Avaya Solution & Interoperability Test Lab

Application Notes for the Interoperation of NovaLink NovaAlert with Avaya Integral 5 easy - Issue 1.0

Abstract

These Application Notes describe the necessary configuration steps for the successful interoperation of the NovaLink NovaAlert with the Avaya Integral 5 easy (I5).

NovaLink NovaAlert is a proprietary alerting solution which complements other applications from NovaLink.

An Avaya Integral 5 easy with current software version AR2.351GA was used as the hosting PBX for the NovaAlert 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 NovaAlert Server with BCS (Branch Communication Server) and the Avaya Integral 5 easy (I5). The NovaAlert Server processes information received from various sources (e.g., Avaya I5 easy extensions) and specifically and immediately alerts or informs, also via the Avaya I5 easy, the appropriate persons in case of an emergency situation. A V.24 interface with ACOM protocol is used for connecting the BCS with the Avaya I5 easy and a Basic Rate Interface (BRI) with QSIG protocol is used for the NovaAlert itself.

The figure below shows the interconnection of the NovaLink NovaAlert system with the Avaya I5 easy.

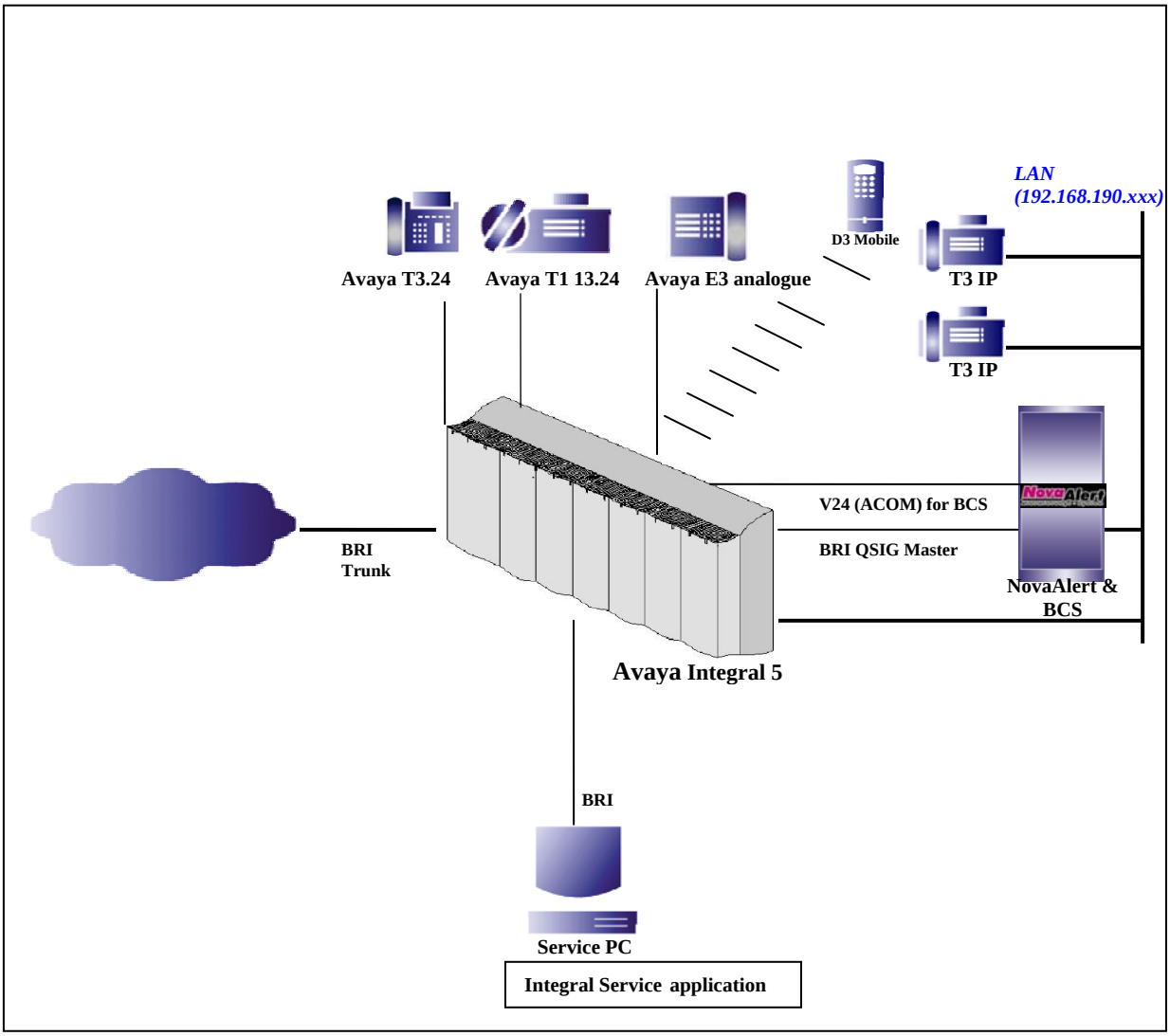


Figure 1: Avaya I5 with NovaLink NovaAlert server

2. Equipment and Software Validated

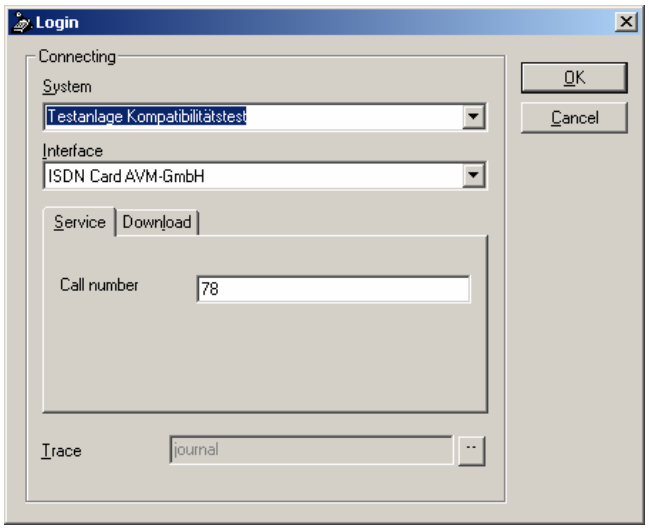
The following equipment and software were used for the sample configuration provided:

Equipment	Software
Avaya™ Integral 5 easy	AR 2.351 D
Avaya™ T8S circuit pack	UR 2250 DE
Avaya™ S8D circuit pack	FR 2250XX
Avaya™ V24 circuit pack	Board IDM05050055
Avaya™ D3 mobile handset	10-45-61 EE 03-08
Avaya™ T3 IP phone	V212_0DE.h4i
Avaya™ Digital T3.24 phone	V2_01
Avaya™ E3 analogue phone	
Avaya™ Digital T1 13.24 phone	V01_16
Avaya™ Integral service application	V4.401D
Avaya™ AVM Fritz! USB Card for service access	V.2.1
Service PC Dell optiplex gx270	Microsoft Windows XP Professional SP2
Deutsche Telekom BRI ISDN trunk (point to point)	N/A
NovaLink NovaAlert Server	V.7.5 SP 1a
Gerdes Primux ISDN card 4xBRI	V3.6.4389
Avaya™ BCS (Branch Communication Server)	V 3.0.6

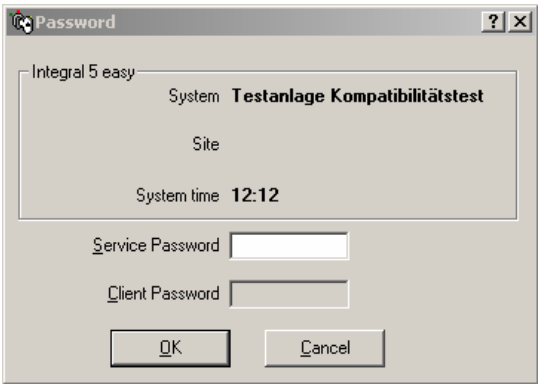
3. Configuration of the Avaya Integral 5 easy

The configuration of the Avaya Integral 5 easy is done via the Integral Service Application (ISA) which is running on a Service PC connected to the system via the AVM fritz! card with a BRI. ISA is the basic service tool for administrating the Avaya I5 systems. It is an application running under Windows-2000 or Windows-XP operating system.

Necessary parameters to login:
System: Arbitrary system name
Interface: ISDN Card AVM-GmbH
Default Service Call number: 78



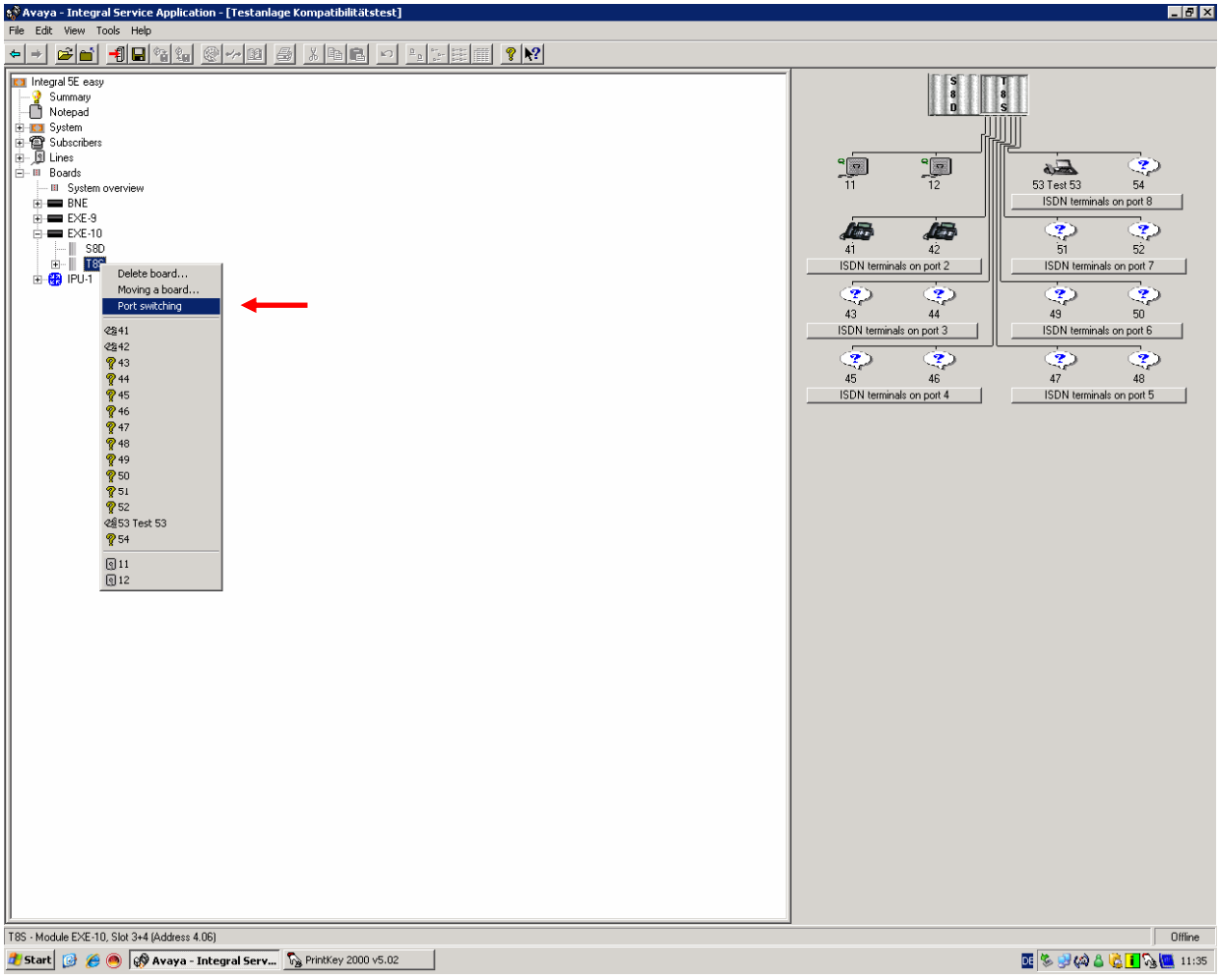
Service password: System time backwards



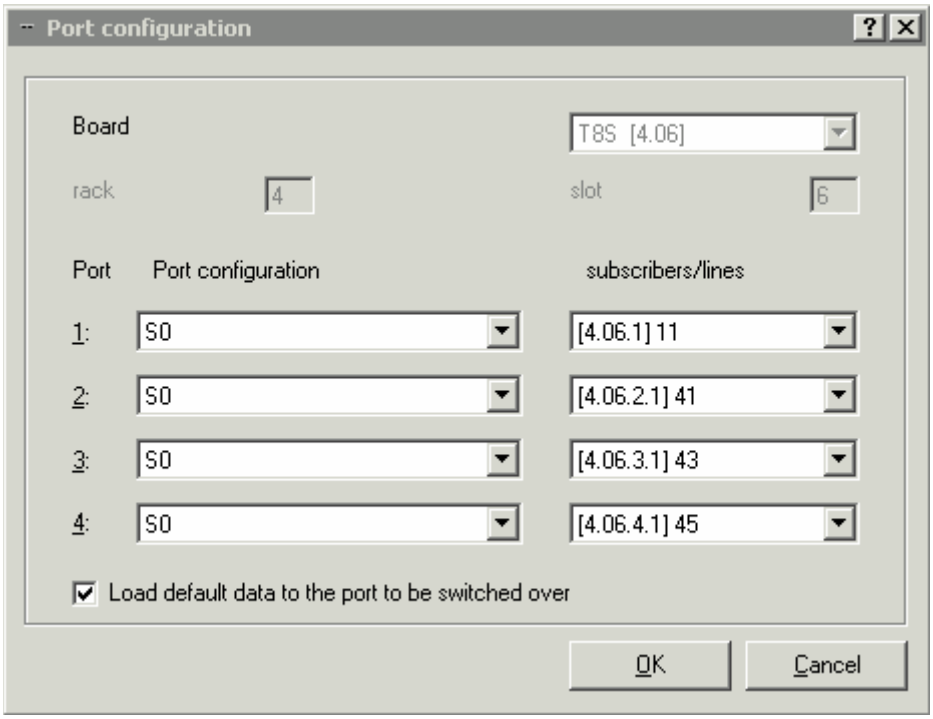
3.1. Configuration of the Avaya I5 BRI with QSIG

The port switching of the T8S circuit pack in which the default setting S0 has to be changed to QSIG can only be entered offline. Therefore, the entire configuration must be saved in a backup file. This backup file can then be changed by means of the Avaya integral service application as described below. Then the changed file must be restored into the Avaya I5.

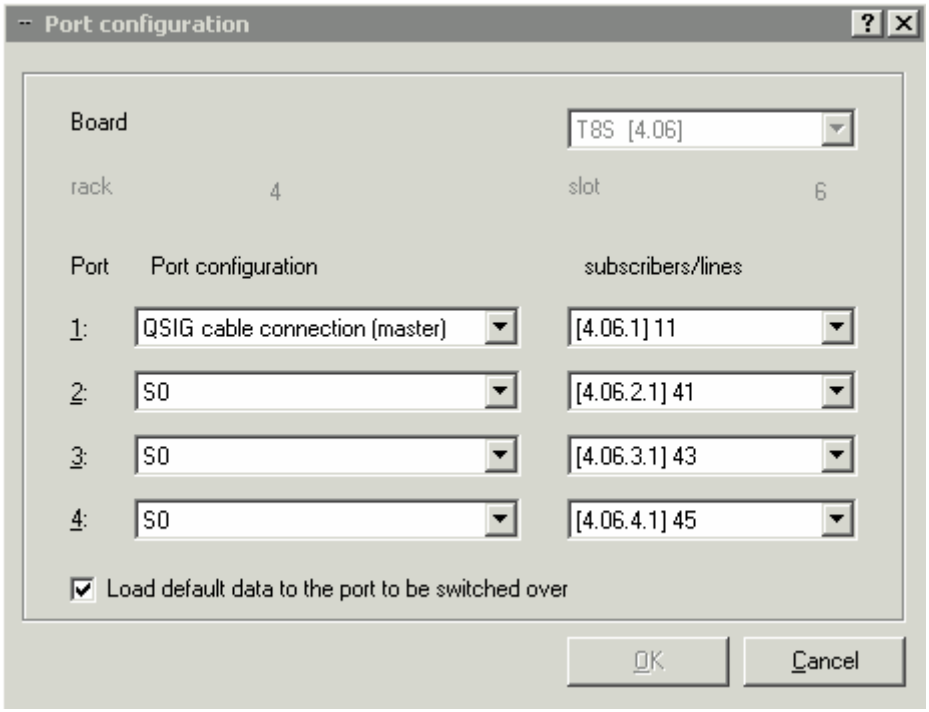
In this case, the module concerned (T8S) was installed in the extension module 10 (EXE-10).



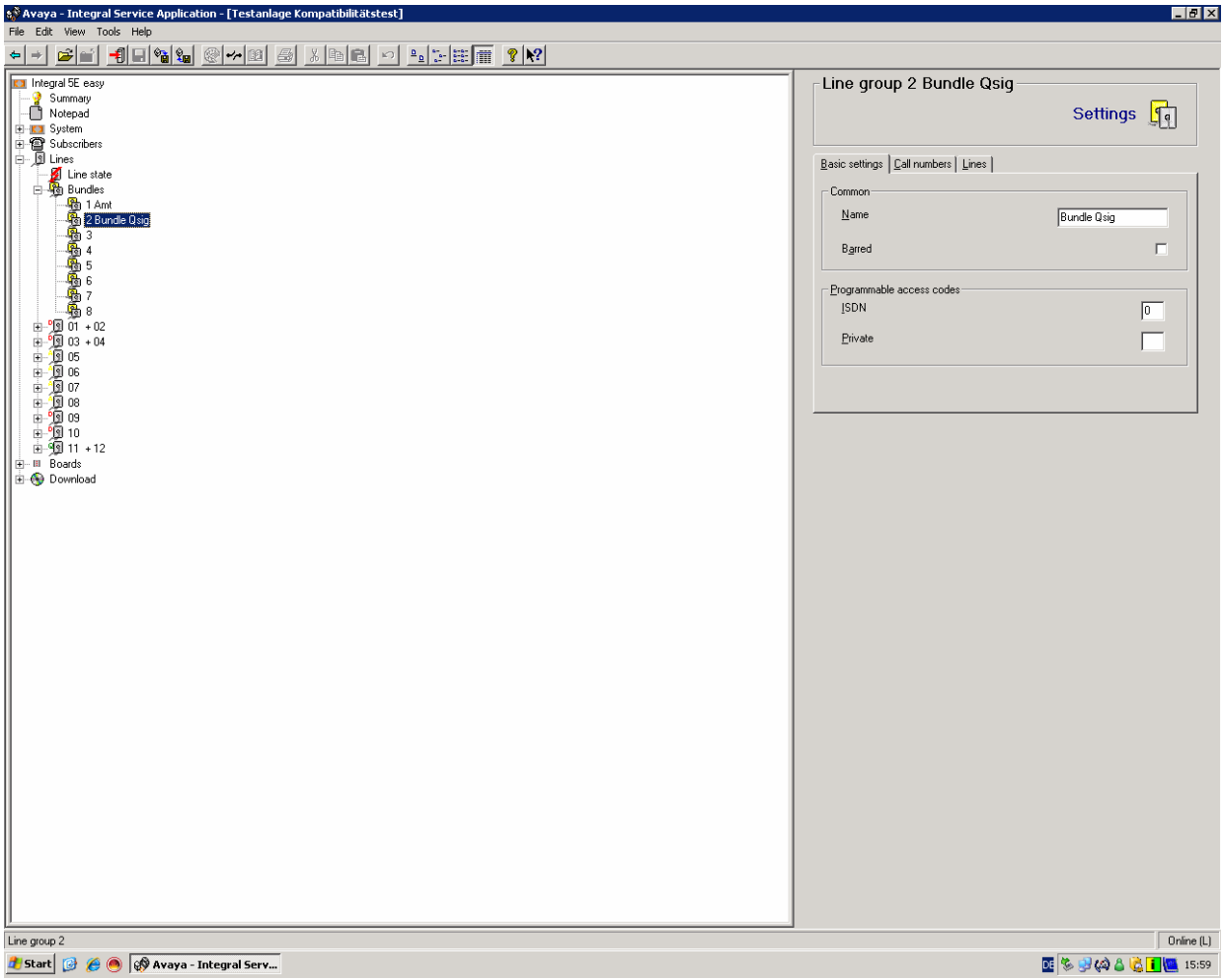
This screen shows the default Port configuration when Port switching was selected:



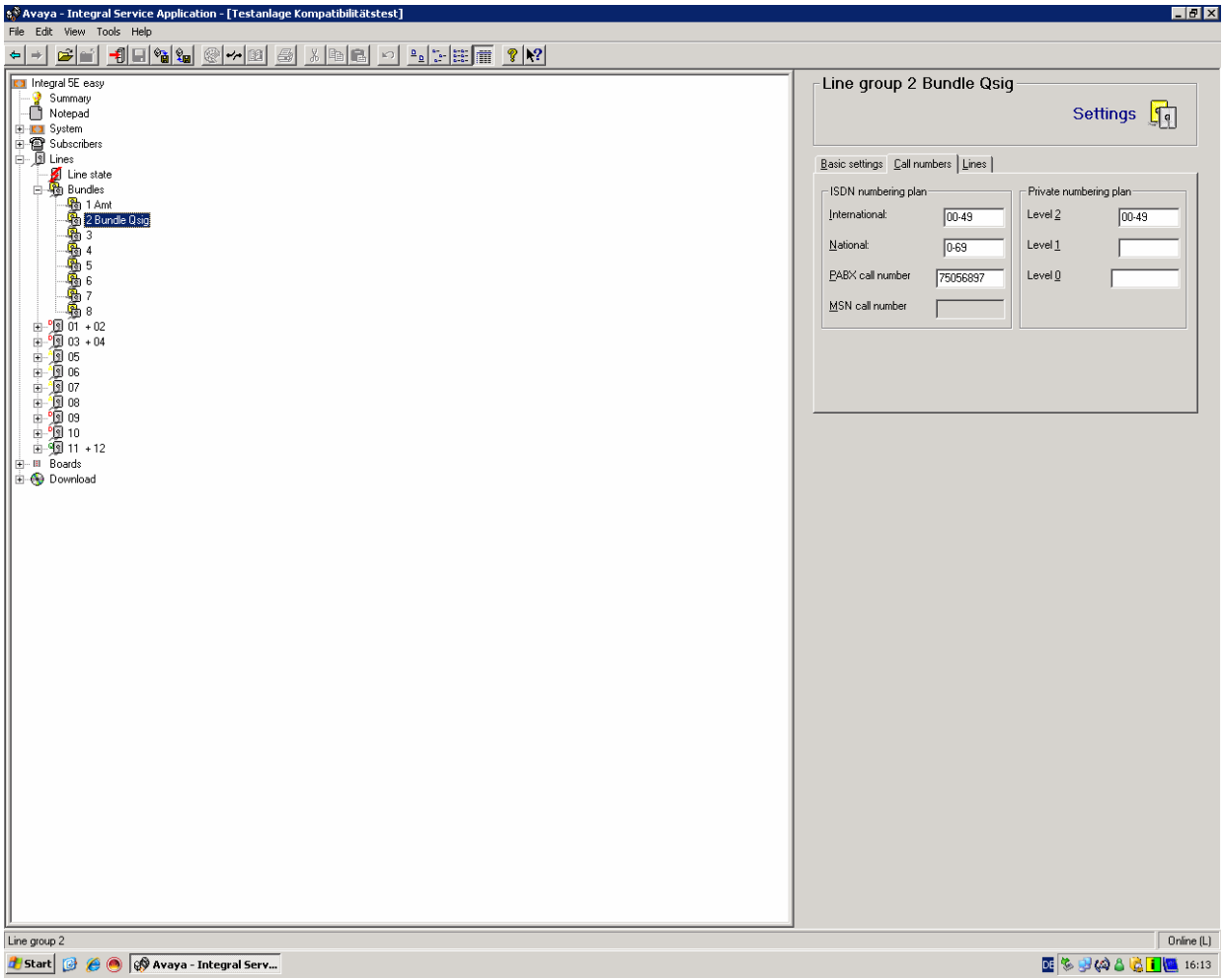
Changes of Port switching: Port one set to “QSIG cable connection (master)”:



The bundle chosen is Bundle two. An arbitrary name for this bundle has to be entered under the Basic settings tab:

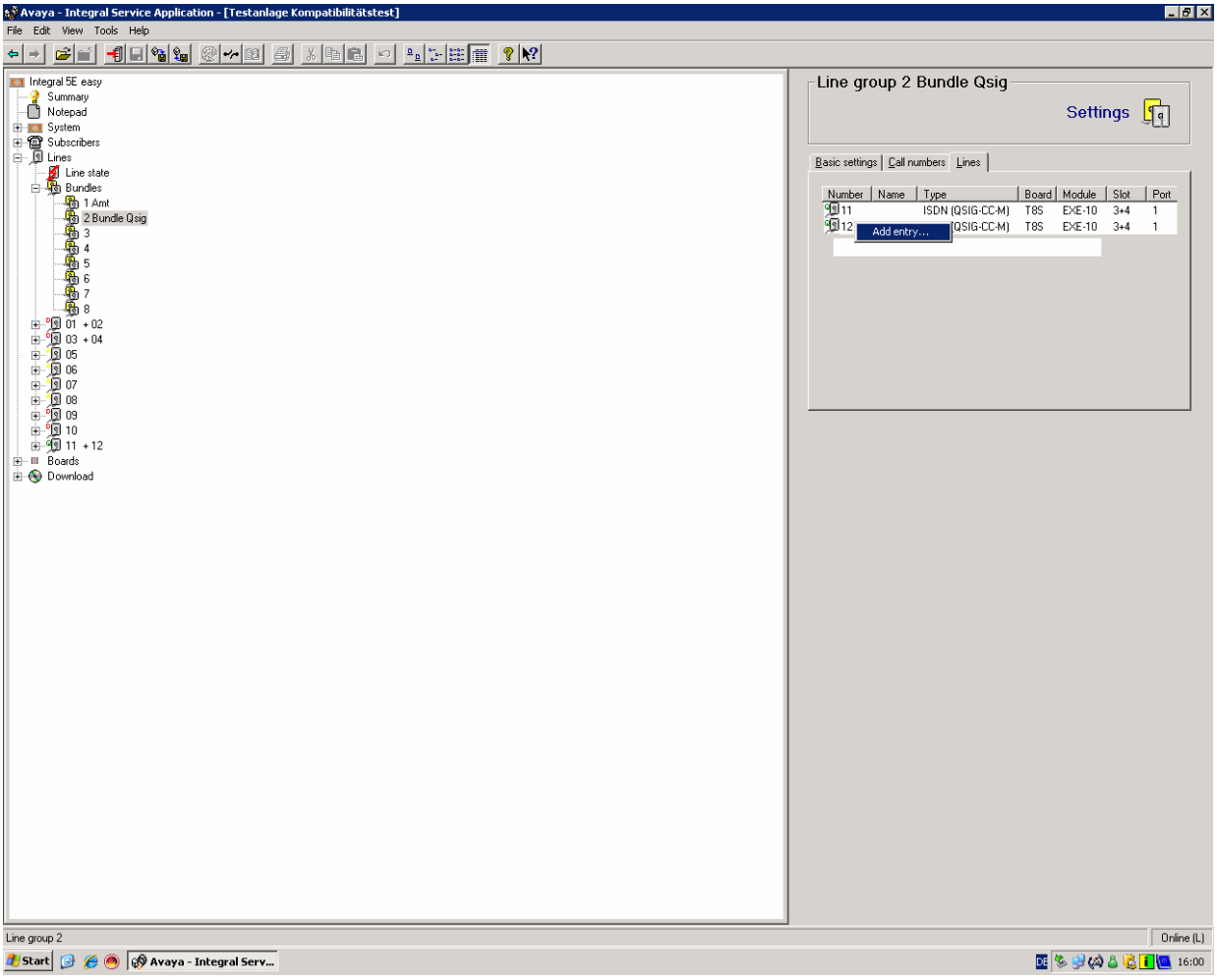


The proper values for international, national and PABX call number have to be entered under the call numbers tab:

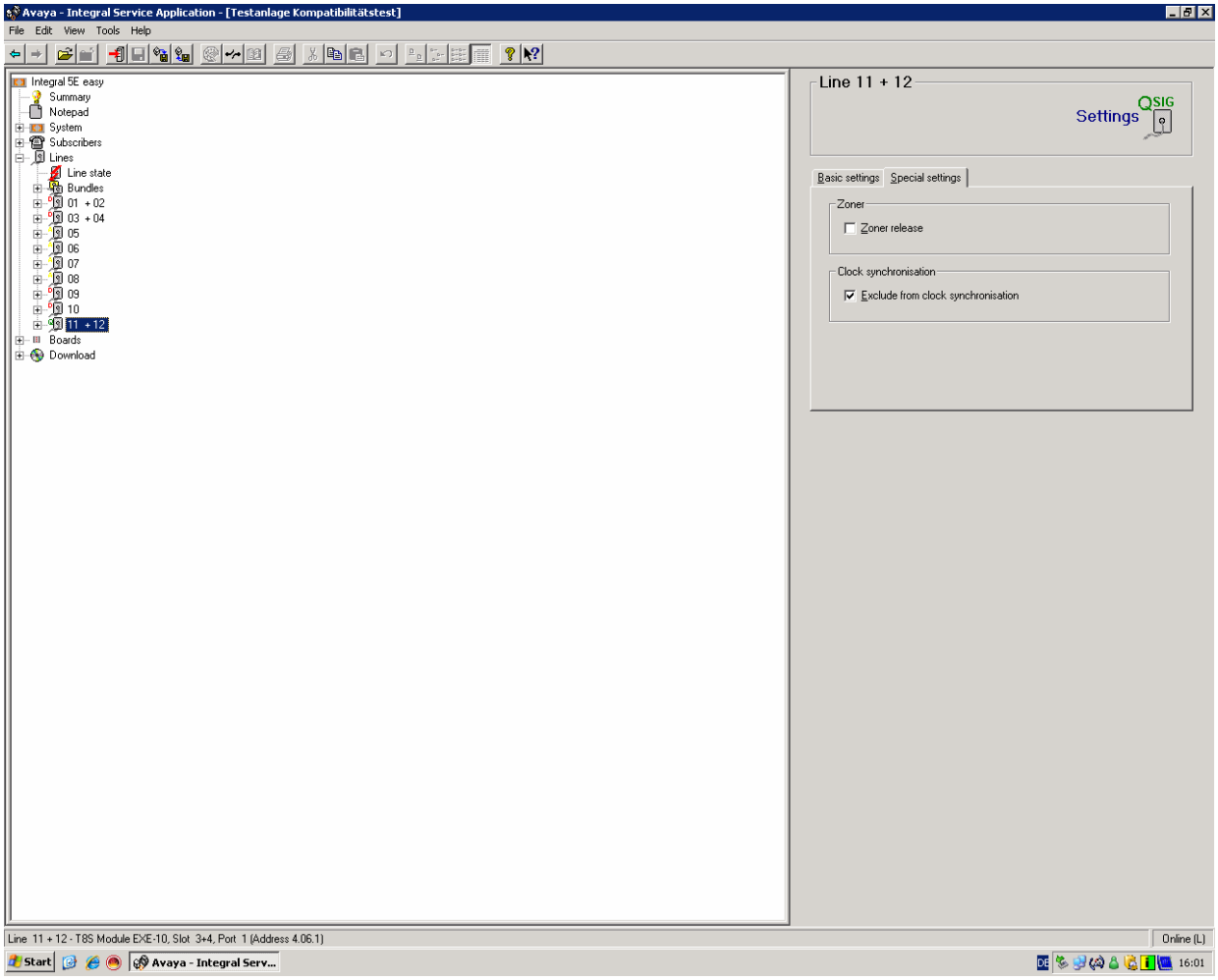


With port switching, two QSIG lines are created. Generally, each line must be assigned to a bundle. A mixture of different types of lines (e.g., QSIG, ISDN, etc.) within a bundle is not permitted. Therefore, these QSIG lines have to be assigned to their own bundle. The Avaya I5 easy offers 8 predefined bundles, one of which must be selected. The lines can then be seized according to their type by means of a standard function key. (e.g., *012 specific for line 12 or *102 for one of the lines within bundle 2).

The two QSIG lines are added to QSIG bundle two under the lines tab:

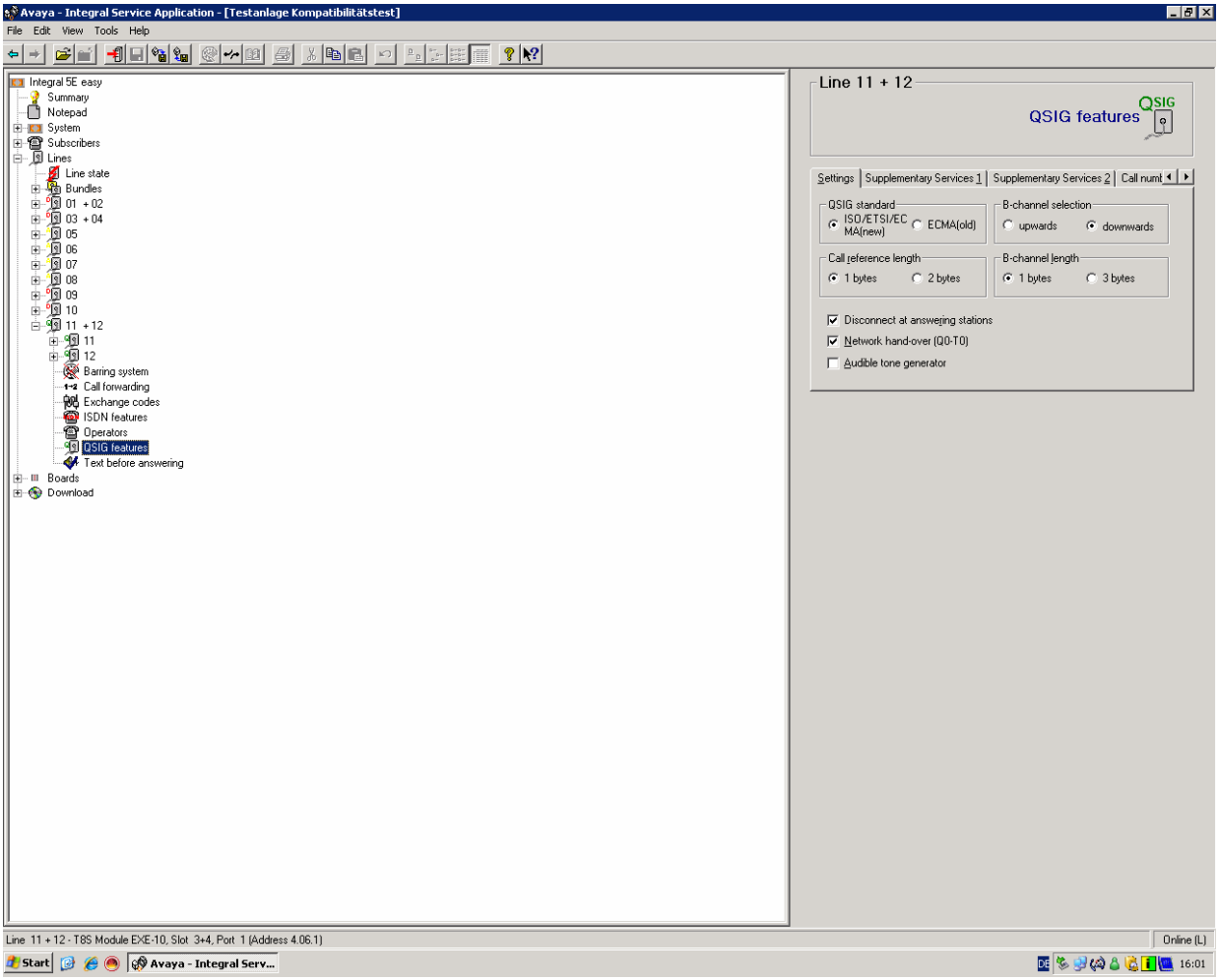


In the Special settings for the QSIG lines, “Exclude from clock synchronization” has to be set. QSIG lines are identified by means of a green QSIG symbol which appears above the line symbol.



The QSIG features for the lines are configured as shown in the screens below. Each screen shows the values used.

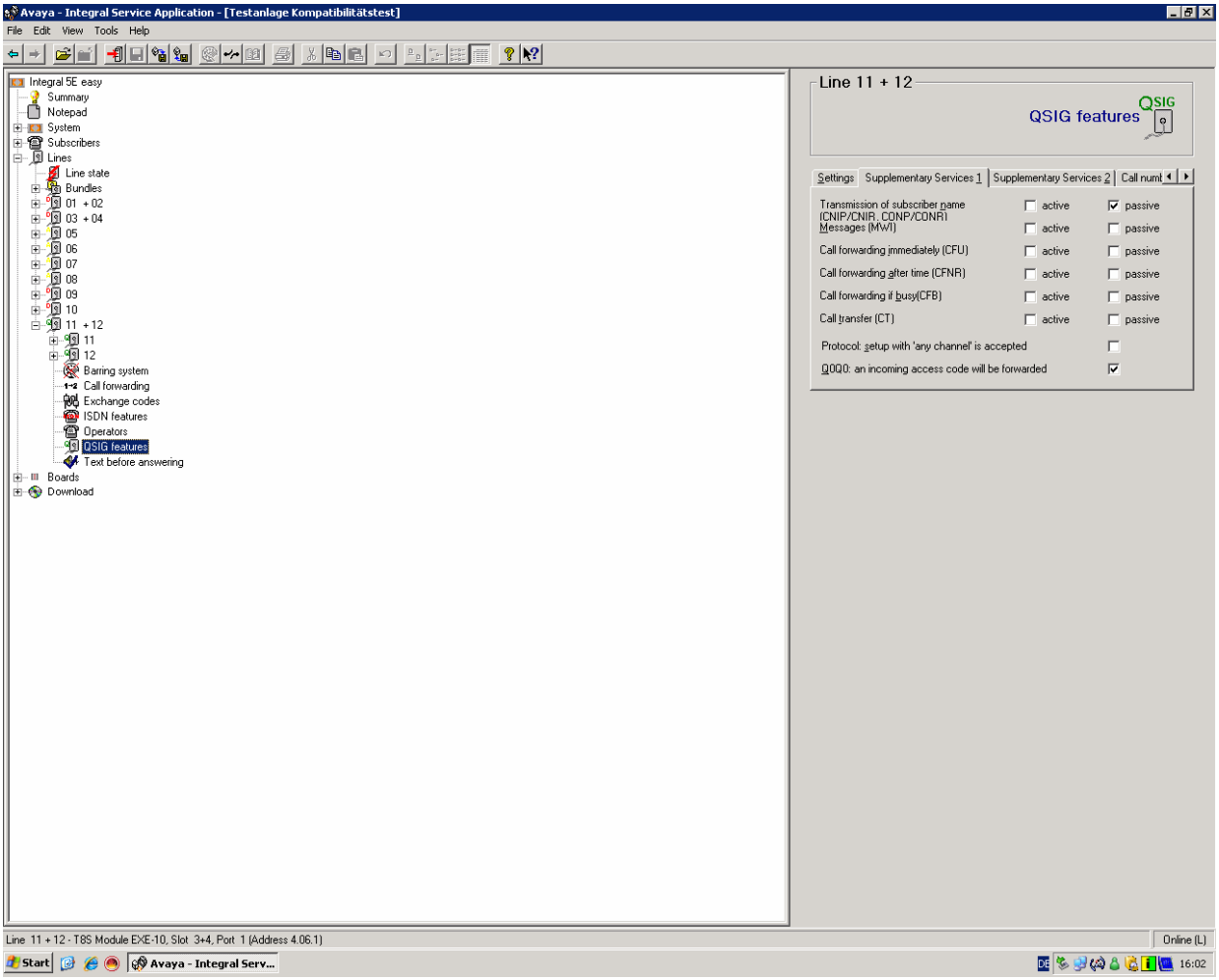
Tab settings:
QSIG standard: *ISO/ETSI/EC MA(new)*
Call reference length: *1byte* (The length of the call reference must be coordinated with the length of the external system's call reference)
Disconnect at answering station: (default enabled)
Network-hand-over (Q0-T0): (default enabled)
B-channel selection: downwards: (default *downwards*)
B-channel length: 1 byte (default *1 byte*)



Tab Supplementary Services 1:

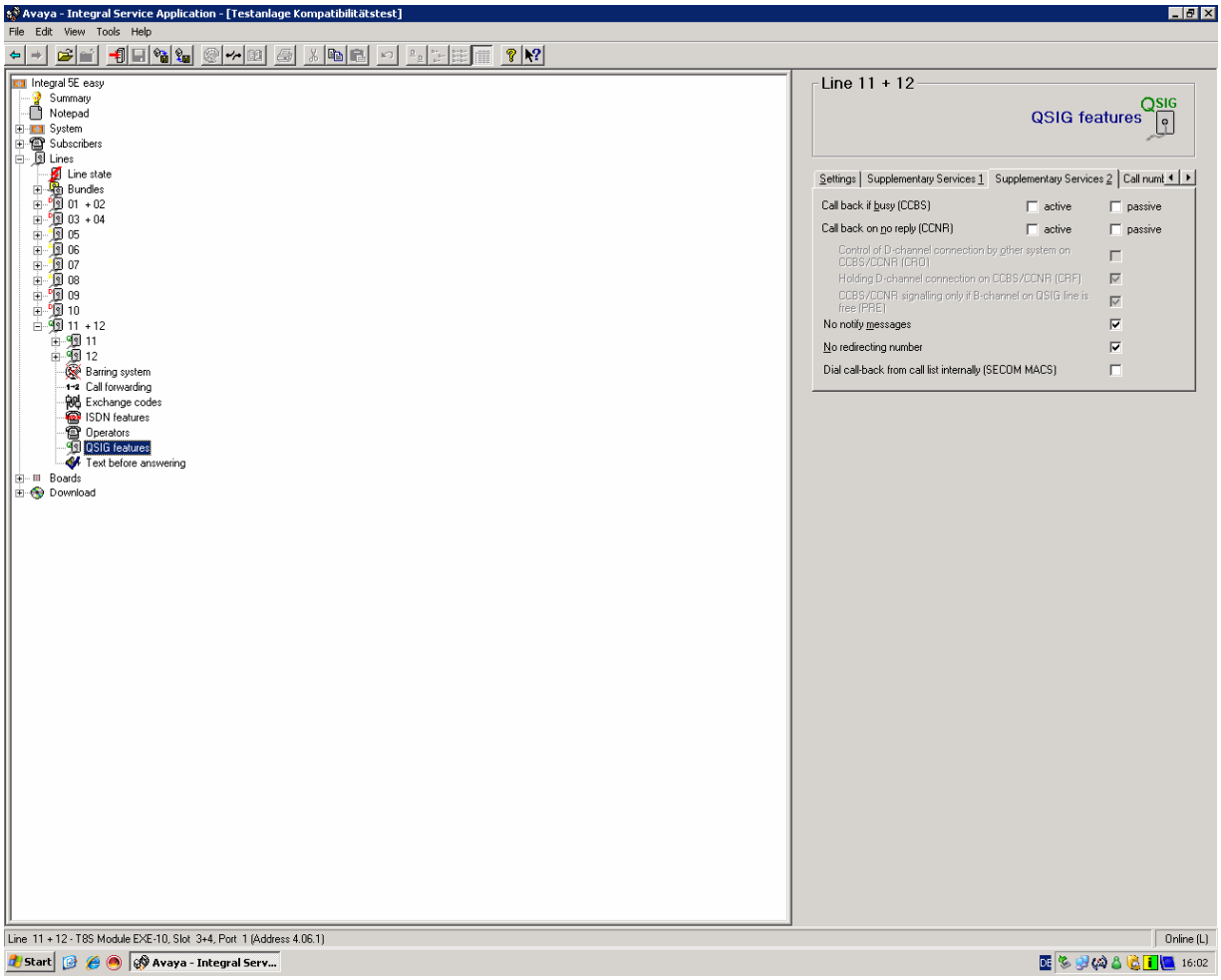
Transmission of subscriber name (CNIP/CNIR.CONP/CONR) Messages (MWI*): passive*
=> the Avaya I5 easy displays supplied names.

Q0Q0 an incoming access code will be forwarded: *enabled*
=> the access code must be forwarded directly together with the call number and with the call number format unknown/unknown.



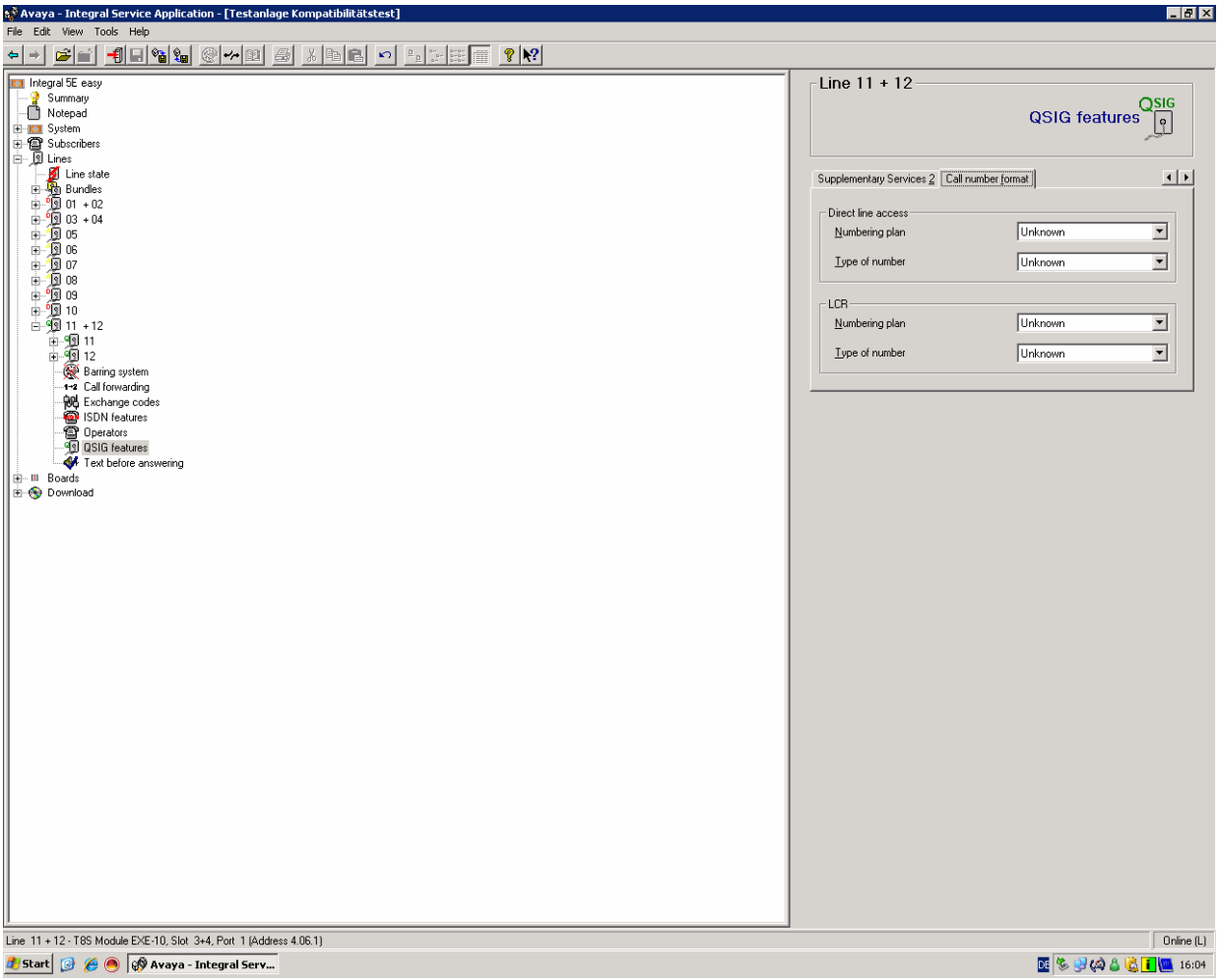
Tab Supplementary Services 2:

No notify messages: *enabled (default)*
No redirecting number: *enabled*
=> in case of call forwarding no redirecting number will be sent, recommended by NovaLink.

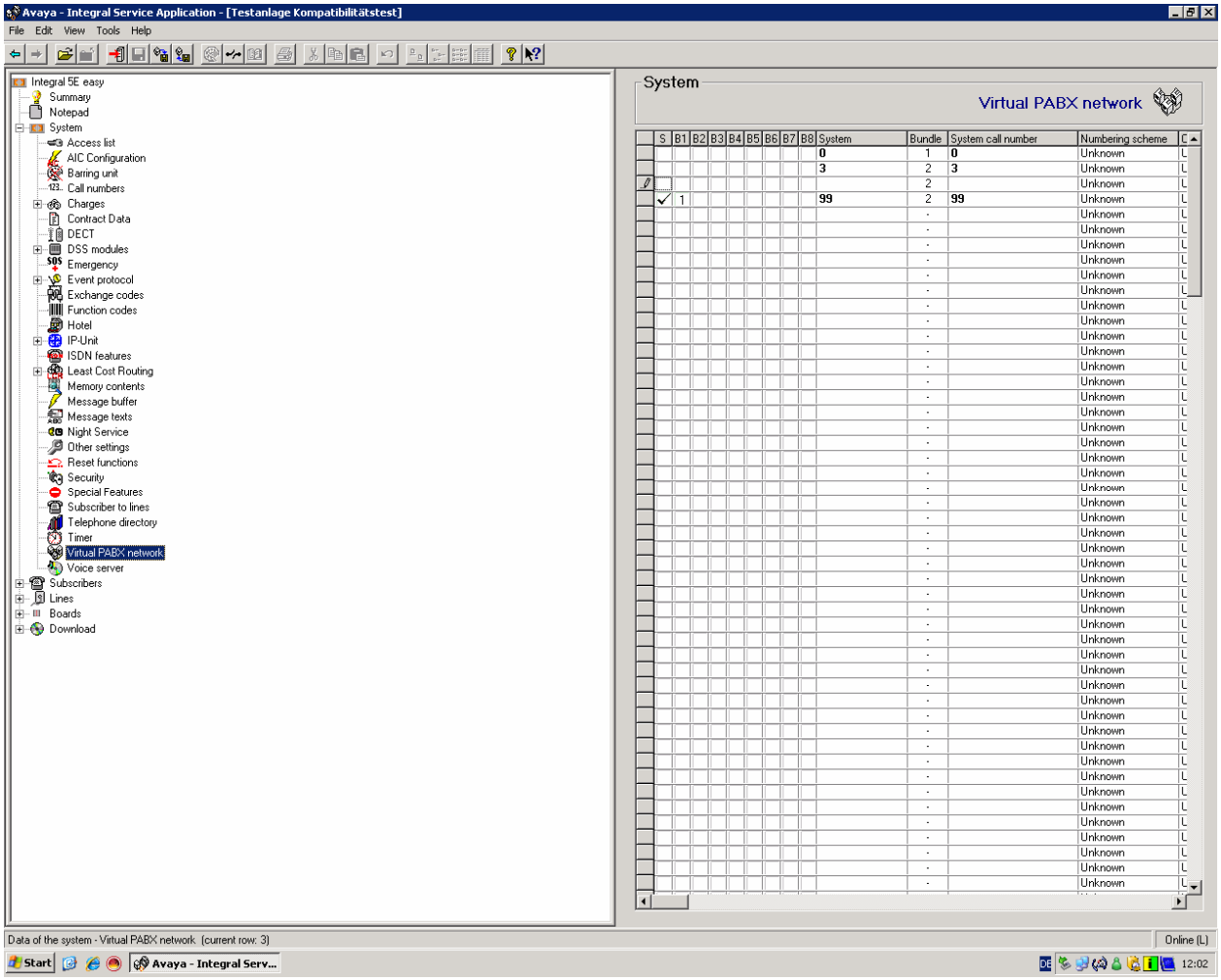


Call number format:

Direct line access
Numbering plan: default unknown
Type of number: default unknown
Numbering plan: default unknown
Type of number: default unknown



The VPN has to be established so that the NovaAlert server is reachable in the incoming direction. The bundle data for the external trunk in this test case is 1. Configure each column as shown below:
System > enter 99 (incoming call number)
Bundle > enter the bundle data of the QSIG lines
System call number > enter 99 as well (outgoing call number)



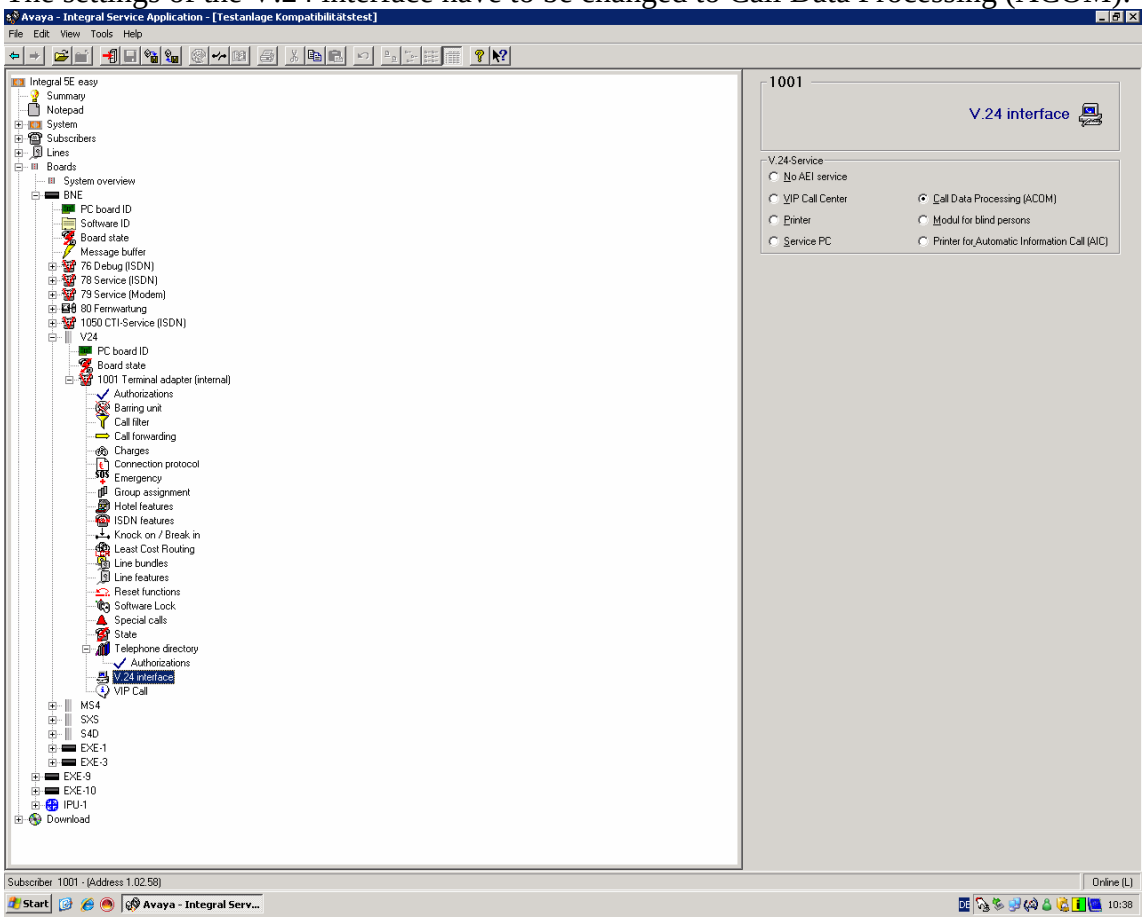
3.2. Configuration of the V.24 interface for the BCS (Branch Communication Server)

For the direct connection of the BCS to the Avaya I5 with the V.24 circuit pack, a special cable is required. The pinout for this special cable is shown below.

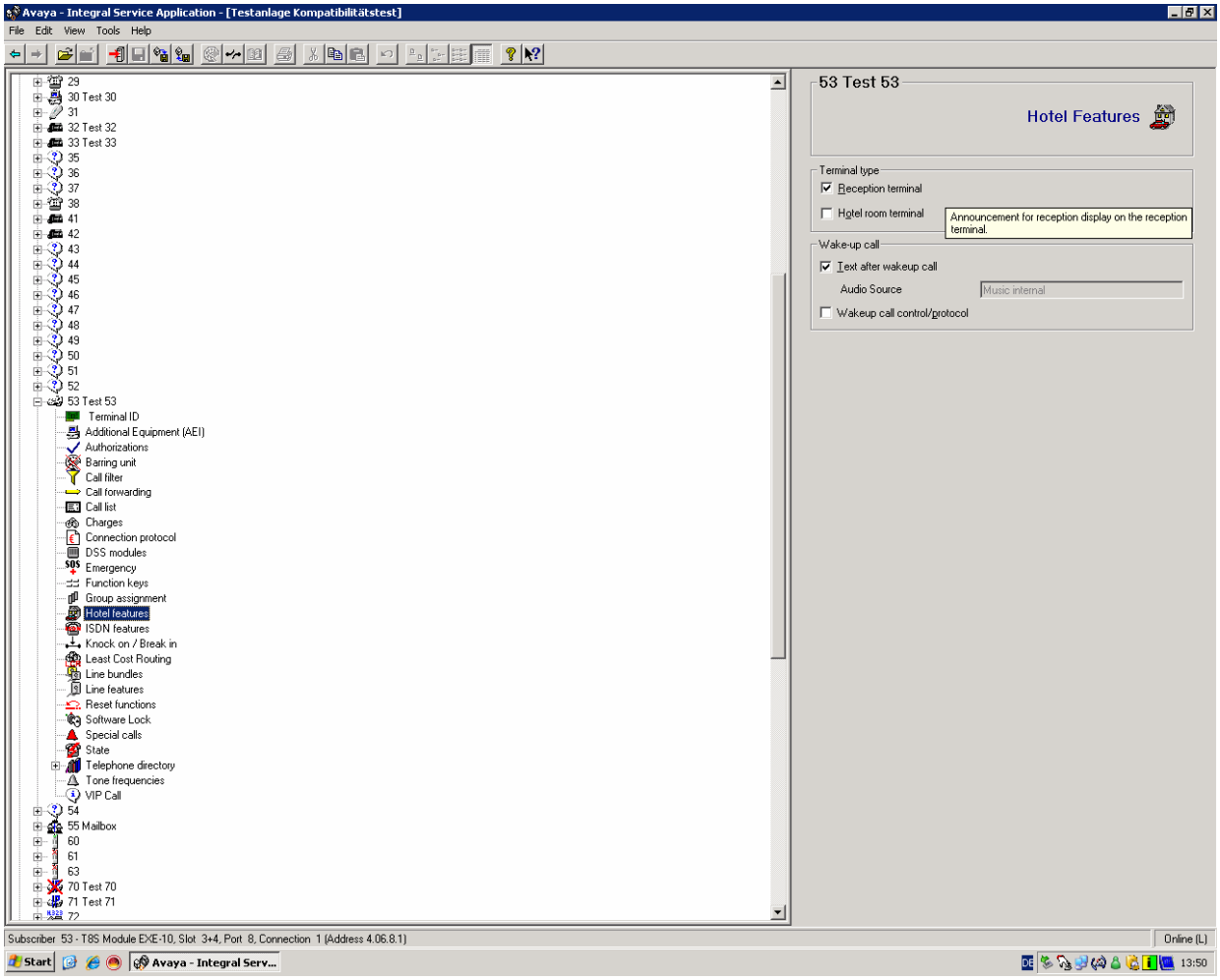
Special DUO connector	9-Pin D-sub female PC
1	2
2	3
3	7
4	8
5	6
6	4
7	5
8	

Setting the V.24 interface parameters: From a terminal in the service menu FAC 08 subscriber 1001 has to be changed to option two
(option two = 9600 bit/s, 8 data bits, n no flow control, 1 stop bit).

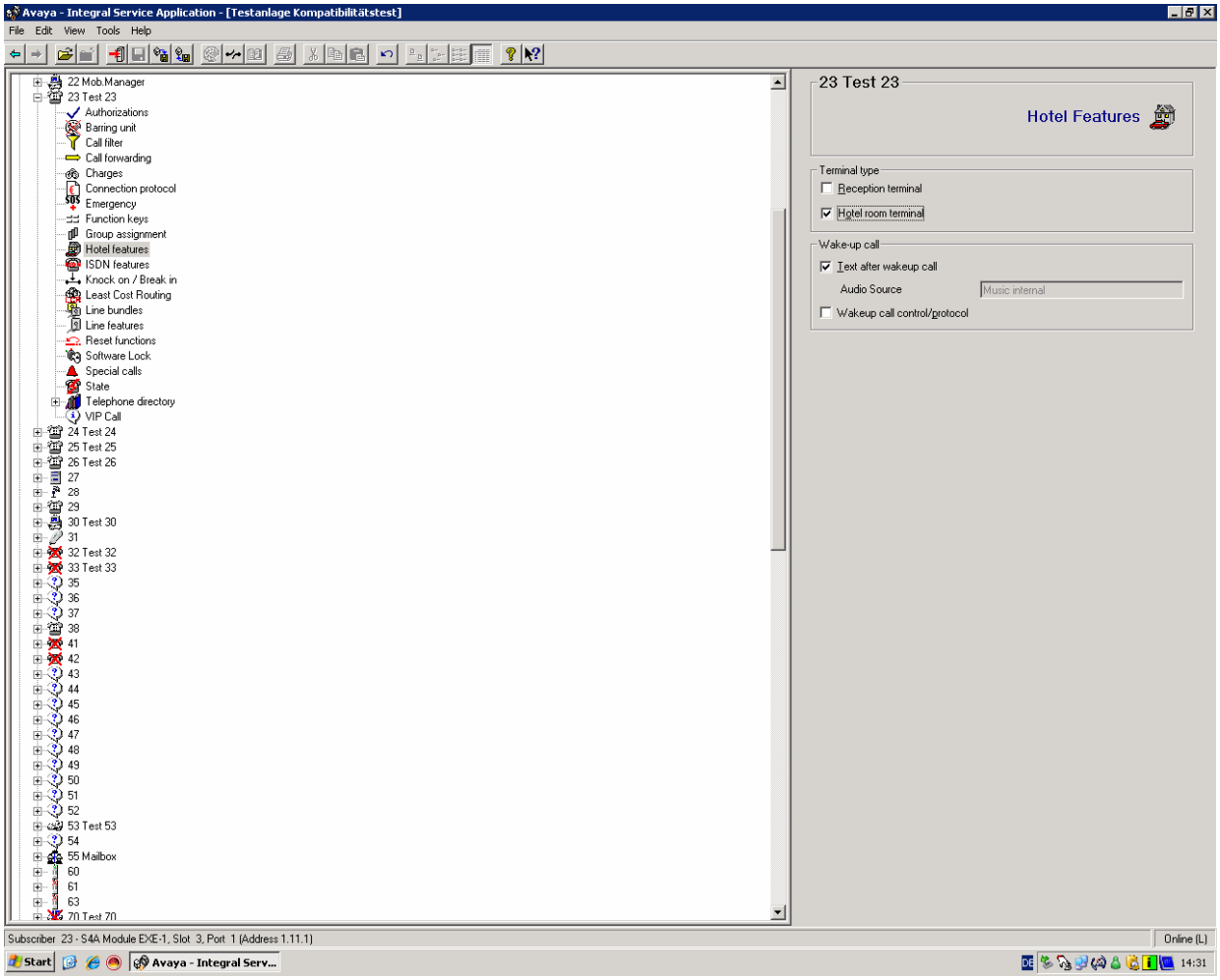
The settings of the V.24 interface have to be changed to Call Data Processing (ACOM):



Terminal type “Reception terminal” has to be assigned to one terminal:



The terminal type “Hotel room terminal” has to be assigned to another terminal:



4. Configuration of the NovaAlert

The NovaAlert 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 are saved in the NovaAlert.ini file. This file can also be altered by means of a text editor and restored.

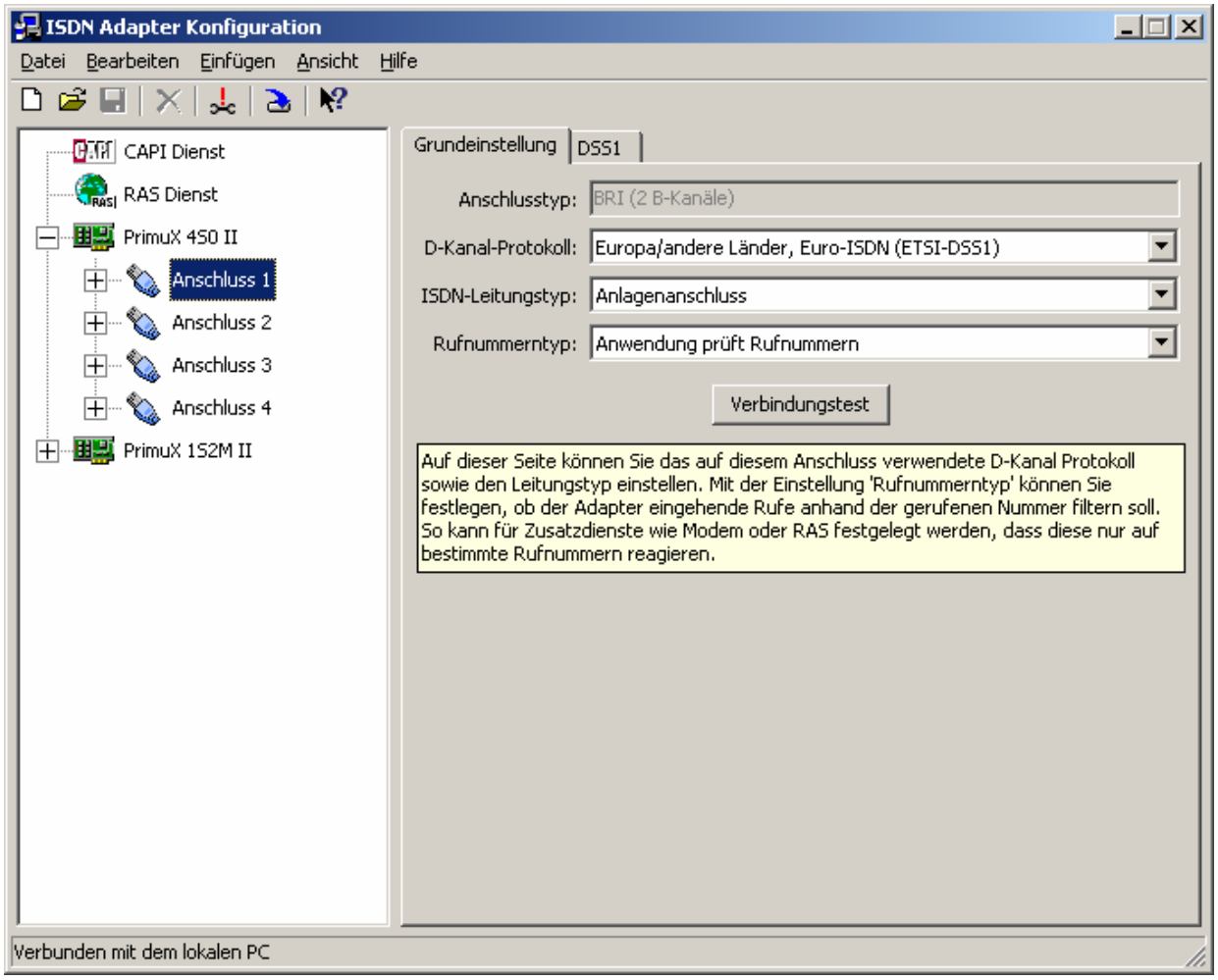
The configuration for NovaAlert includes some screen shots and fields that are in German.

4.1. 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: Europa/andere Länder, Euro-ISDN (ETSI-DSS1)
ISDN-Leitungstyp: Anlagenanschluss
Rufnummerntyp: Anwendung prüft Rufnummern

D-channel-protocol: Europe/other countries, Euro-ISDN (ETSI-DSS1)
Type of ISDN trunk: Trunk (point to point)
Type of number: Application checks call numbers



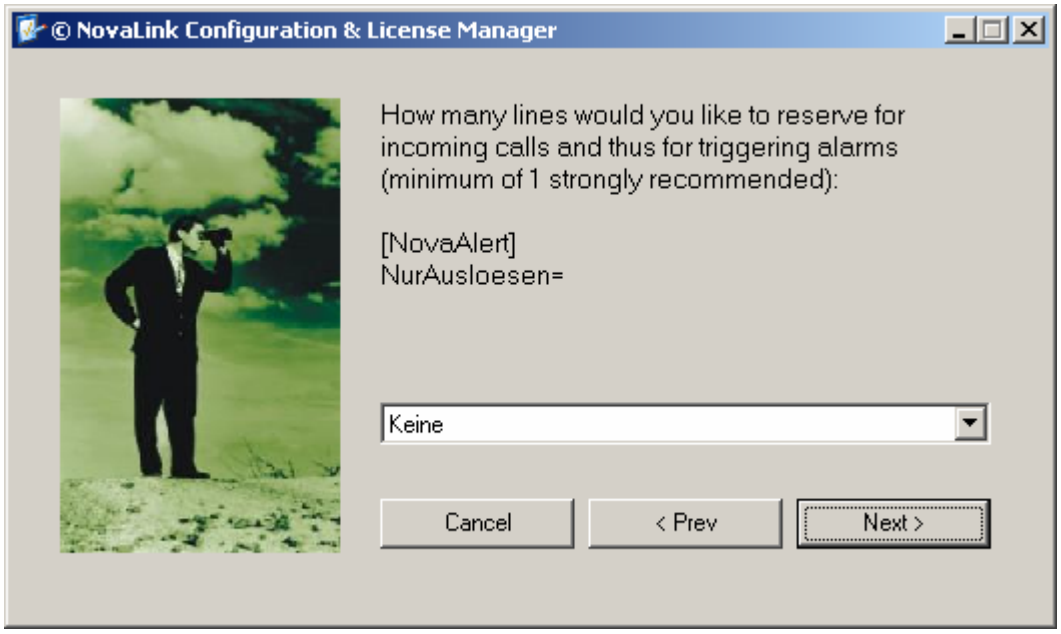
4.2. Configuration & License Manager for BRI QSIG configuration

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

Configure Server-Settings:

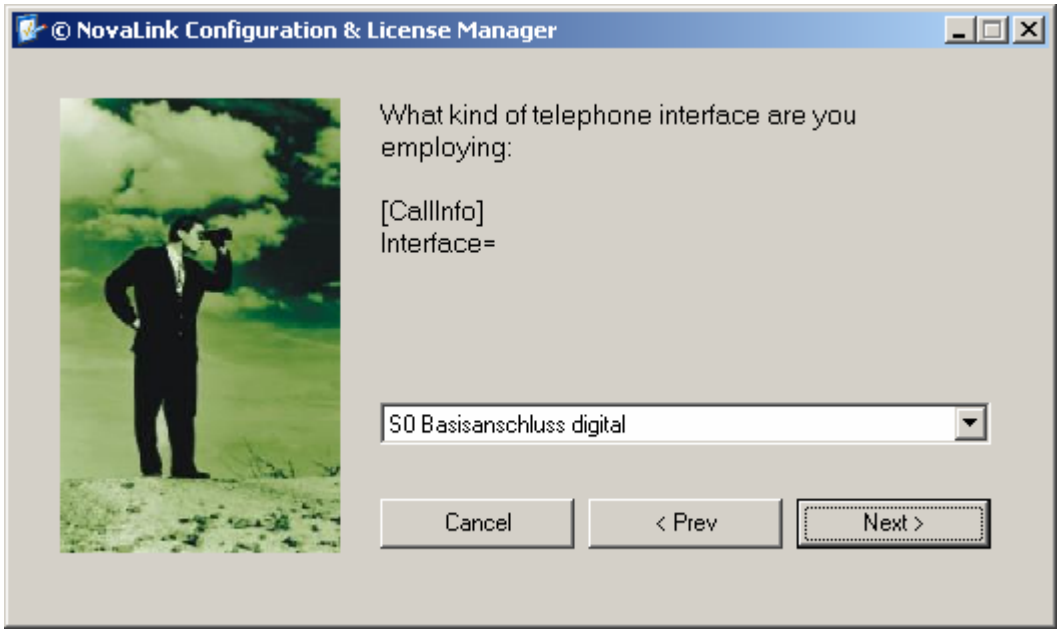
Linie=2
Two lines are used:

Nur Ausloesen: Keine
Release only= None:



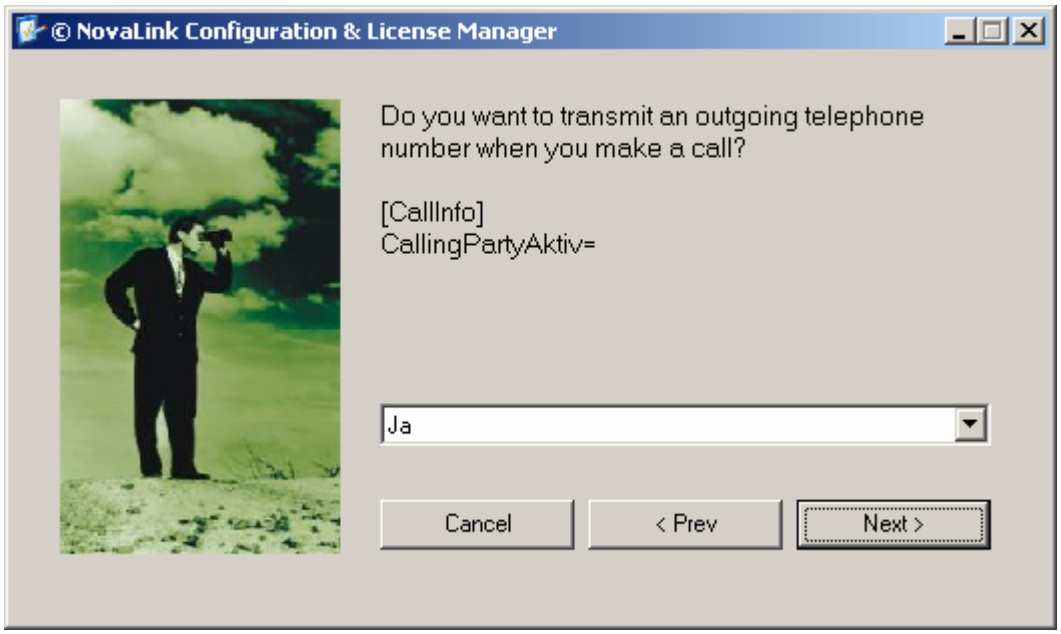
CardDriver= CAPI:

Interface= S0 Basisanschluss digital
Interface= BRI digital

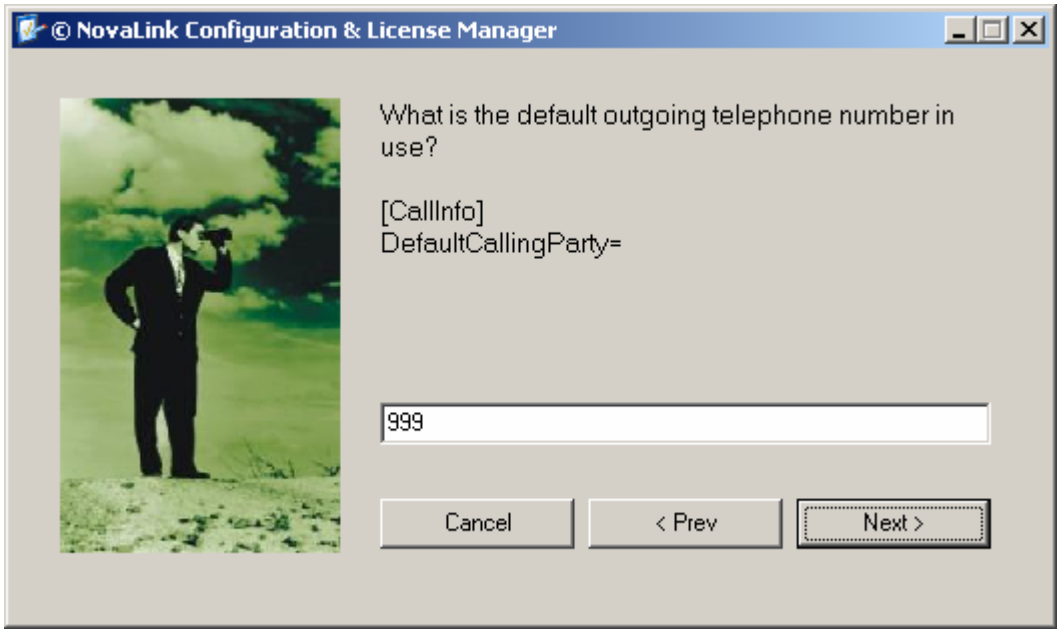


QSIGStandard= QSIG nach ISO
QSIGStandard= QSIG according to ISO (International Standardization Organization)

CallingPartyAktiv= Ja
CallingPartyActive= yes

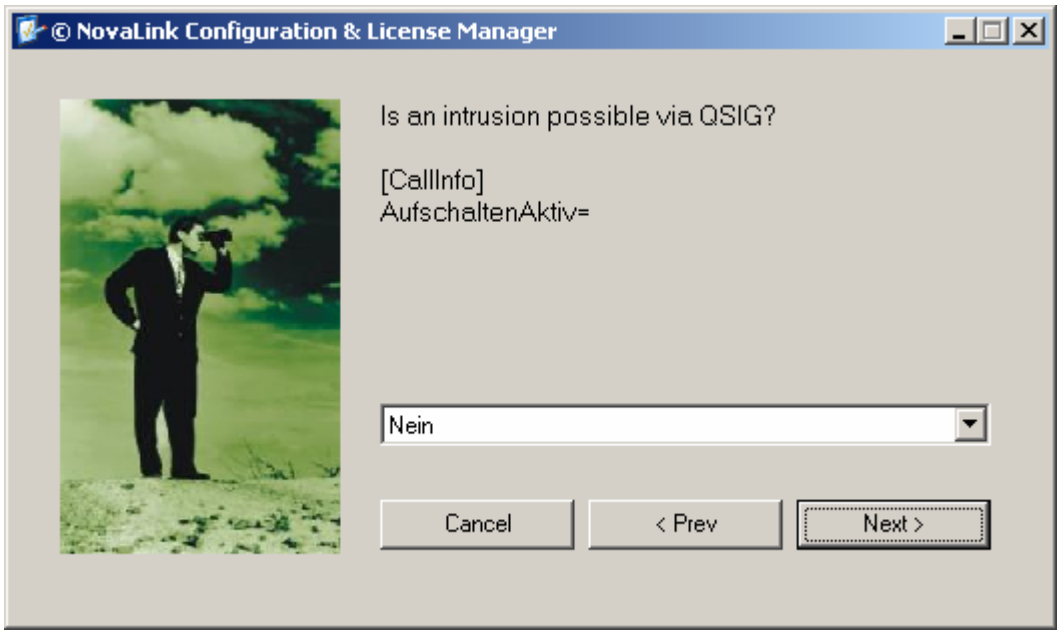


DefaultCallingParty= 999:



CNIPAktiv= Ja
Calling name identification presentation active= yes

AufschaltenAktiv= Nein
Intrusion active= no



4.3. Settings in the NovaAlert.ini for BRI

All settings which have been made in the Configuration & License Manager are included in the NovaAlert.ini file. The file with the configurations as described above is listed below:

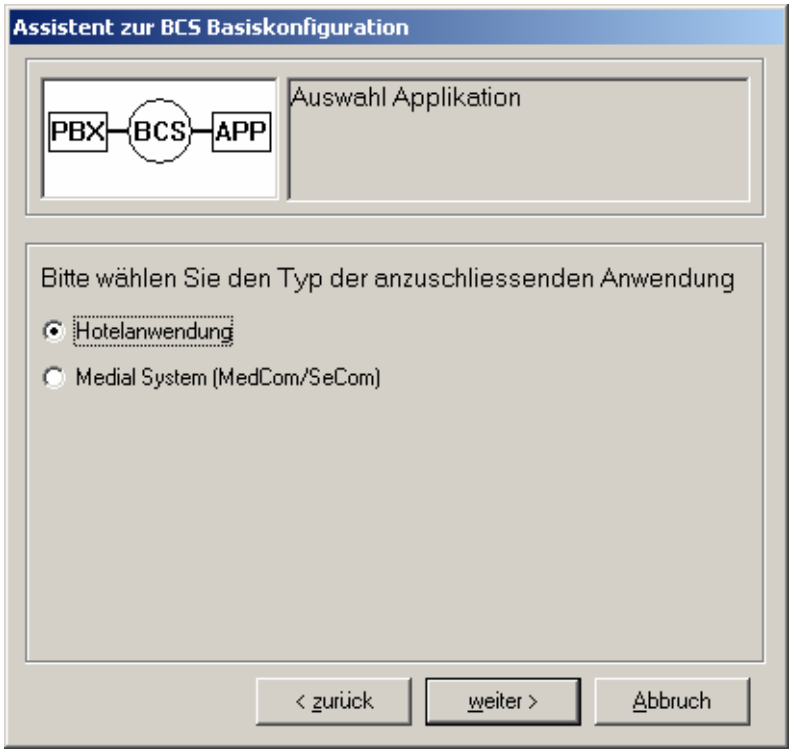
```
[NovaAlert]
NurAusloesen=0          'Line that is only used to set off an alert over the telephone (supported no calls)
Linie1=1                'Allocation of the lines logical=physical
Linie2=2

[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=3             'Only for digital interfaces: standard=0 – specifies the number of digits to be received
AufschaltenAktiv=0      '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 an 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
```

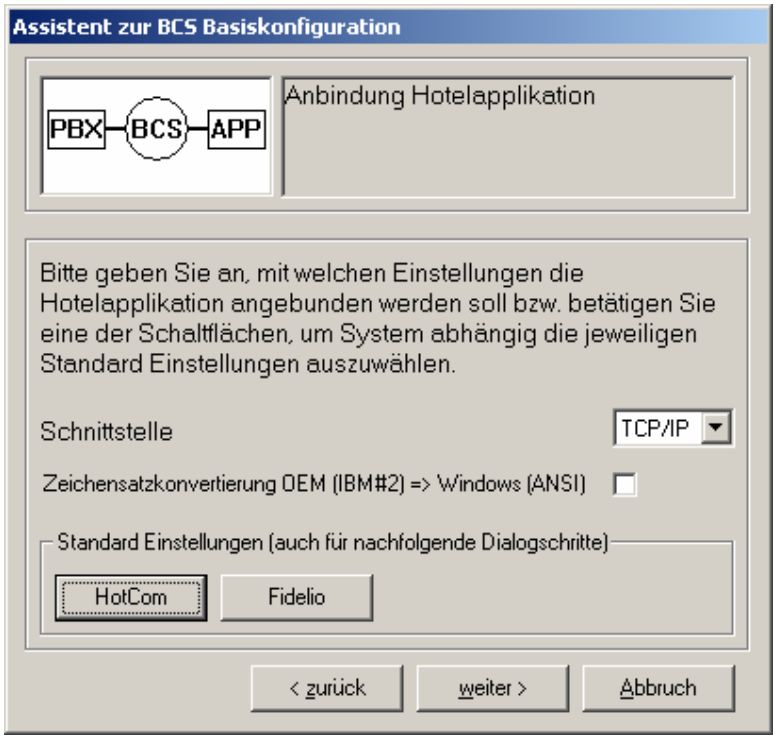
5. Configuration of the BCS

The following screens show the basic step by step configuration for the BCS.
The BCS (Branch Communications Server) is server software which is used as an interface between an Avaya branch solution (e.g., HotCom, MedCom) and one or more Avaya telecommunication systems. BCS allows the exchange of data between Avaya telecommunication systems and Avaya branch solutions. The data sets of Avaya telecommunication systems and Avaya branch solutions have different formats. BCS transforms the format of incoming data sets internally and forwards them to the Avaya telecommunication systems or Avaya branch solutions respectively in the appropriate format.

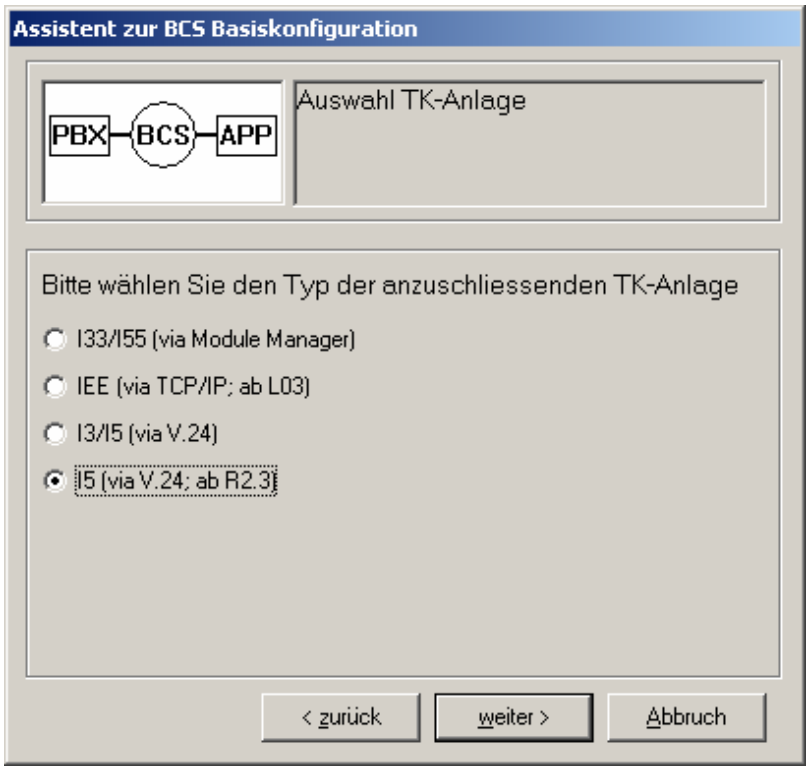
Typ der Anwendung: Hotelanwendung:
Type of application = hotel application



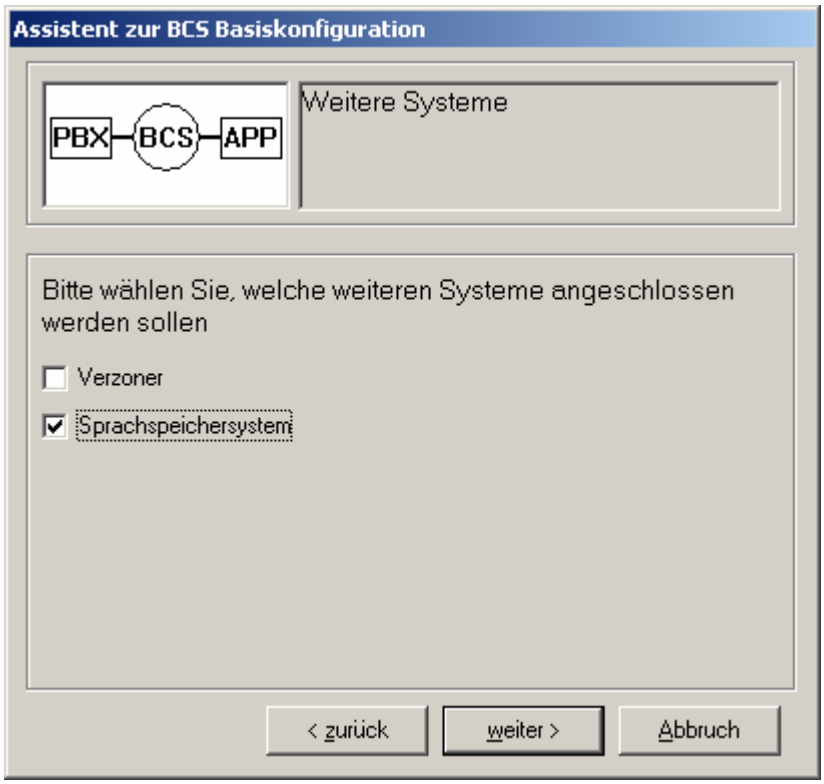
Schnittstelle: TCP/IP
Standard Einstellungen: HotCom
Interface: TCP/IP
Default settings: HotCom



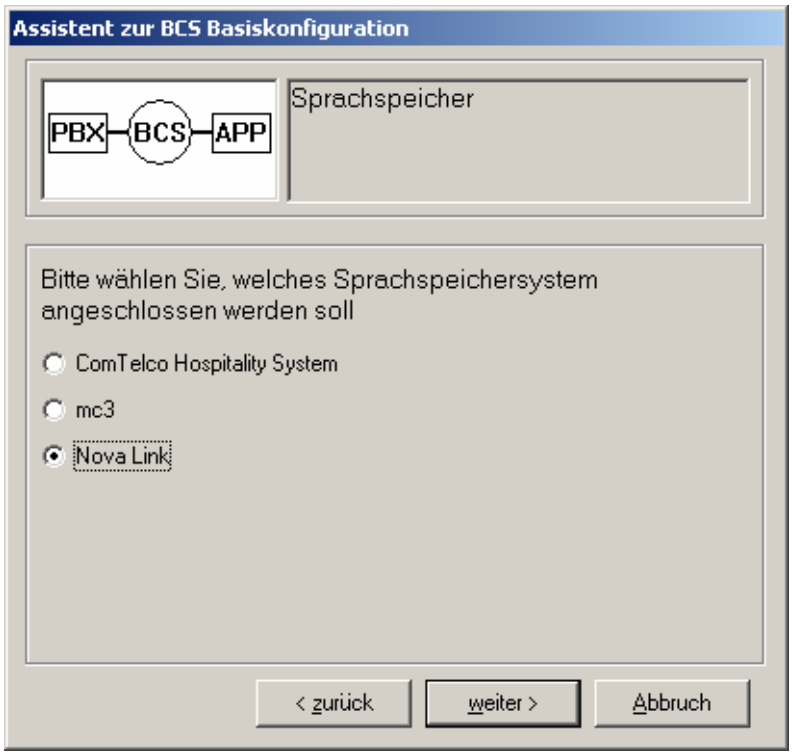
Typ der TK-Anlage: I5 (via V.24; ab R2.3)
Type of telecommunication system: I5 (via V.24; from software R2.3)



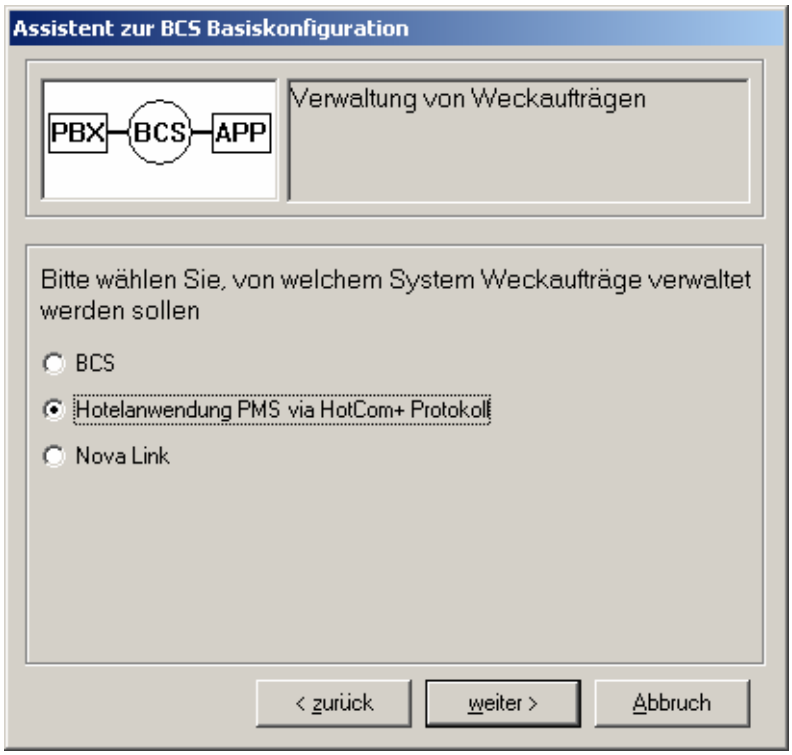
Weitere Systeme: Sprachspeichersysteme
Additional systems: voice mail box



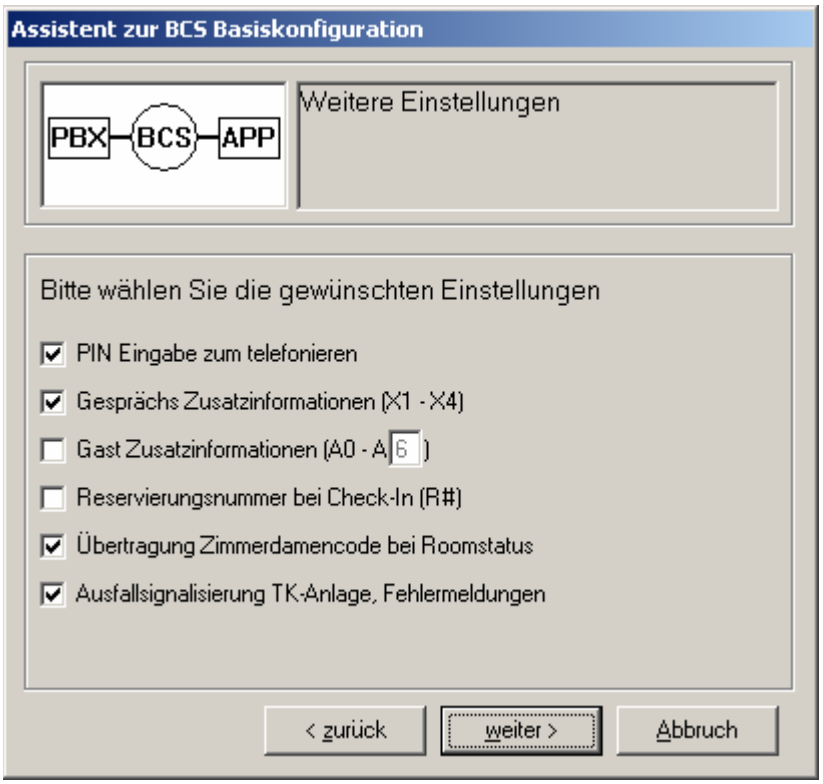
Sprachspeicher: NovaLink
Voice mail box: NovaLink



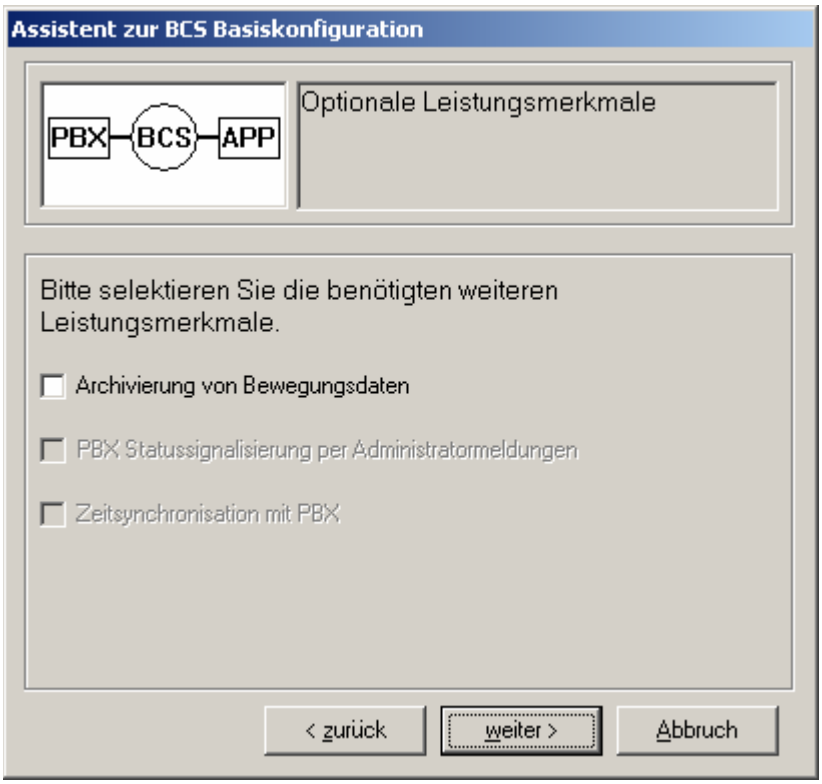
Weckaufträge verwalten: Hotelanwendung PMS via HotCom+ Protokoll
Manage wake-up calls: hotel application PMS via HotCom+ protocol



Weitere Einstellungen:
PIN Eingabe zum telefonieren
Gesprächs Zusatzinformationen
Übertragung Zimmerdamencode bei Roomstatus
Ausfallsignalisierung TK-Anlage, Fehlermeldung
Additional settings:
Enter PIN for making calls
Additional information for a call
Transfer room mate code with room status
Failure signaling to telecommunication system

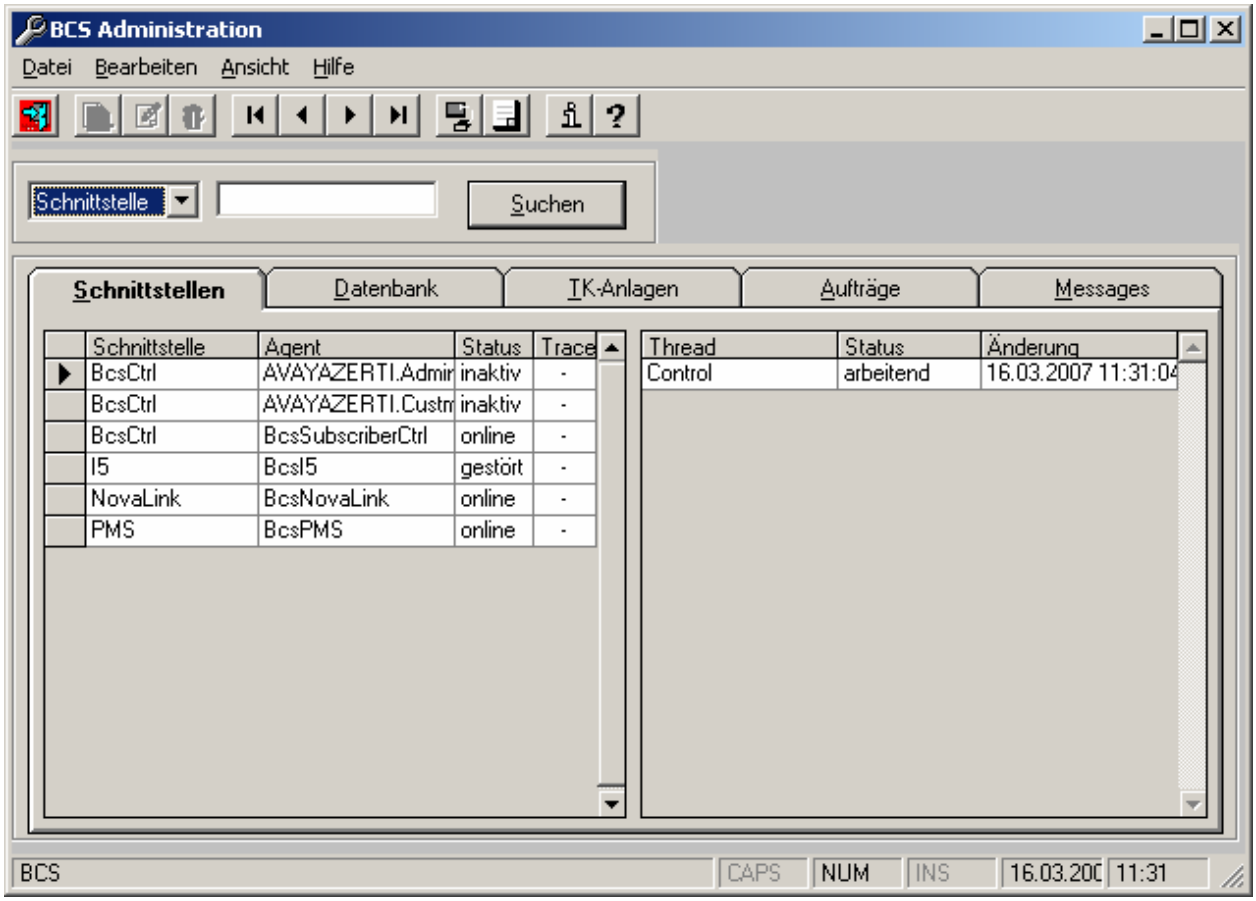


Optionale Leistungsmerkmale aktiveren:
Enable optional features



5.1. BCS Administrator

With the BCS Administrator the status of the interfaces used as well as data bases, telecommunication systems, etc. can be observed:

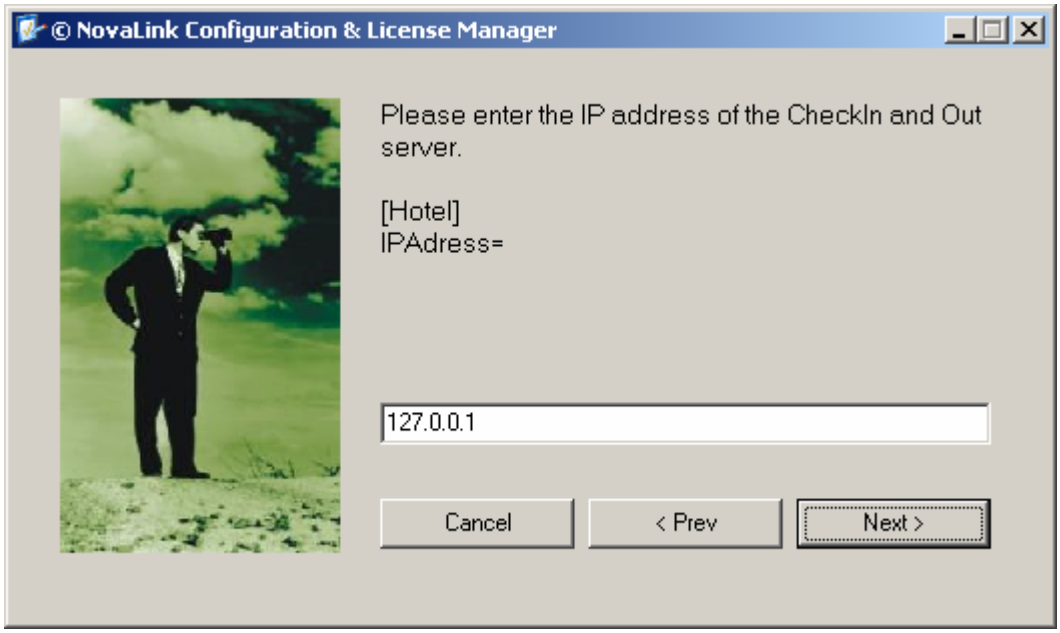


5.2. Configurations in NovaAlert for the support of BCS

The following settings were made by means of the Configuration and License Manager:

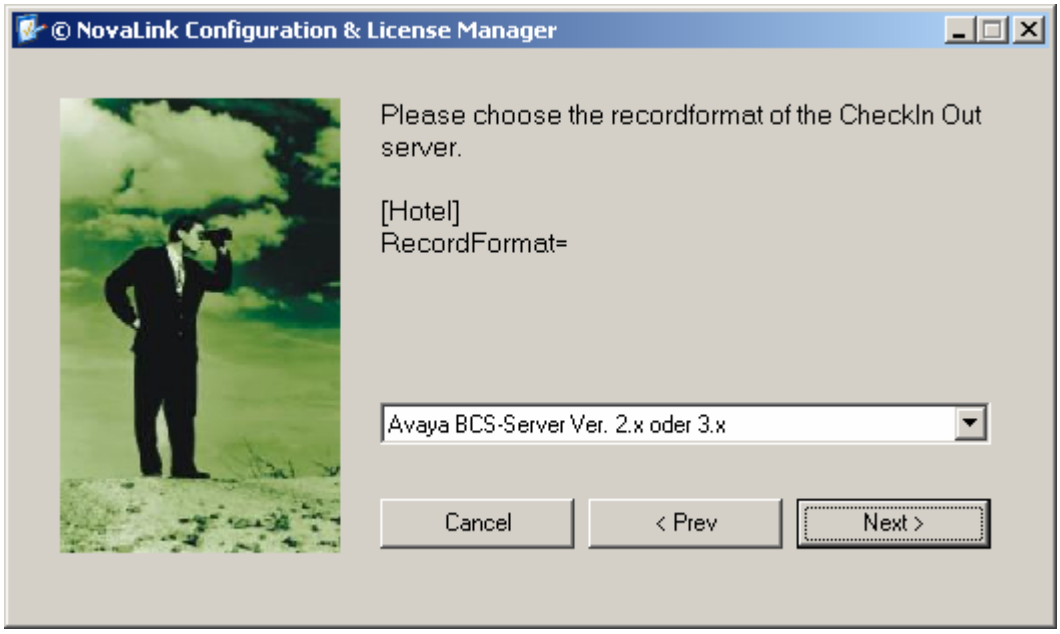
Configure Server-Settings**:**
(i.e. the BCS server)

IP address=IP address of the BCS server (e.g., 127.0.0.1)



IPPort= default 8000

RecordFormat=Avaya BCS-Server Ver. 2.x oder 3.x



5.3. Settings in the NovaAlert.ini

All settings which have been made in the configuration & license Manager are included in the NovaAlert.ini file. The file with the configurations as described above is listed below:

```
[Hotel]
Load=1                          'If 1 is programmed the interface starts automatically
IPAdress=127.0.0.1              'IP address of the connected server
IPPort=8000                     'Port of the connected server
RecordFormat=1                  'Dataset, 1=Avaya BCS-Server version. 2.x or 3.x
CheckedOutName=Vacant           'Setting name if guest checked out
SaveOriData=1                   'If 1 is programmed the received data saved in file NovaInt.Log
CheckedInAnsage=101             'Announcement if somebody has checked in (only for hotel-connection)
CheckedOutAnsage=101            'Announcement if somebody has checked out (only for hotel-connection)
CheckedOutUmleitung=            'Mailbox forwarding, for check out, for example: reception mailbox (only
for hotel-connection)
StandardSprache=1               'Language for check out (only for hotel-connection)
StandardCode=1234               'PIN code for check in / check out (only for hotel-connection)
```

5.4. Front Office application

The BCS supports Front Office applications. As described in **Section 5,** the BCS also transforms the format of incoming data sets such as Check-In or Check-Out from the Front office and forwards them to the Avaya telecommunication systems or Avaya branch solutions respectively. The BCS configuration for Front Office applications is covered by **Section 5.2**.

6. Interoperability Compliance Testing

6.1. 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
- Voice Connection recording of a message / playback of a message
- Incoming calls with overlap receiving
- Connection to BCS Server over IP
- Check in - setting of subscriber name / language
- Check out - setting of subscriber name / language
- Set message waiting at front desk

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 endpoint

Recovery treatment

- Reconnect after disconnect of the BRI cable between NovaAlert and Integral5
- Power down the NovaAlert services, start it again and wait for reconnect
- Power down the Integral 5, start it again and wait for reconnect
- Reconnect after restart the BCS services

6.2. Test Results

All test cases were executed and passed.

7. Verification Steps

To verify that the solution is properly configured, the following steps can be taken:
After establishing the physical connection between the NovaAlert Server and Avaya I5 for the BRI the associated line must be accessible. This can be checked by dialing *102 (refer to **Section 3.1, Screen 6**) at an Avaya I5 phone. Also, the initialization of the BRI (layer 1) can be observed on an ISDN monitor at the NovaAlert server.

The status of the various interfaces can be checked with the BCS Administrator (**Section 5.1**).
In addition, the Avaya I5 event protocol allows tracing of the V.24 interface.

A test call to the NovaAlert voice menu can be made by dialing the appropriate number (e.g., 999) after accessing the BRI.

8. Support

For technical support for the NovaLink NovaAlert solution, contact the technical support hotline of NovaLink:

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

9. Conclusion

These Application Notes describe the configuration steps required for NovaLink NovaAlert to successfully interoperate with an Avaya Integral 5 easy with software version AR 2.351 DE. 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 compliance tested successfully.

10. Additional References

Additional product information from Avaya:
Avaya Integral 5: http://www.avaya.co.uk/gcm/emea/en-us/products/offers/i5.htm
BCS: http://www.avaya.de/gcm/emea/de/solutions/offers/hotcom.htm&View=SolComponents

Additional product information from NovaLink:
http://www.novalink.ch/index.php?id=51

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.