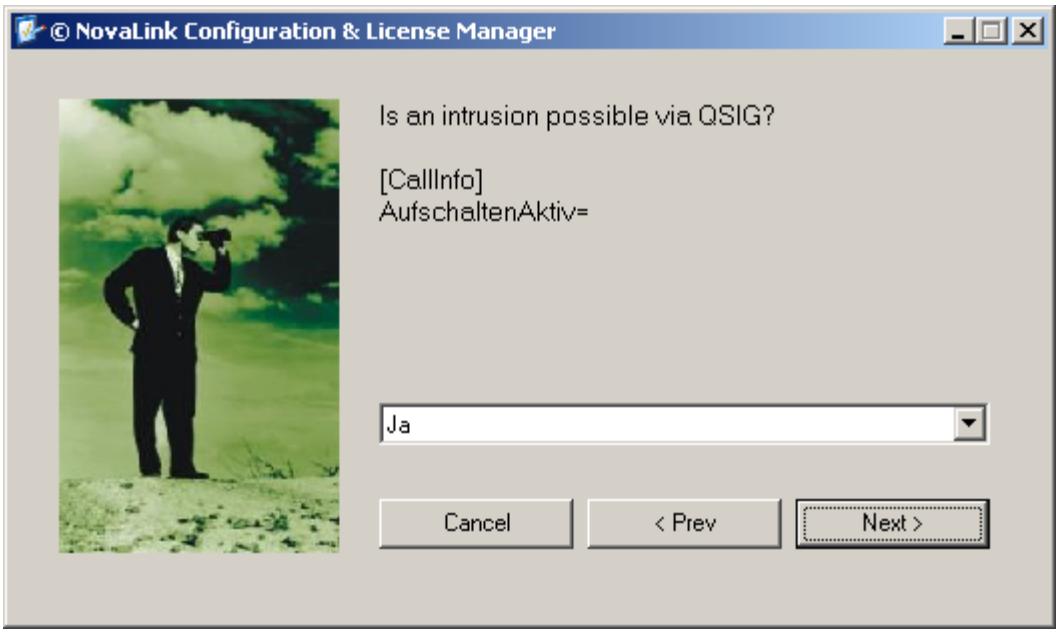
DefaultCallingParty= 999:



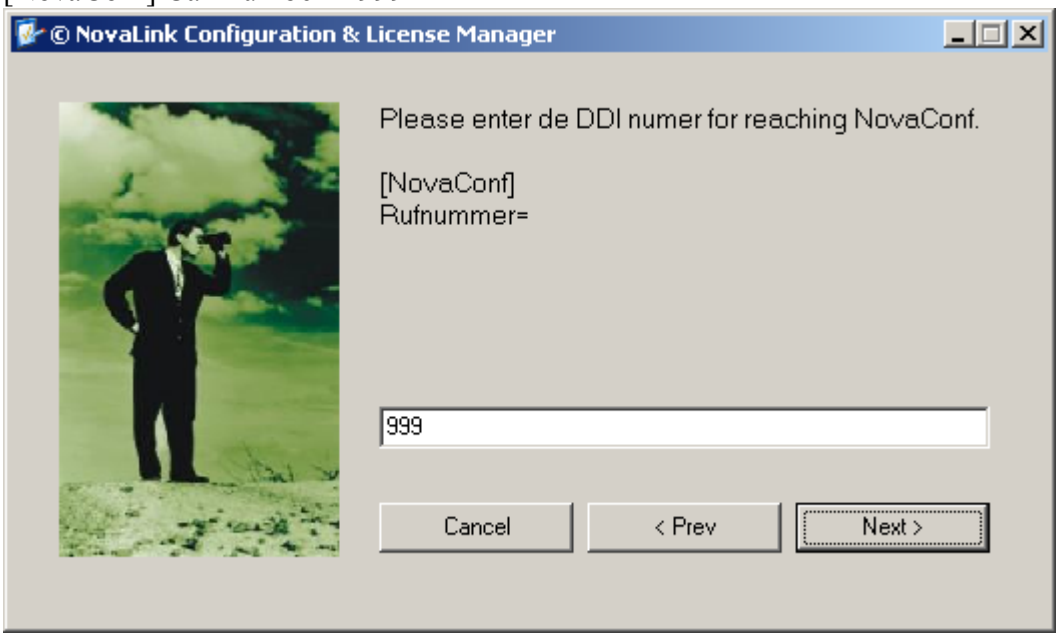
CNIPAktiv= Ja
Calling name identification presentation active= yes



AufschaltenAktiv= Ja
Intrusion active= yes



[NovaConf] Rufnummer = 999
[NovaConf] Call number = 999



FesterTeilRufnummer= +49 9073 9886 80
External access number of NovaConf +49 9073 9886 80

4.1.3. Settings in the NovaAlert.ini for NovaConf (BRI)

The settings from the NovaLink Configuration & License Manager for NovaConf have been taken over in the NovaAlert.ini. The file with the configurations as described above is listed below:

```
[NovaAlert]
NurAusloesen=0                          'Line that only is used to set off an alert over the telephone
(supported no calls)
Linie1=1                                'Allocation of the lines logical=physical
Linie2=2

[NovaConf]
Rufnummer=999                                   'direct dial number for NovaConf
FesterTeilRufnummer=+49 9073 9886 80                    'System call number (without direct dial number)

[CallInfo]
CardDriver=2                            '0=Auto-Detect, 1=Dialogic, 2=CAPI, 3=VoIP
Interface=3                             'Line-Interface-type 1=analogue, 2=2 MBit primary digital, 3=BRI
basic interface digital
MinDigits=0                             'Only for digital interfaces: standard=0 – specifies the number of
digits to be received..
AufschaltenAktiv=1                      'If 1 is programmed, digital intrusion is active (QSIG)
CallingPartyAktiv=1                     'Only for digital interfaces: If 1 is programmed, sending an
outgoing call number is enabled (QSIG)
DefaultCallingParty=999                 'Only for digital interfaces: Call number is used, if no number for
the alert is registered (CallingPartyactive is 1)
CNIPAktiv=1                             'Only for digital interfaces: If 1 is programmed, sending a display
text for incoming calls is allowed (QSIG, Feature CNIP)
QSIGStandard=2                          '0=disable QSIG, 1=QSIG ETS/ECMA, 2=QSIG ISO, 3=User to
user signalling
```

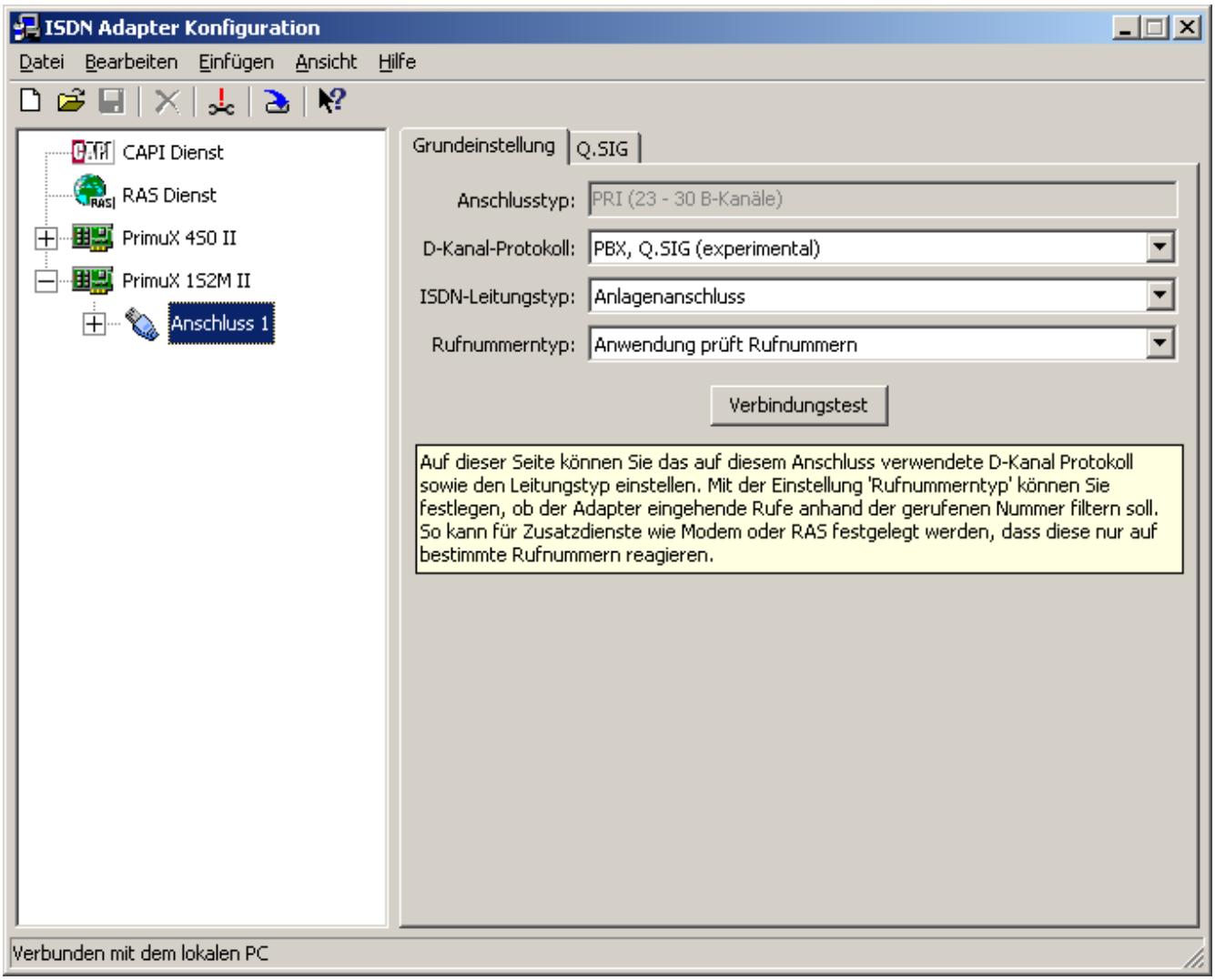
4.2. Configuration of the NovaConf for the PRI

4.2.1. Configuration of the Gerdes PrimuX ISDN Card for PRI

In the ISDN adapter configuration for interface 1 under the tab Grundeinstellungen (basic settings), the following settings have to be made:

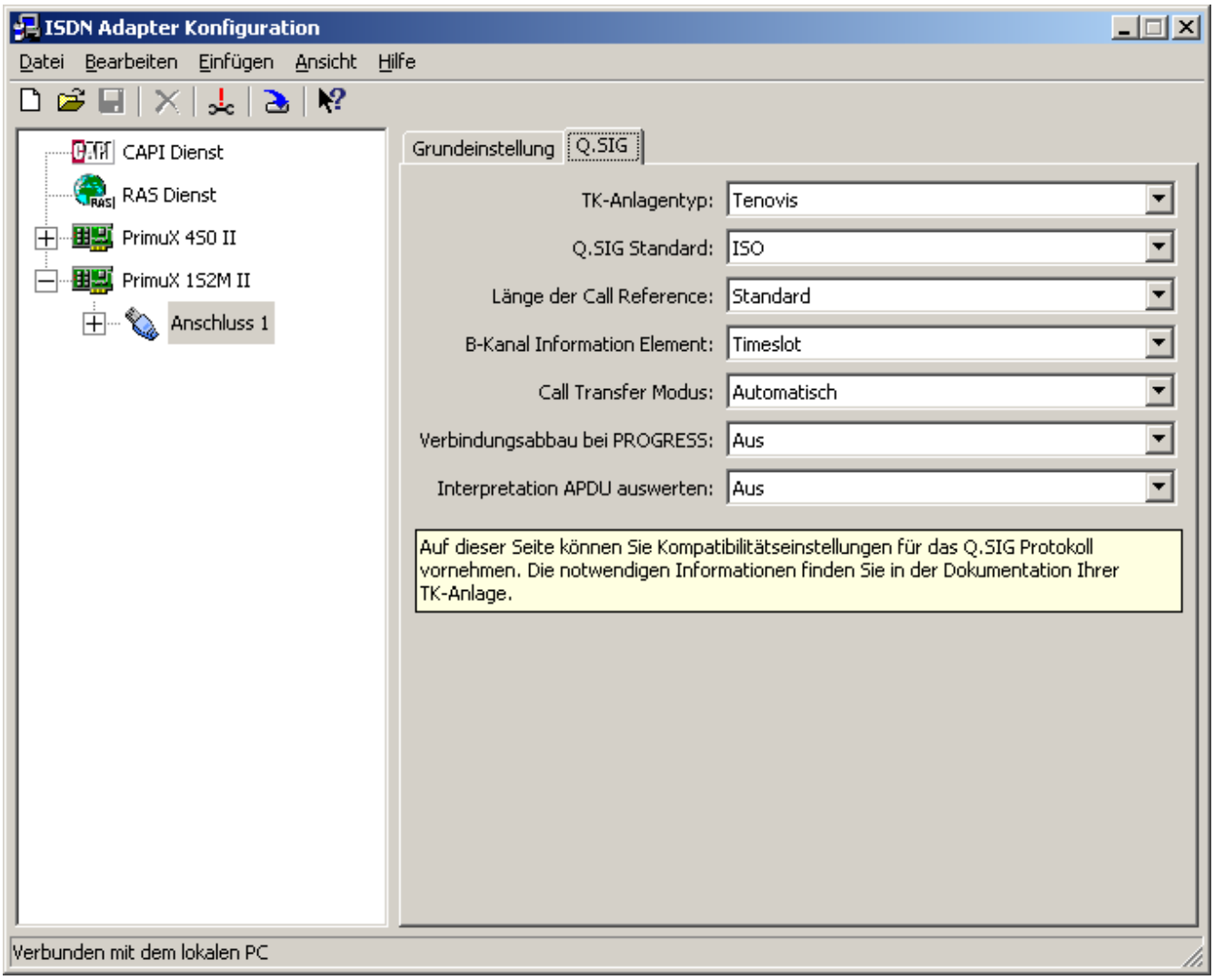
D-Kanal-Protokoll: PBX, Q.SIG
ISDN-Leitungstyp: Anlagenanschluss
Rufnummerntyp: Anwendung prüft Rufnummern

D-channel-protocol: PBX, Q.SIG
Type of ISDN trunk: Trunk (point to point)
Type of number: Application checks call numbers



Under the tab Q.SIG:
TK-Anlagentyp: Tenovis
Q.SIG Standard: ISO
Länge der Call Reference: Standard
B-Kanal Information Element: Timeslot
Call Transfer Modus: Automatisch
Verbindungsabbau bei PROGRESS: Aus
Interpretation APDU auswerten: Aus

Type of telecommunication-system: Tenovis
Q.SIG standard: ISO
Call reference length: Standard
B-channel information: Timeslot
Call transfer mode: Automatic
Disconnect on PROGRESS: Off
Interpretation APDU evaluation: Off



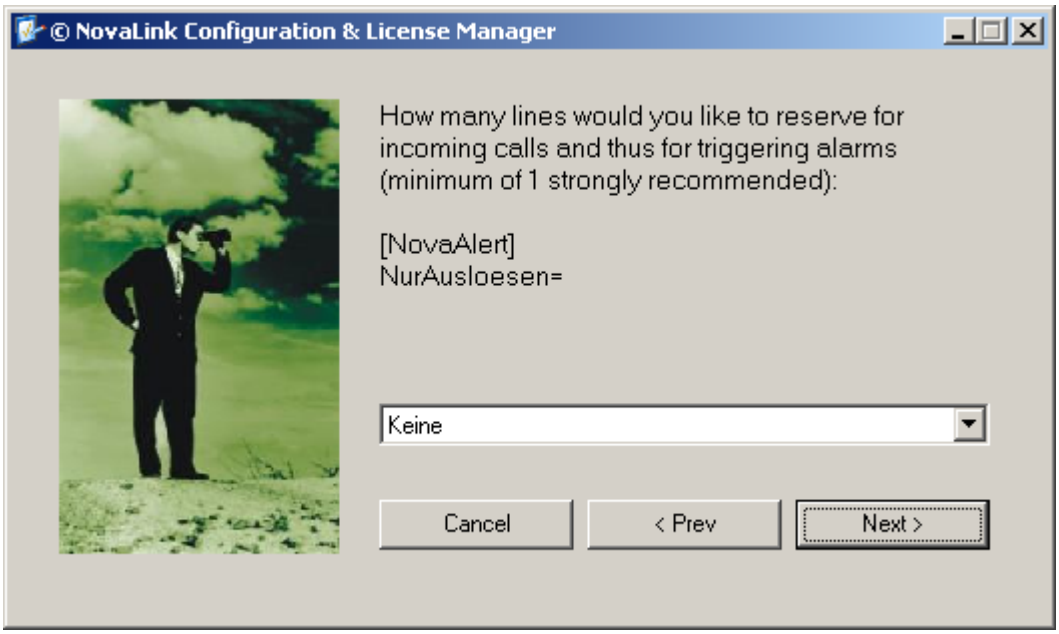
4.2.2. Configuration & License Manager for PRI

The following screens show the step-by-step configuration of the NovaConf server by means of the Configuration & License Manager.

Configure Server-Settings:

Linie=30
Thirty lines are used.

Nur Ausloesen: Keine
Release only= None:

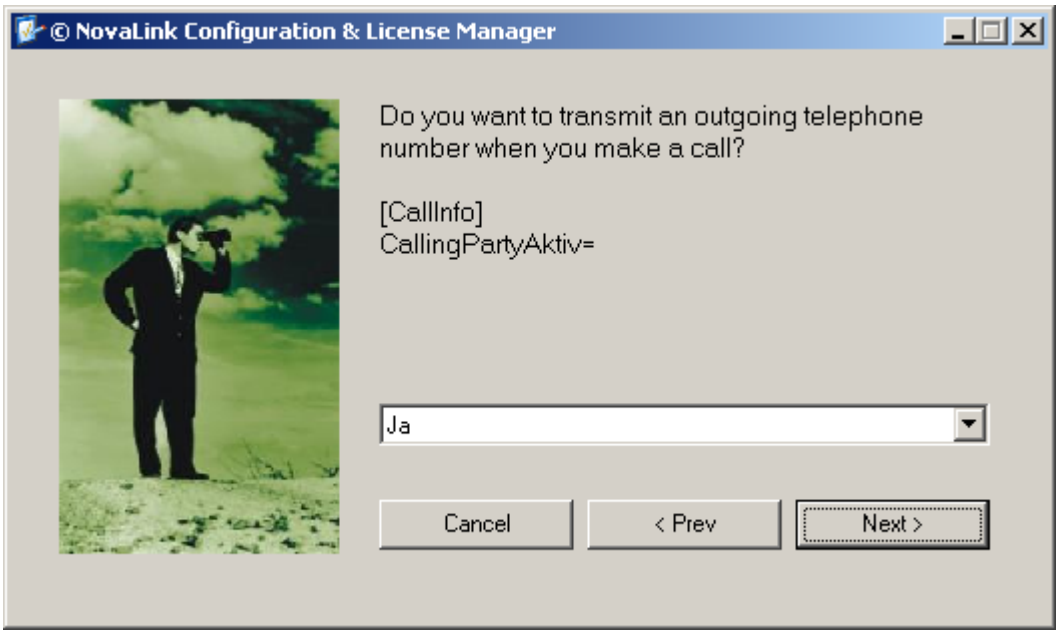


Card Driver= CAPI

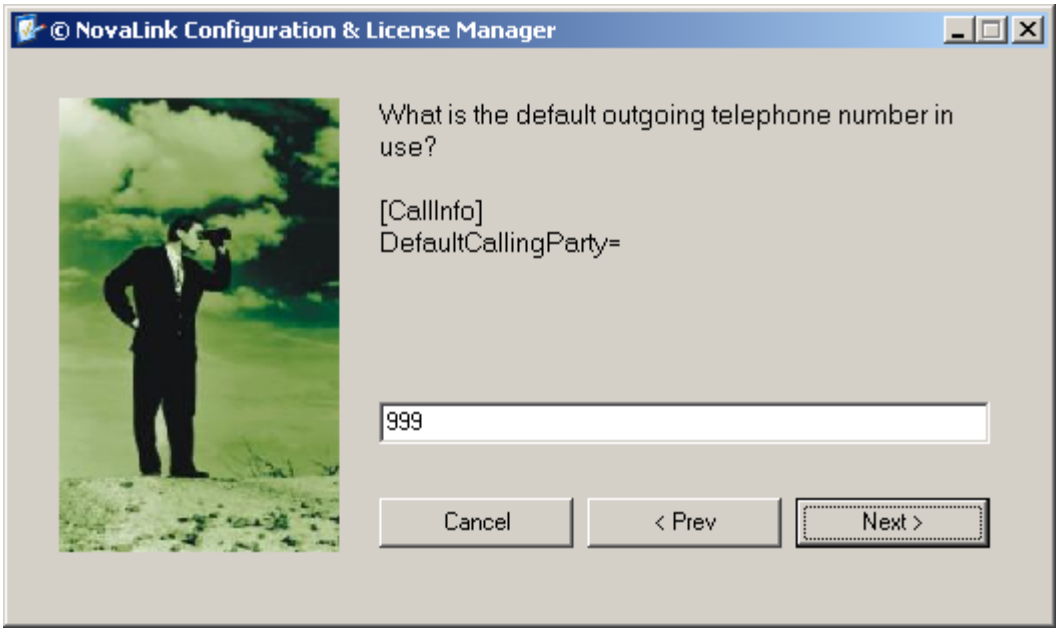
Interface= 2MBit/s digital
Interface= 2MBit/s PRI digital

QSIGStandard= QSIG nach ISO
QSIGStandard= QSIG according to ISO

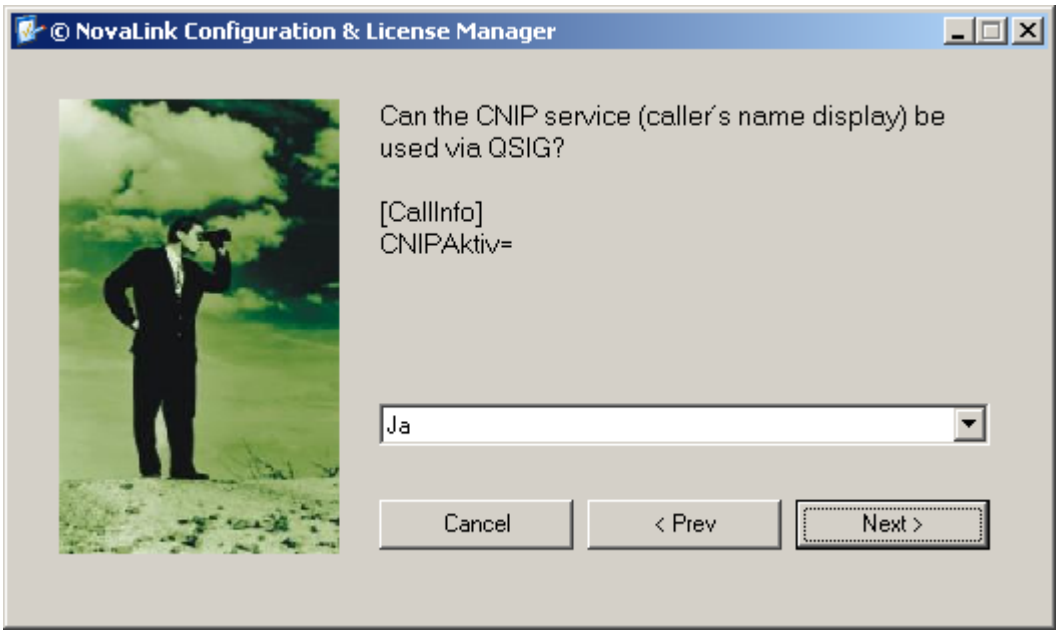
CallingPartyAktiv= Ja
CallingPartyActive= yes



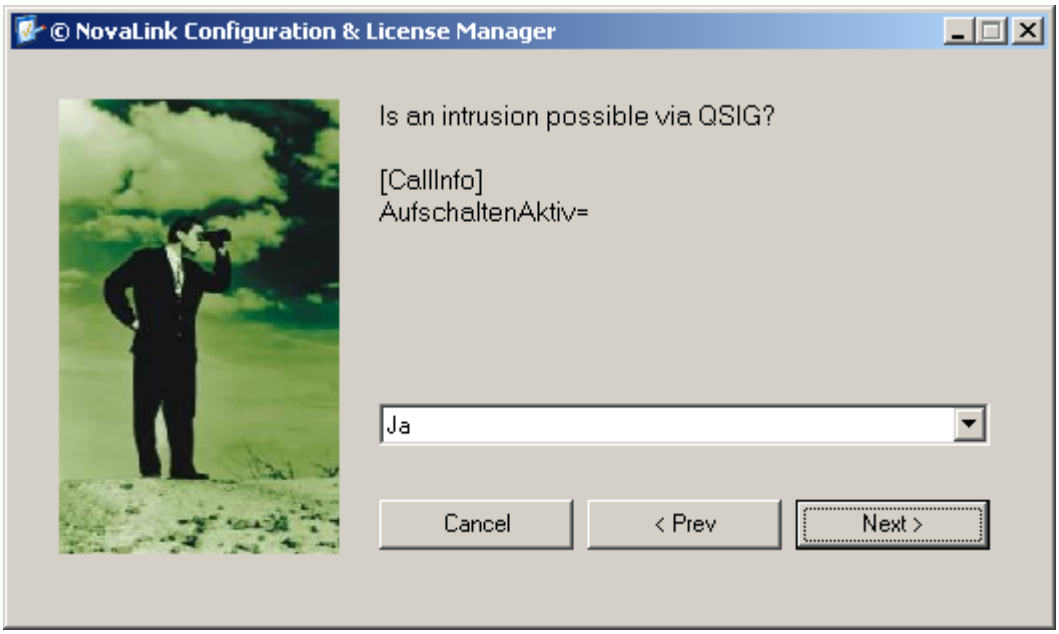
DefaultCallingParty= 999:



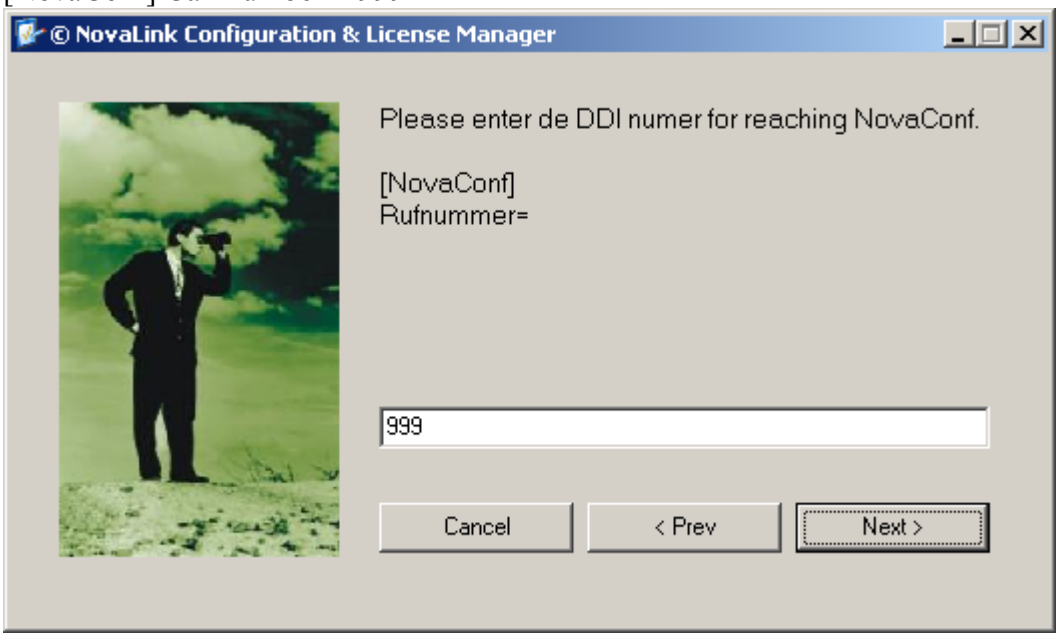
CNIPAktiv= Ja
Calling name identification presentation active= yes



AufschaltenAktiv= Ja
Intrusion active= yes



[NovaConf] Rufnummer = 999
[NovaConf] Call number = 999



FesterTeilRufnummer= +49 9073 9886 80
External access number of NovaConf +49 9073 9886 80

4.2.3. Settings in the NovaAlert.ini for NovaConf (PRI)

The settings from the NovaLink Configuration & License Manager for NovaConf have been taken over in the NovaAlert.ini. The file with the configurations as described above is listed below:

```
[NovaAlert]
Only release=0                  'Line that only is used to set off an alert over the telephone
Linie1=1                        'Allocation of the lines logical=physical
…
Linie30=30

[NovaConf]
Rufnummer=999                   'direct dial number for NovaConf
FesterTeilRufnummer=+49 9073 9886 80        'System call number (without direct dial number)

[CallInfo]
CardDriver=2                    '0=Auto-Detect, 1=Dialogic, 2=CAPI, 3=VoIP
Interface=2                     'Line-Interface-type 1=analogue, 2=2 MBit primary digital, 3=BRI
basic interface digital
MinDigits=0                     'Only for digital interfaces: standard=0 – specifies the number of
digits to be received..
AufschaltenAktiv=1              'If 1 is programmed, digital intrusion is active (QSIG)
CallingPartyAktiv=1             'Only for digital interfaces: If 1 is programmed, sending an
outgoing call number is enabled (QSIG)
DefaultCallingParty=999         'Only for digital interfaces: Call number is used, if no number for
the alert is registered (CallingPartyactive is 1)
CNIPAktiv=1                     'Only for digital interfaces: If 1 is programmed, sending a display
text for incoming calls is allowed (QSIG, Feature CNIP)
QSIGStandard=2                  '0=disable QSIG, 1=QSIG ETS/ECMA, 2=QSIG ISO, 3=User to
user signalling
```

5. Interoperability Compliance Testing

5.1. General Test Approach

Testing included validation of correct operation of the functions as agreed with NovaLink such as:

Normal cases:

- Incoming / outgoing calls internal / external
- Receipt of DTMF tones during incoming / outgoing calls
- Incoming calls with en-bloc number
- Incoming calls with overlap receiving

Supplementary services:

- Call transfer
- Call forwarding unconditional / on busy / on no reply / external
- Call with no answer - must be listed in the call log of the station

Recovery treatment

- Reconnect after disconnect of the BRI / PRI QSIG cable between NovaConf and Avaya Integral 55
- Power down the NovaConf services, start it again and wait for reconnect
- Power down the Avaya Integral 55, start it again and wait for reconnect

5.2. Test Results

All test cases were executed and passed.

6. Verification Steps

To verify that the solution is properly configured, the following steps can be taken:
After establishing the physical connection between the NovaConf Server and Avaya I55 LX for BRI and PRI, the correct LEDs on the associated circuit packs must be active. Also, the initialization of the BRI and PRI (layer 1) can be observed on an ISDN monitor at the NovaConf server. A test call to the NovaConf voice menu can be made by dialing the appropriate number (e.g., 999) after accessing the BRI or PRI.

7. Support

For technical support for the NovaLink "NovaConf" solution, please contact the technical support hotline of NovaLink:

- **Phone:** +41 52 762 6677
- **Email:** helpdesk@novalink.ch

8. Conclusion

These Application Notes describe the configuration steps required for NovaLink NovaConf to successfully interoperate with an Avaya Communication Server Integral 55 LX. A Linux based Advanced Computer Board (ACB) with running software version L03 was used. Normal test cases, (e.g., basic call incoming /outgoing or receiving DTMF tones and overlap receiving) were validated. The available supplementary services and the error and recovery treatment of the solution were checked. The configuration described in these Application Notes has been successfully compliance tested.

9. Additional References

Additional product information from Avaya:
Avaya Integral 55 LX:
http://support.avaya.com/japple/css/japple?PAGE=Product&temp.productID=304366

Additional product information from NovaLink:
http://www.novalink.ch/index.php?id=48

Please e-mail any questions or comments pertaining to these Application Notes along with the full title name and filename, located in the lower right corner, directly to the Avaya Developer*Connection* Program at devconnect@avaya.com.