AVAYA

Application Notes for TCC THoMAS with Avaya Communication Manager– Issue 1.0

Abstract

These Application Notes describe the compliance testing of TCC THoMAS with Avaya Communication Manager. THoMAS is used in the medical and hospitality industries to assist with check in/out and telephone usage authorization.

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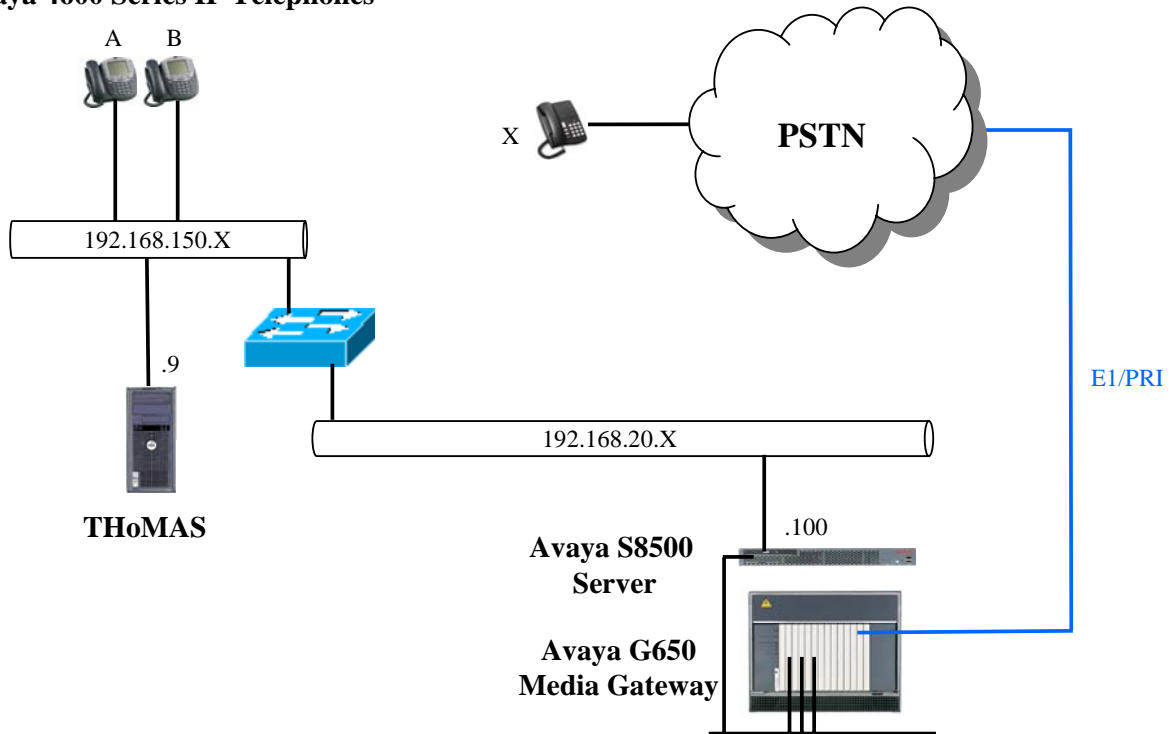
1. Introduction

The TCC THoMAS server provides various telephony capabilities which help meet the needs of the medical and hospitality industries. THoMAS has the following capabilities which interact with Avaya Communication Manager:

- THoMAS provides a check-in/check-out facility which changes telephone access privileges, providing telephone access to guests or patients immediately upon check-in, and preventing unauthorized use after check-out.
- THoMAS can assign a name to the telephone upon check-in, so that hotel or hospital staff can immediately recognize guests or patients from whom they receive telephone calls.
- THoMAS can be configured to change a telephone's security code upon check-in and print the number on a check-in form, allowing the guest or patient to register his or her phone using the security code.
- THoMAS can assign authorization codes upon check-in, allowing guests or patients to use the authorization code to make calls while away from their room. This is an option which is enabled for the configuration parameters shown in these Application Notes.

THoMAS communicates with the Avaya S8500 Server via the System Administration Terminal (SAT) interface via the Local Area Network.

Avaya 4600 Series IP Telephones

A   B

192.168.150.X

X

PSTN

.9

E1/PRI

THoMAS

192.168.20.X

.100

**Avaya S8500
Server**

**Avaya G650
Media Gateway**

Figure 1: TCC THoMAS Configuration

The following table contains additional information about each of the telephones contained in the above diagram:

Endpoint	Ext	PSTN	Station Type
A	20136	0699073988720136	4610
B	20137	0699073988720137	4610
X		06975056176	

Table 1: Extensions Used for Testing

2. Equipment and Software Validated

Equipment	Software Version
Avaya S8500 Server / Avaya Communication Manager	4.0 Service Pack 00.0.730.5-13566
Avaya TN2464CP DS1 Circuit Pack	HW01 / FW18
Avaya 4610 IP Telephones	2.8
THoMAS	2.0
Server OS	Windows XP Professional Service Pack 2

Table 2: Version Numbers of Equipment and Software

3. Configuration

3.1. Configure Communication Manager

The configuration and verification operations illustrated in this section were performed using the Avaya Communication Manager System Administration Terminal (SAT).

3.1.1. Verify system-parameters customer-options

Use the **display system-parameters customer-options** command to verify that Avaya Communication Manager is configured to meet the minimum requirements to support the configuration used for these tests. Those items shown in **bold** indicate required values or minimum capacity requirements. If these are not met in the configuration, please contact an Avaya representative for further assistance.

MRR; Reviewed:
SPOC 3/5/2008

Solution & Interoperability Test Lab Application Notes
©2008 Avaya Inc. All Rights Reserved.

4 of 34
TCC-THoMAS

Verify that the system has support for Authorization Codes.

```
change system-parameters customer-options                    Page   3 of  10
                            OPTIONAL FEATURES

    Abbreviated Dialing Enhanced List? n            Audible Message Waiting? n
          Access Security Gateway (ASG)? n              Authorization Codes? y
          Analog Trunk Incoming Call ID? n                        CAS Branch? n
 A/D Grp/Sys List Dialing Start at 01? n                          CAS Main? n
 Answer Supervision by Call Classifier? n              Change COR by FAC? n
                               ARS? y  Computer Telephony Adjunct Links? n
                ARS/AAR Partitioning? y  Cvg Of Calls Redirected Off-net? n
            ARS/AAR Dialing without FAC? n                     DCS (Basic)? n
               ASAI Link Core Capabilities? n            DCS Call Coverage? n
               ASAI Link Plus Capabilities? n            DCS with Rerouting? n
             Async. Transfer Mode (ATM) PNC? n
        Async. Transfer Mode (ATM) Trunking? n  Digital Loss Plan Modification? n
               ATM WAN Spare Processor? n                          DS1 MSP? n
                              ATMS? n         DS1 Echo Cancellation? n
                   Attendant Vectoring? n
```

Figure 1: System-Parameters Customer-Options Form

3.1.2. Configure System-Parameters Features

Use the **change system-parameters features** command to configure the features required by THoMAS, as shown by the parameter values in **Table 3**.

Parameter	Usage
Authorization Codes Enabled?	Set this parameter to "y" if THoMAS is configured to generate Authorization Codes.
Authorization Code Length	Set the Authorization Code length to a value which matches the length generated by THoMAS, as defined in **Section 3.2.10**, if THoMAS is configured to generate Authorization Codes.

Table 3: Configuration Values for System-Parameters Features

```
change system-parameters features                               Page   4 of 17
                       FEATURE-RELATED SYSTEM PARAMETERS
         Reserved Slots for Attendant Priority Queue: 5
                           Time before Off-hook Alert: 10
              Emergency Access Redirection Extension:
 Number of Emergency Calls Allowed in Attendant Queue: 5
 Maximum Number of Digits for Directed Group Call Pickup:4
               Call Pickup on Intercom Calls? y        Call Pickup Alerting? n
 Temporary Bridged Appearance on Call Pickup? y        Directed Call Pickup? n
                 Extended Group Call Pickup: none

  Deluxe Paging and Call Park Timeout to Originator? n
 Controlled Outward Restriction Intercept Treatment: tone
Controlled Termination Restriction (Do Not Disturb): tone
         Controlled Station to Station Restriction: tone
AUTHORIZATION CODE PARAMETERS          Authorization Codes Enabled? y
                                        Authorization Code Length: 4
                          Authorization Code Cancellation Symbol: #
                                          Attendant Time Out Flag? n
                                       Display Authorization Code? y
              Controlled Toll Restriction Replaces: none
```

Figure 2: System-Parameters Features Form

3.1.3. Configure Dial Plan

Use the **change dialplan analysis** command to specify which strings are to be included in the dial plan, using the parameter values described in **Table 4**.

Dialed String Parameter	Usage
0	Include a "0" in the dial plan to use as a Facility Access Code (Call Type: fac), as shown in **Figure 4**, which serves as a prefix for PSTN numbers. The Total Lenth of this Facility Access Code is 1.
2	Include a "2" in the dial plan for local extensions (Call Cype "ext") shown in **Table 1**, each of which have a Total Length of "5" digits.
*09	Include a "*09" in the dial plan for use as a trunk access code (Call Type "dac") with a Total Length of "3" digits, which is used in **Figure 10**.

Table 4: Configuration Values for System-Parameters Features

```
change dialplan analysis                                        Page   1 of 12
                          DIAL PLAN ANALYSIS TABLE
                                                    Percent Full:    1

      Dialed   Total  Call    Dialed   Total  Call    Dialed   Total  Call
      String   Length Type    String   Length Type    String   Length Type
       0         1    fac
       2         5    ext
       *09       3    dac
```

Figure 3: Dialplan Analysis Form

3.1.4. Configure Call Routing

Call routing for external calls can be illustrated from the example of a call from local extension "A" in **Table 2** to telephone "X", which is attached to the PSTN. "A" dials "006975056176", where the leading "0" precedes an external (PSTN) call, the second "0" precedes a national number, "69" is the area code for Frankfurt, "7505" is the number of the Avaya office, and "6176" is the extension number for telephone "X" in **Table 2**. For this example, the following call routing sequence occurs:

1. Telephone "A" dials "006975056176".
2. The leading "0" of "006975056176"selects ARS, as shown in **Figure 4**.
3. The remaining digits, "06975056176", are used by the ARS Digit Analysis Table (**Figure 5**) to select route pattern "9".
4. Route pattern "9" (**Figure 6**) selects trunk group "9".
5. The Public Unknown Numbering form shown in **Figure 7** is used to prepend "6990739887" to the local extension to form the Calling Party Number of "699073988720136"
6. The dial string of "06975056176" is sent to the PSTN.

The call routing for incoming calls can be illustrated by the example of telephone "X" in **Table 2** calling extension "A":

1. "X" dials "0699073988720136".
2. The call arrives at Trunk Group 9, which is connected to the PSTN, as "9073988720136" after the city code of "69" is removed by the PSTN.
3. Trunk Group 9 prepends "0*" to the called party number, as specified by the "Digits" field in **Figure 11**, resulting in "0*9073988720136". The calling party number is prepended with "0" as specified by the "Incoming Calling Number Insert" field in **Figure 11**.
4. The "0" in the ARS field of the Feature Access Code Table shown in **Figure 4**, selects ARS routing, resulting in "*9073988720136"
5. The ARS Digit Conversion Table shown in **Figure 8** removes the "*90739887" from the number resulting in the extension "20136" of telephone "A".
6. Telephone "A" rings with a calling party number of "006975056176".
7. If the call is not answered, selecting "006975056176" from the call log repeats the steps in the outgoing call example shown above.

Use the **change feature-access-codes** specify that "0" is to be used as the Auto Route Selection (ARS) access code.

```
change feature-access-codes                                    Page   1 of   6
                            FEATURE ACCESS CODE (FAC)
         Abbreviated Dialing List1 Access Code:
         Abbreviated Dialing List2 Access Code:
         Abbreviated Dialing List3 Access Code:
Abbreviated Dial - Prgm Group List Access Code:
                  Announcement Access Code:
                  Answer Back Access Code:
                     Attendant Access Code:
     Auto Alternate Routing (AAR) Access Code:
     Auto Route Selection (ARS) - Access Code 1: 0      Access Code 2:
                Automatic Callback Activation:       Deactivation:
Call Forwarding Activation Busy/DA:        All:       Deactivation:
   Call Forwarding Enhanced Status:        Act:       Deactivation:
                       Call Park Access Code:
                     Call Pickup Access Code:
CAS Remote Hold/Answer Hold-Unhold Access Code:
                CDR Account Code Access Code:
                      Change COR Access Code:
                 Change Coverage Access Code:
                 Contact Closure   Open Code:          Close Code:
```

Figure 4: Feature-Access-Codes Form

Use the **change ars analysis** command to specify that an ARS dialed string of an indeterminate value ("x") of at least "7" digits, but not exceeding "15" digits is a public ("pubu") number which should be routed via routing pattern "9".

```
change ars analysis 0                                             Page   1 of   2
                          ARS DIGIT ANALYSIS TABLE
                            Location:  all          Percent Full:    0

          Dialed          Total      Route     Call   Node  ANI
          String         Min  Max  Pattern     Type   Num   Reqd
     x                    7    15      9        pubu         n
```

Figure 5: ARS Analysis Form

Use the **change route-pattern** command to specify parameter values to be used for route pattern "9", which is used for access to the PSTN. Set the parameter values as shown in **Table 8.**

Parameter	Usage
Pattern Name	Choose an appropriate name to be used for descriptive purposes.
Grp No	Specify the Trunk Group number which is used to access the PSTN (see **Figure 10** to **Figure 14**).
FRL	Select value of "1", which allows stations with a FRL of 1 or greater to have access to the PSTN. The FRL value for a station is set in the stations' COR. In the compliance test, a COR of "1" (**Figure 17**) allows access to the PSTN.

Table 5: Configuration Values for PSTN Route Pattern

```
change route-pattern 9                                            Page   1 of   3
                   Pattern Number: 9    Pattern Name: PSTN
                               SCCAN? n      Secure SIP? n
   Grp FRL NPA Pfx Hop Toll No.  Inserted                          DCS/ IXC
   No          Mrk Lmt List Del  Digits                            QSIG
                            Dgts                                    Intw
 1: 9    1                                                          n   user
 2:                                                                 n   user
 3:                                                                 n   user
 4:                                                                 n   user
 5:                                                                 n   user
 6:                                                                 n   user

     BCC VALUE  TSC CA-TSC    ITC BCIE Service/Feature PARM  No. Numbering LAR
    0 1 2 M 4 W     Request                                  Dgts Format
                                                            Subaddress
 1: y y y y y n  n            rest                                        none
 2: y y y y y n  n            rest                                        none
 3: y y y y y n  n            rest                                        none
 4: y y y y y n  n            rest                                        none
 5: y y y y y n  n            rest                                        none
 6: y y y y y n  n            rest                                        none
```

Figure 6: PSTN Route-Pattern Form

Use the **change public-unknown-numbering** command to specify parameter values to be used to transform the Calling Party Number for outgoing calls from local extension numbers to PSTN numbers via Trunk Group 9. Set the parameter values as shown in **Table 6.**

Parameter	Usage
Ext Len	Enter "5" for the length of local extension shown in **Figure 3**.
Ext Code	Enter "2" which is the leading digit of local extensions.
Trk Grp	Enter "9" to select the trunk group which connects to the PSTN.
CPN Prefix	Enter "6990739887" which is the prefix assigned to trunk 9.
CPN Len	Enter "15" as the Calling Party Number Length.

Table 6: Configuration Values Public-Unknown-Numbering

```
change public-unknown-numbering 5                          Page   1 of   2
                        NUMBERING - PUBLIC/UNKNOWN FORMAT
                                          Total
Ext Ext            Trk        CPN          CPN
Len Code           Grp(s)     Prefix       Len
                                                 Total Administered: 1
 5  2              9          6990739887   15      Maximum Entries: 9999
```

Figure 7: Public-Unknown-Numbering Form

Use the **change ars digit-conversion** command to specify how the Called Party Number of an incoming call is converted to local extension. Set the parameter values as shown in **Table 7.**

Parameter	Usage
Matching Pattern	Enter "*90739887", where the "*" matches the character which was inserted by the Trunk Group, as shown in **Figure 11**.
Min	Enter "9" as the minimum Called Party Number length for an incoming call.
Max	Enter "14" as the maximum Called Party Number length for an incoming call.
Del	Enter "9" to delete all but the local extension.

Table 7: Configuration Values for ARS Digit-Conversion

```
change ars digit-conversion *                              Page   1 of   2
                    ARS DIGIT CONVERSION TABLE
                         Location: all            Percent Full: 0

 Matching Pattern     Min   Max   Del   Replacement String   Net  Conv ANI Req

 *90739887            9     14    9                           ext  n       n
```

Figure 8: ARS Digit-Conversion Form

3.1.5. Configure Interface to PSTN

Use the **add ds1** command to configure a DS1 circuit pack for connection to the PSTN. Set the parameters for this command as shown in **Table 8**.

Parameter	Usage
Name	Choose a name to identify this interface.
Line Coding	Enter "hdb3" for Alternate Mark Inversion with high density bipolar 3-bit substitution.
Signaling Mode	Enter "isdn-pri" Integrated Services Digital Network Primary Rate.
Connect	Enter "network".
Country Protocol	Enter "etsi" to specify the European Telecommunications Standards Institute standard ISDN protocol.
Interworking Message	Enter "PROGress" to have the public network cut through the B-channel and let the caller hear tones such as ringback or busy tone.
Protocol Version	Enter "b".
Interface Companding	Enter "alaw" for use in Europe.
CRC?	Enter "y" to enable Cyclical Redundancy Check.
Idle Code	Specify an idle code bit pattern of "01010101".

Table 8: Configuration Values for DS1 Circuit Pack

```
add ds1 01a06                                              Page   1 of   1
                              DS1 CIRCUIT PACK

           Location: 01A06                          Name: PSTN
           Bit Rate: 2.048                   Line Coding: hdb3


      Signaling Mode: isdn-pri
            Connect: network
   TN-C7 Long Timers? n                  Country Protocol: etsi
Interworking Message: PROGress           Protocol Version: b
Interface Companding: alaw                           CRC? y
          Idle Code: 01010101
                            DCP/Analog Bearer Capability: 3.1kHz

                                         T303 Timer(sec): 4


     Slip Detection? n                Near-end CSU Type: other
```

Figure 9: DS1 Circuit Pack Form

Use the **add trunk-group** command to allocate a trunk group for the PSTN. Set the parameters for this command as shown in **Table 9**.

Parameter	Usage
Group Type (p.1)	Enter "isdn" for Integrated Services Digital Network.
Group Name (p.1)	Choose a name to identify this interface.
TAC (p.1)	Select "*09" as the Trunk Access Code to identify this trunk group.
Dial Access? (p.1)	Enter "y" to allow dial access to this trunk group.
Service Type (p.1)	Enter "public-ntwrk".
Charge Advice (p.2)	Enter "automatic".
Supplementary Service Protocol (p.2)	Enter "c" for ETSI.
Digit Handling (in/out) (p.2)	Enter "overlap/overlap" to specify overlap digit handling for both sending and receiving.
Digit Treatment (p.2)	Specify "insertion" to have Communication Manager add the digits specified by the following field at the beginning of the incoming digit string.
Digits (p.2)	Specify "0*" as the digits to be added at the beginning of the incoming digit string.
Incoming Calling Number Insert (p.2)	Specify "0" to have these digits prepended to the calling party number. This allows missed calls to be correctly dialed from the call log.
Disconnect Supervision Out? (p.2)	Enter "y" to allow trunk-to-trunk transfers of calls within this group.
Send Calling Number (p.3)	Enter "y" to have the calling party number sent.
Charge Conversion (p.3)	Enter "12" as the value to be multiplied by the number of charge units to compute the currency amount.
Decimal Point (p.3)	Enter "comma", which is the character used for decimal point in Germany.
Charge Type (p.3)	Enter "units" to specify that calling charges are reported in units.
Send Connected Number (p.3)	Enter "y".
Send UUI IE? (p.3)	Enter "n".
Send Codeset 6/7 LAI IE? (p.3)	Enter "n".
Port (p. 5,6)	Enter port numbers on the DS1 circuit pack to be used as trunks. Port 16 is reversed for signaling.
Sig Group (p. 5,6)	Enter "9" to select the PSTN signaling group (**Figure 15**). Note that this value can only be entered after the signaling group has been allocated (see **Figure 15**).

Table 9: Configuration Values for PSTN Routing Pattern

```
add trunk-group 9                                             Page   1 of  21
                                TRUNK GROUP

Group Number: 9                      Group Type: isdn      CDR Reports: y
  Group Name: PSTN                          COR: 1      TN: 1      TAC: *09
   Direction: two-way         Outgoing Display? y       Carrier Medium: PRI/BRI
 Dial Access? y               Busy Threshold: 255  Night Service:
Queue Length: 0
Service Type: public-ntwrk             Auth Code? n          TestCall ITC: rest
                        Far End Test Line No:
TestCall BCC: 4
```

Figure 10: PSTN Trunk-Group Form, p. 1

```
add trunk-group 9                                             Page   2 of  21
      Group Type: isdn

TRUNK PARAMETERS
        Codeset to Send Display: 6     Codeset to Send National IEs: 6
        Max Message Size to Send: 260   Charge Advice: automatic
  Supplementary Service Protocol: c     Digit Handling (in/out): overlap/overlap
        Digit Treatment: insertion                           Digits: 0*
           Trunk Hunt: cyclical
                                            Digital Loss Group: 13
Incoming Calling Number - Delete:     Insert: 0          F ormat:
             Bit Rate: 1200      Synchronization: async    Duplex: full
 Disconnect Supervision - In? y   Out? y
 Answer Supervision Timeout: 0
         Administer Timers? N
```

Figure 11: PSTN Trunk-Group Form, p. 2

```
add trunk-group 9                                             Page   3 of  21
TRUNK FEATURES
        ACA Assignment? n              Measured: none     Wideband Support? n
                                                          Maintenance Tests? y
                              Data Restriction? n      NCA-TSC Trunk Member:
                                 Send Name: n        Send Calling Number: y
            Used for DCS? n                          Send EMU Visitor CPN? n
   Suppress # Outpulsing? n    Format: public
 Outgoing Channel ID Encoding: preferred     UUI IE Treatment: service-provider
       Charge Conversion: 12
          Decimal Point: comma                 Replace Restricted Numbers? n
        Currency Symbol: EUR                   Replace Unavailable Numbers? n
            Charge Type: units                     Send Connected Number: y
Network Call Redirection: none                 Hold/Unhold Notifications? n
           Send UUI IE? n                       Modify Tandem Calling Number? n
             Send UCID? n
 Send Codeset 6/7 LAI IE? n                         Ds1 Echo Cancellation? n


   Apply Local Ringback? n
 Show ANSWERED BY on Display? y
                      Network (Japan) Needs Connect Before Disconnect? N
```

Figure 12: PSTN Trunk-Group Form, p. 3

```
add trunk-group 9                                               Page   5 of  21
                                TRUNK GROUP
                                Administered Members (min/max):   0/0
GROUP MEMBER ASSIGNMENTS            Total Administered Members:   0

       Port    Code Sfx Name        Night         Sig Grp
  1: 01a0601  TN2464 C                             9
  2: 01a0602  TN2464 C                             9
  3: 01a0603  TN2464 C                             9
  4: 01a0604  TN2464 C                             9
  5: 01a0605  TN2464 C                             9
  6: 01a0606  TN2464 C                             9
  7: 01a0607  TN2464 C                             9
  8: 01a0608  TN2464 C                             9
  9: 01a0609  TN2464 C                             9
 10: 01a0610  TN2464 C                             9
 11: 01a0611  TN2464 C                             9
 12: 01a0612  TN2464 C                             9
 13: 01a0613  TN2464 C                             9
 14: 01a0614  TN2464 C                             9
 15: 01a0615  TN2464 C                             9
```

Figure 13: PSTN Trunk-Group Form, p. 5

```
add trunk-group 9                                               Page   6 of  21
                                TRUNK GROUP
                                Administered Members (min/max):   0/0
GROUP MEMBER ASSIGNMENTS            Total Administered Members:   0

       Port    Code Sfx Name        Night         Sig Grp
 16: 01a0617  TN2464 C                             9
 17: 01a0618  TN2464 C                             9
 18: 01a0619  TN2464 C                             9
 19: 01a0620  TN2464 C                             9
 20: 01a0621  TN2464 C                             9
 21: 01a0622  TN2464 C                             9
 22: 01a0623  TN2464 C                             9
 23: 01a0624  TN2464 C                             9
 24: 01a0625  TN2464 C                             9
 25: 01a0626  TN2464 C                             9
 26: 01a0627  TN2464 C                             9
 27: 01a0628  TN2464 C                             9
 28: 01a0629  TN2464 C                             9
 29: 01a0630  TN2464 C                             9
 30: 01a0631  TN2464 C                             9
```

Figure 14: PSTN Trunk-Group Form, p. 6

Use the **add signaling-group** command to allocate a signaling group to be used by calls to the PSTN.

Parameter	Usage
Group Type	Specify "isdn-pri" for ISDN Primary Rate.
Max number of NCA TSC	Enter "8".
Primary D-Channel	Enter the address of port 16 of the DS1 Circuit Pack which is used to connect to the PSTN.
Trunk Group for NCA TSC	Enter "9".
Trunk Group for Channel Selection	Enter "9".
TSC Supplementary Service Protocol	Enter "a".

Table 10: Configuration Parameters IP Telephones

```
add signaling-group 9                                          Page   1 of   5
                            SIGNALING GROUP

 Group Number: 9                 Group Type: isdn-pri
                        Associated Signaling? y        Max number of NCA TSC: 8
                          Primary D-Channel: 01A0616     Max number of CA TSC: 0
                                                       Trunk Group for NCA TSC: 9
         Trunk Group for Channel Selection: 9
         TSC Supplementary Service Protocol: a
```

Figure 15: PSTN Signaling-Group Form

3.1.6. Configure Telephones

3.1.6.1 Configure Stations

Use the **add station <x>** command to allocate a station for endpoint A shown in **Table 1**. Repeat this for endpoint B shown in **Table 1**.

Parameter	Usage
Type	Enter the station type of the phone to be used as shown in **Table 1.**
Port	Enter **IP**.
Name	Enter the name of the user which is to be associated with the phone.
Security Code	Enter the security code assigned to the extension.
COR	Enter a Class of Restriction value of "2", which does not have privileges to make external calls.

Table 11: Configuration Parameters IP Telephones

```
add station 20136                                          Page   1 of   5
                               STATION

Extension: 20136                   Lock Messages? n              BCC: 0
     Type: 4620                    Security Code: 63102            TN: 1
     Port: IP                    Coverage Path 1:                COR: 2
     Name: ext 20136             Coverage Path 2:                COS: 1
                                 Hunt-to Station:
STATION OPTIONS
                                       Time of Day Lock Table:
            Loss Group: 19       Personalized Ringing Pattern: 1
                                          Message Lamp Ext: 20136
           Speakerphone: 2-way       Mute Button Enabled? y
      Display Language: english          Expansion Module? n
 Survivable GK Node Name:
          Survivable COR: internal      Media Complex Ext:
   Survivable Trunk Dest? y                   IP SoftPhone? n




                                   Customizable Labels? y
```

Figure 16: Station Form

3.1.6.2 Configure Class of Service

Use the **change cor** command to configure a Class of Restriction (COR) for telephones which have PSTN access, and one for those which do not. COR 1 (**Figure 17**) is assigned an FRL of "1", which allows access to the PSTN Route Pattern (**Figure 6**), which is referenced from the THoMAS script shown in **Figure 27**. COR 2 (**Figure 18**) is assigned an FRL of 0, which does not have sufficient priority to access to the PSTN Route Pattern (**Figure 6**).

```
change cor 1                                                    Page   1 of  22
                              CLASS OF RESTRICTION

                 COR Number: 1
             COR Description:

                      FRL: 1                                 APLT? y
  Can Be Service Observed? n           Calling Party Restriction: none
Can Be A Service Observer? n            Called Party Restriction: none
 Partitioned Group Number: 1        Forced Entry of Account Codes? n
         Priority Queuing? n                   Direct Agent Calling? n
     Restriction Override: none      Facility Access Trunk Test? y
      Restricted Call List? n                  Can Change Coverage? n


            Access to MCT? y              Fully Restricted Service? n
Group II Category For MFC: 7
        Send ANI for MFE? n
            MF ANI Prefix:                  Automatic Charge Display? n
Hear System Music on Hold? y   PASTE (Display PBX Data on Phone)? n
                       Can Be Picked Up By Directed Call Pickup? n
                                   Can Use Directed Call Pickup? n
                                   Group Controlled Restriction: inactive
```

Figure 17: COR 1 Form

```
change cor 2                                                    Page   1 of  22
                              CLASS OF RESTRICTION

                 COR Number: 2
             COR Description:

                      FRL: 0                                 APLT? y
  Can Be Service Observed? n           Calling Party Restriction: none
Can Be A Service Observer? n            Called Party Restriction: none
 Partitioned Group Number: 1        Forced Entry of Account Codes? n
         Priority Queuing? n                   Direct Agent Calling? n
     Restriction Override: none      Facility Access Trunk Test? n
      Restricted Call List? n                  Can Change Coverage? n


            Access to MCT? y              Fully Restricted Service? n
Group II Category For MFC: 7
        Send ANI for MFE? n
            MF ANI Prefix:                  Automatic Charge Display? n
Hear System Music on Hold? y   PASTE (Display PBX Data on Phone)? n
                       Can Be Picked Up By Directed Call Pickup? n
                                   Can Use Directed Call Pickup? n
                                   Group Controlled Restriction: inactive
```

Figure 18: COR 2 Form

3.1.7. Configure Access to SAT Interface

THoMAS requires access to the SAT terminal interface to make the administrative changes. Use a Web browser to connect to the Web interface of the Avaya S8500 Server. Log in and select "Launch Maintenance Web Interface", and click the "Server Access" menu item from the "Security" section contained in the left frame. Enable the SAT terminal service port 5023, and click "Submit". THoMAS is configured to use this interface **Figure 24**.

Figure 19: Communication Manager Service Access Screen

MRR; Reviewed:
SPOC 3/5/2008

Solution & Interoperability Test Lab Application Notes
©2008 Avaya Inc. All Rights Reserved.

18 of 34
TCC-THoMAS

3.2. Configure THoMAS

3.2.1. THoMAS Start Screen

Start the THoMAS application from the Windows "Start" menu by starting the program
Start → Alle Programme → TCC → THoMAS 2 → THoMAS. From the left frame of the
screen, select "TK-Anlagen Schnittstelle".
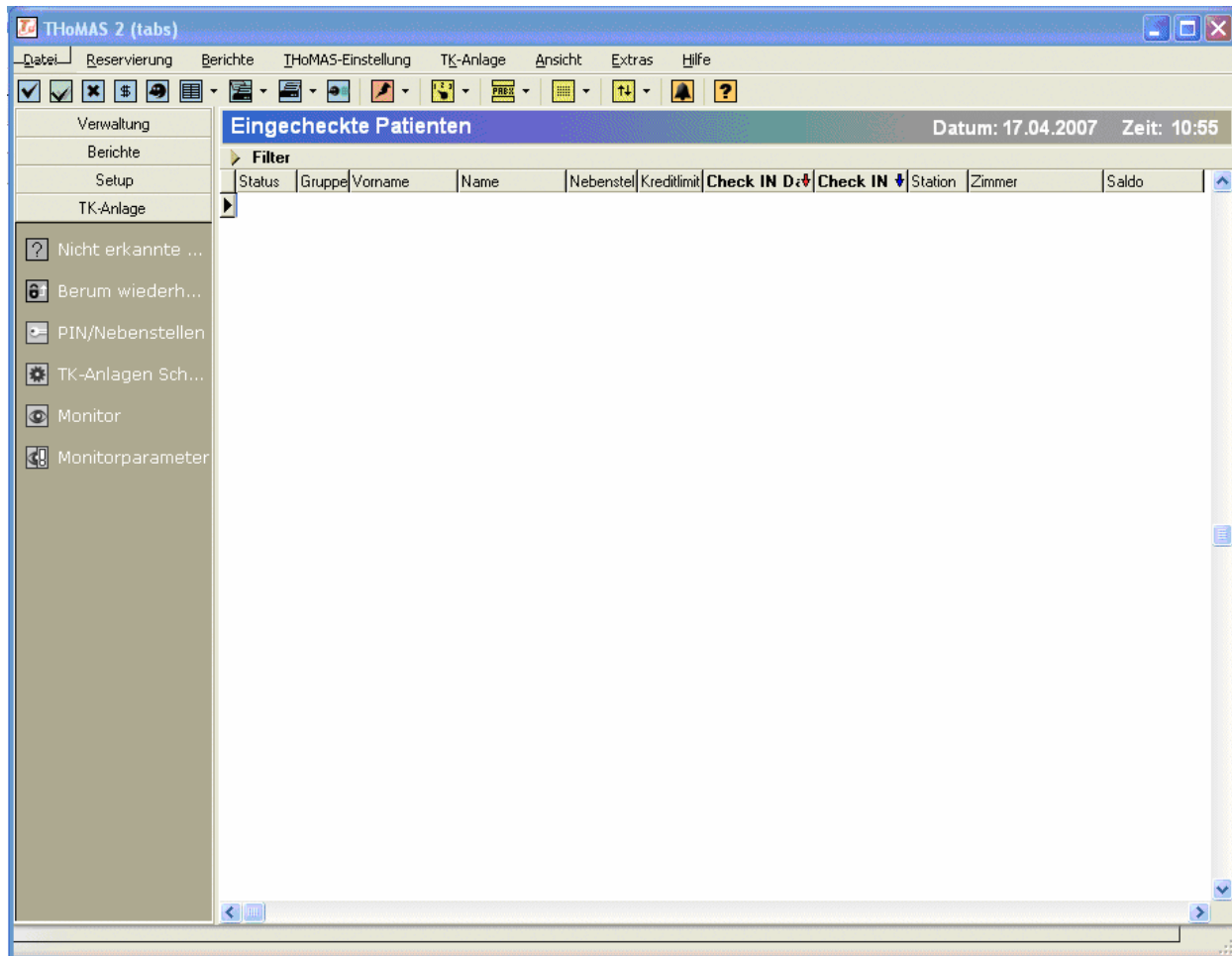
Figure 20: THoMAS Start Screen

3.2.2. Edit PBX Screen 1 - Enter PBX Setup

Click the "Insert" icon to create a new PBX entry.
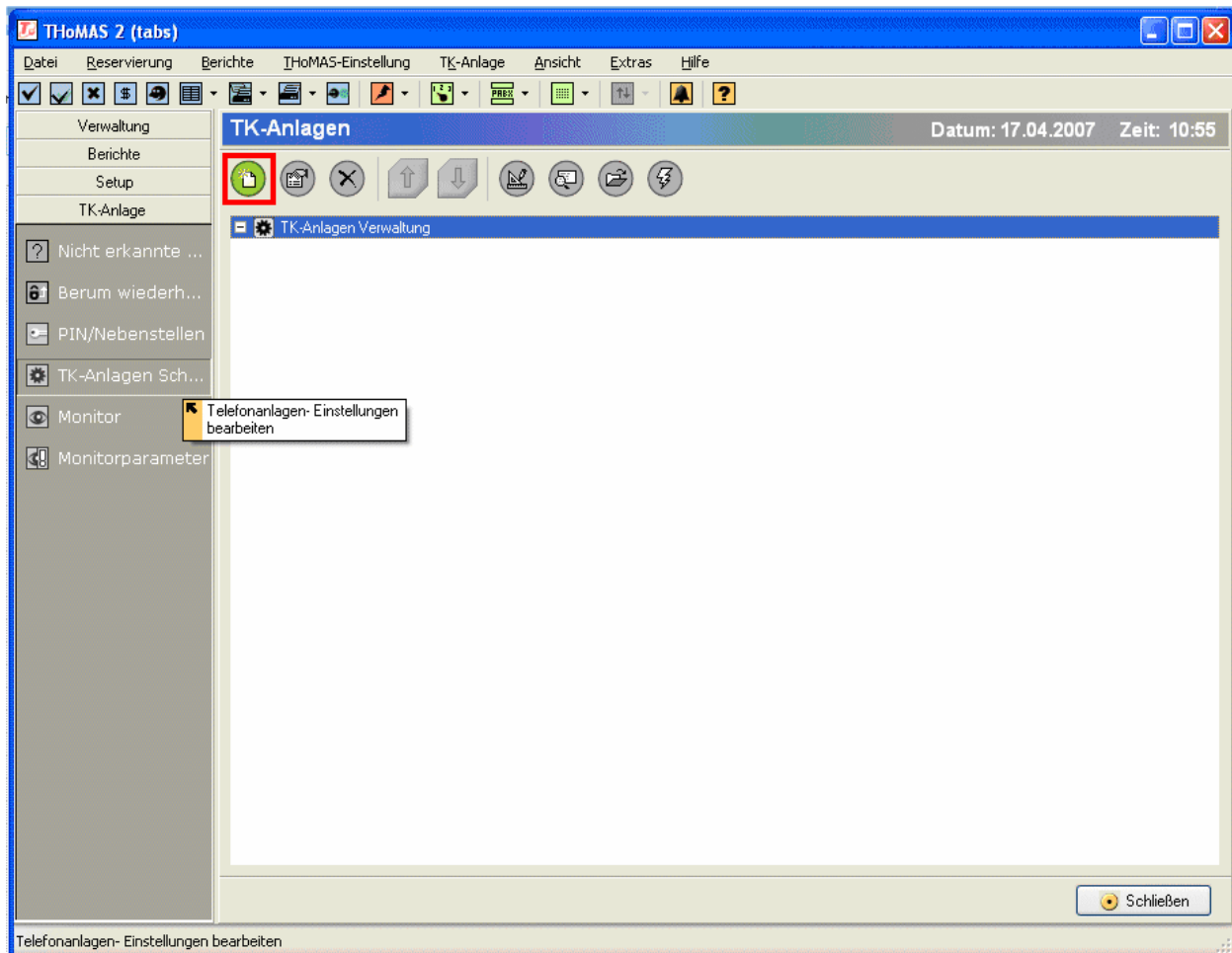
Figure 21: Edit PBX Screen 1 - Enter PBX Setup

MRR; Reviewed:
SPOC 3/5/2008
Solution & Interoperability Test Lab Application Notes
©2008 Avaya Inc. All Rights Reserved.
20 of 34
TCC-THoMAS

3.2.3. Edit PBX Screen 2 - Enter PBX Setup

A new PBX item is shown after the creation operation in the previous step. Right-click on this item and select the "TK-Anlage bearbeiten" item from the list of choices which is presented.
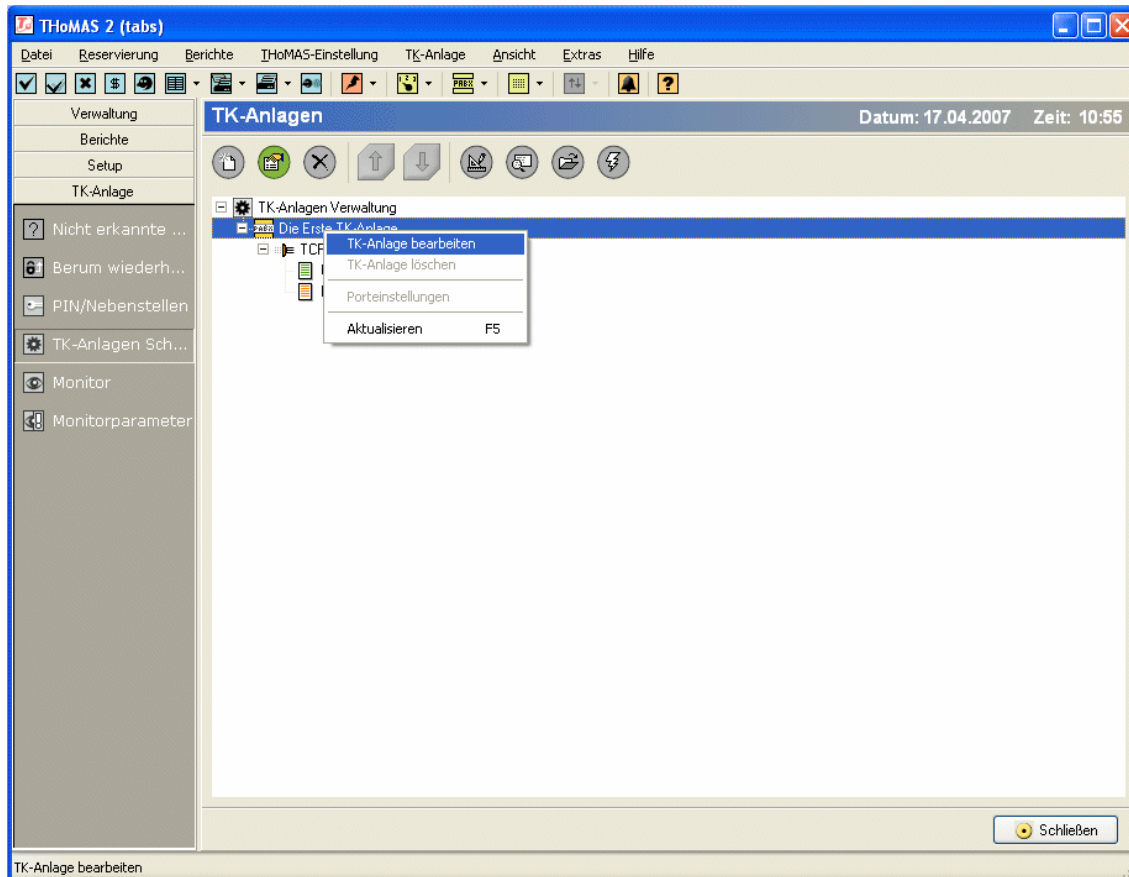
Figure 22: Edit PBX Screen 2 - Enter PBX Setup

MRR; Reviewed:
SPOC 3/5/2008
Solution & Interoperability Test Lab Application Notes
©2008 Avaya Inc. All Rights Reserved.
21 of 34
TCC-THoMAS

3.2.4. Edit PBX Screen 3 - Enter Name and Connection Type

Enter parameters in the "TK-Anlage" tab of the dialog box as shown in **Table 12**.

Parameter	Usage
TK-Anlagen Name	Enter a name which identifies the Avaya S8500 Server.
TK-Anlagen Beschreibung	Enter a description for the Avaya S8500 Server.
Vervindung über	Select the "TCP/IP" radio button.

Table 12: Configure PBX Access Parameters
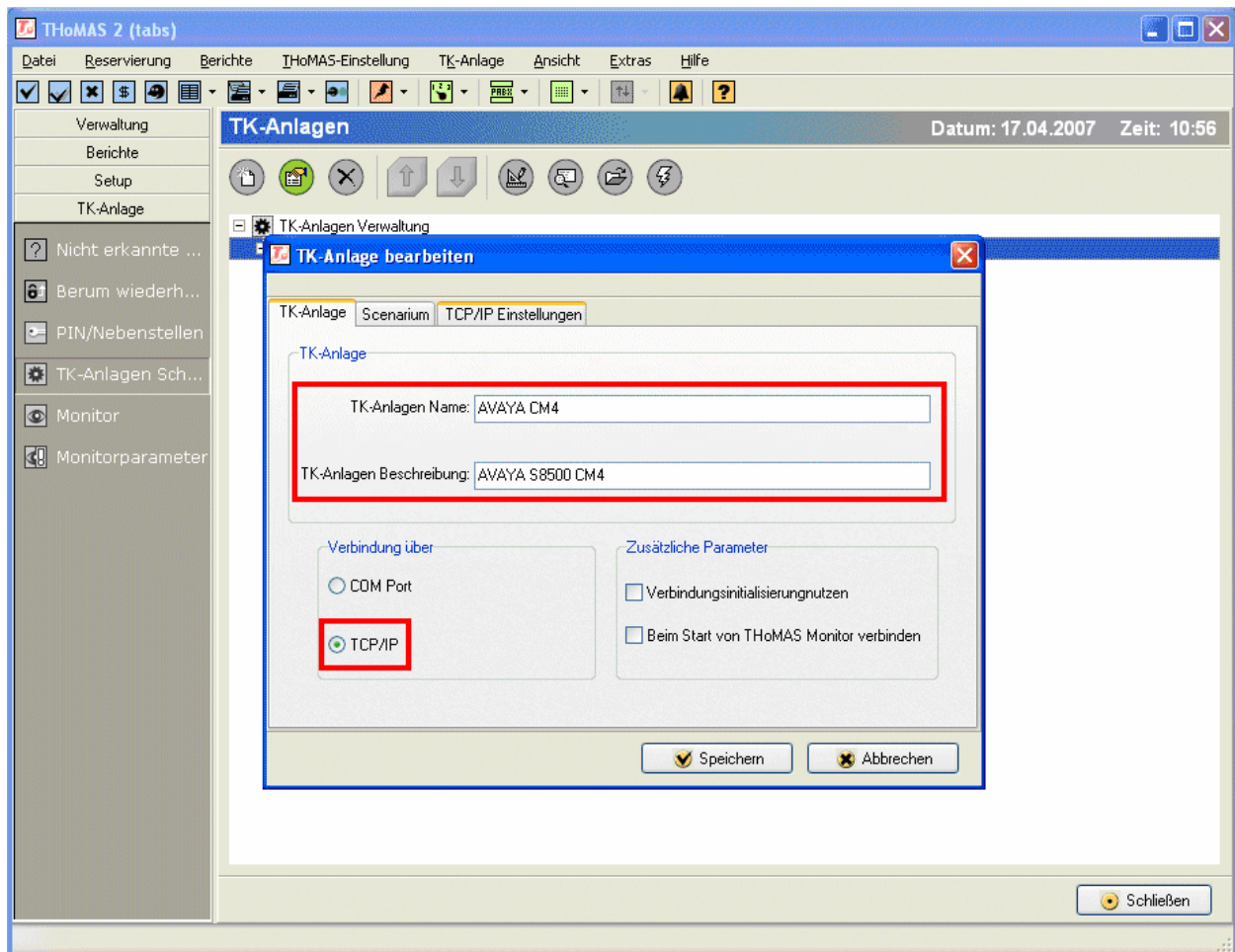
Figure 23: Edit PBX Screen 3 - Enter Name and Connection Type

3.2.5. Edit PBX Screen 4 - Define IP and Port Address

Select the "TCP/IP Einstellungen" tab and set the dialog box fields as shown in **Table 12.** Click the "Speichern" button to save those values.

Parameter	Usage
TCP/IP Modus	Select the "Client Betreib" radio button.
TCP/IP Addresse	Enter the IP address of the Avaya S8500 SAT terminal interface.
TCP/IP Port	Enter the port address of the Avaya S8500 SAT terminal interface.

Table 13: TCP/IP Parameter Settings
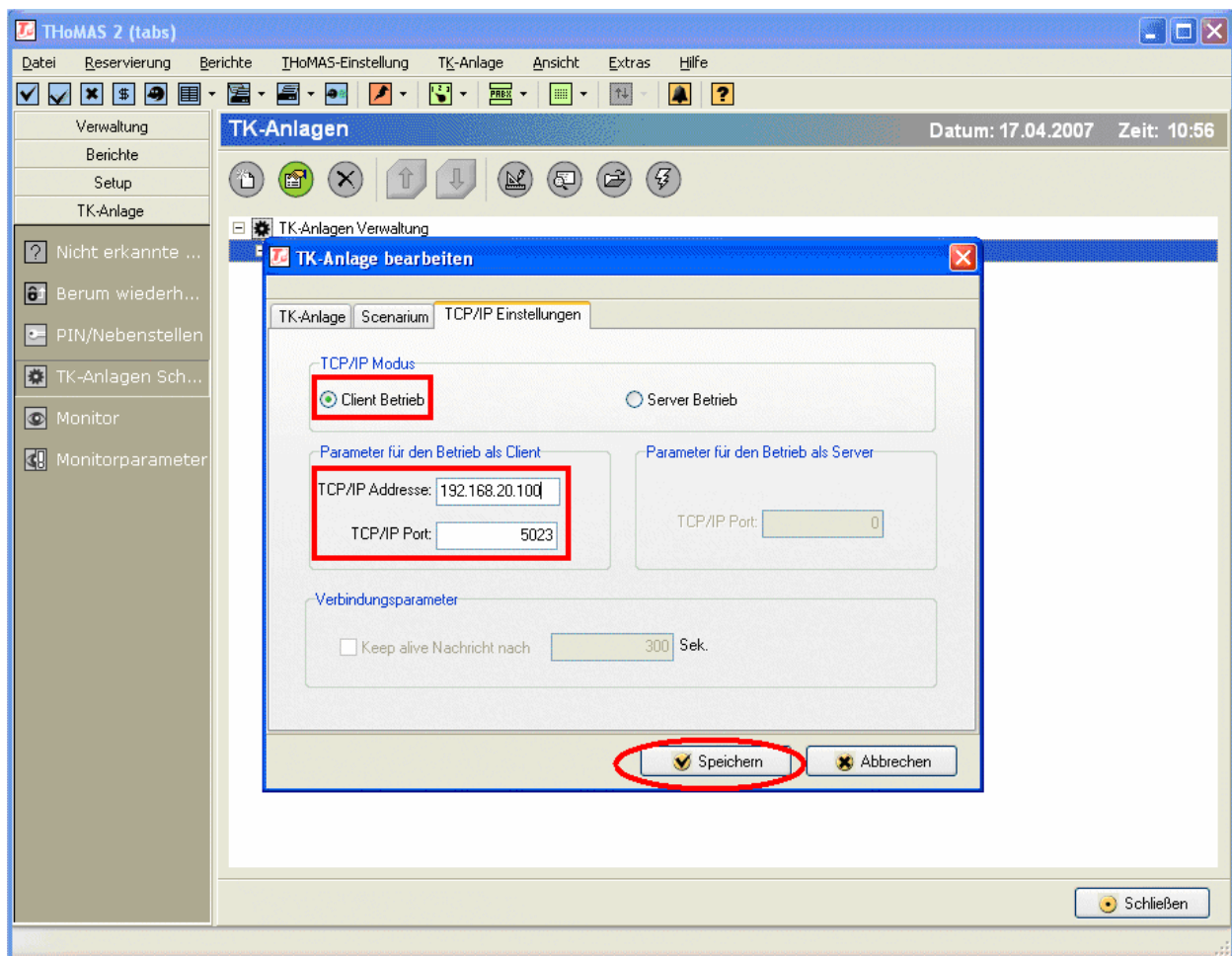
Figure 24: Edit PBX Screen 4 - Define IP and Port Address

MRR; Reviewed:
SPOC 3/5/2008

Solution & Interoperability Test Lab Application Notes
©2008 Avaya Inc. All Rights Reserved.

23 of 34
TCC-THoMAS

3.2.6. Define Unblock Script Type

Select the "Unblock" entry and edit the dialog box as shown in **Figure 25**. Click on the "Speichern" button to save the values.

Parameter	Usage
Name	Enter a descriptive name.
Beschreibung	Enter a description for the script.
Typ	Select the "Skript" radio button.

Table 14: PBX Script Definition
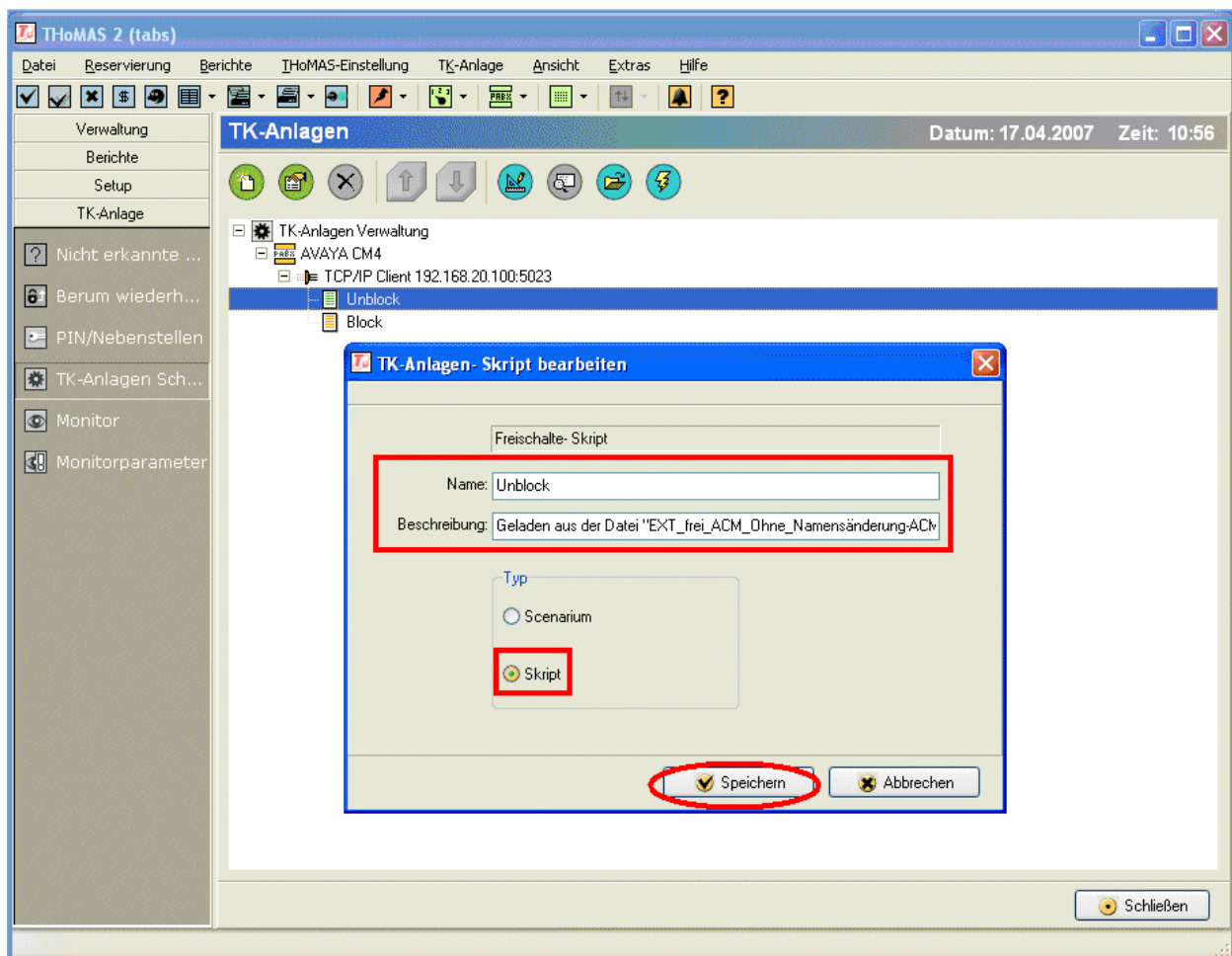
Figure 25: Define Unblock Script Type

MRR; Reviewed:
SPOC 3/5/2008

Solution & Interoperability Test Lab Application Notes
©2008 Avaya Inc. All Rights Reserved.

24 of 34
TCC-THoMAS

3.2.7. Browse to Script

When the File Selection dialog appears, select the "EXT_frei_ACM_Ohne_Namensänderung-ACM4.sce" file, and click "Öffnen".
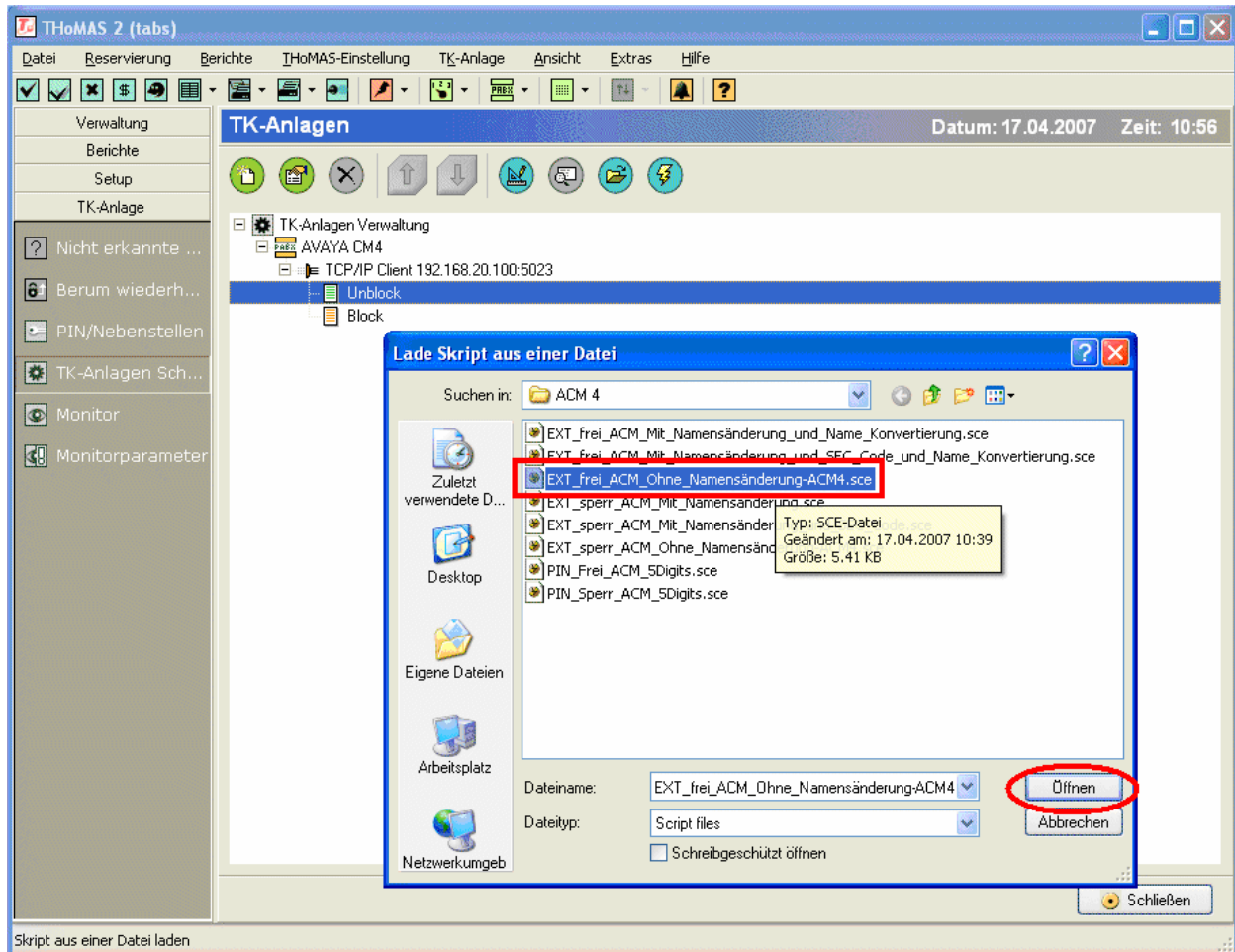
Figure 26: Browse to Script Screen

3.2.8. Edit Script

Change the highlighted items in the edit dialog as shown in **Table 15**. Select **File → Save** upon completion.

Parameter	Usage
COR=	Enter the number of the COR which allows access to the PSTN (see **Figure 17**).
USR=	Enter the SAT terminal login name.
PWD=	Enter the SAT terminal login password

Table 15: PBX Script Edit Changes
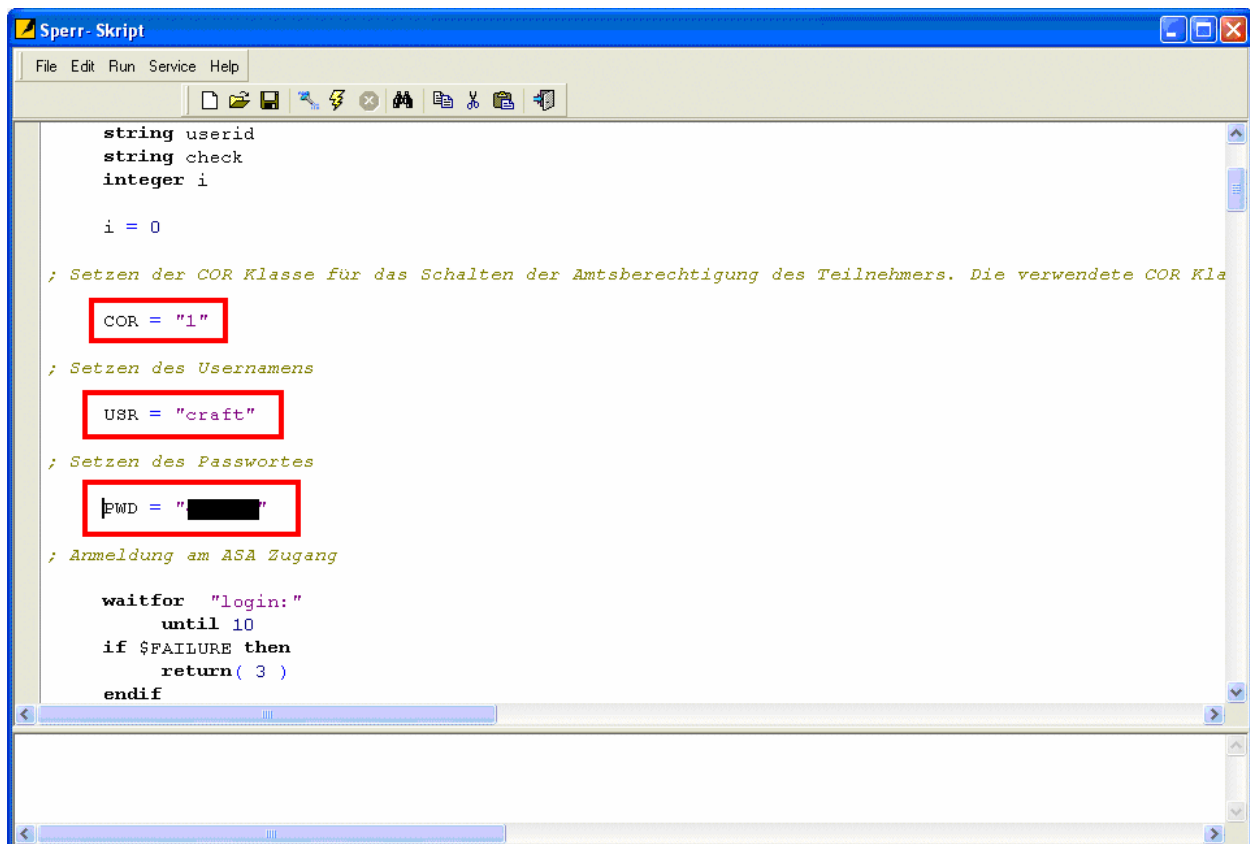
Figure 27: Edit Script Screen

MRR; Reviewed:
SPOC 3/5/2008

Solution & Interoperability Test Lab Application Notes
©2008 Avaya Inc. All Rights Reserved.

26 of 34
TCC-THoMAS

3.2.9. Define General PIN-Extension Settings - 1 - Enter Main Setup

Click the "Setup" control in the left frame which displays the content shown in the following screen.
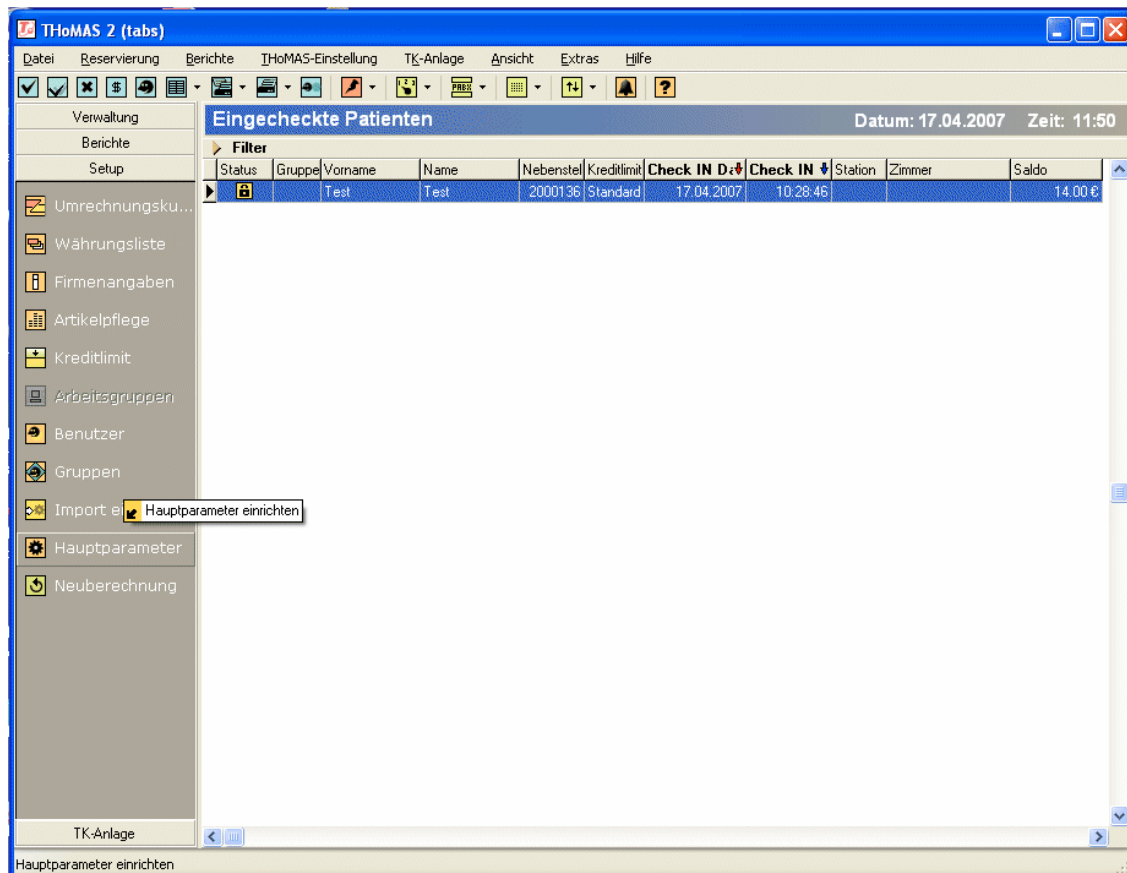
Figure 28: Define General PIN-Extension Settings - 1 - Enter Main Setup

3.2.10. Define General PIN-Extension Settings - 2 - Choose PIN or Extension Usage

Activate the "Hauptparameter" screen by selecting "Hauptparameter" from the menu Setup on the left. Now expand the menu "TK-Anlage" and select the menu "PIN/Nebenstellen-Setup". Select the "Nebenstelle" radio button from the "PIN/Nebenstellen-Konfiguration" group. In case authorization codes will be used, choose the radio button "Nebenstelle/PIN-Code" and define the PIN-Length in the field "PIN-Länge" from the PIN-Codes group. The PINs will be used as Avaya Communication Manager authorization codes. If the PINs should be assigned randomly at check in, check the checkbox "PIN-Würfel verwenden". When all settings are made, click "OK".
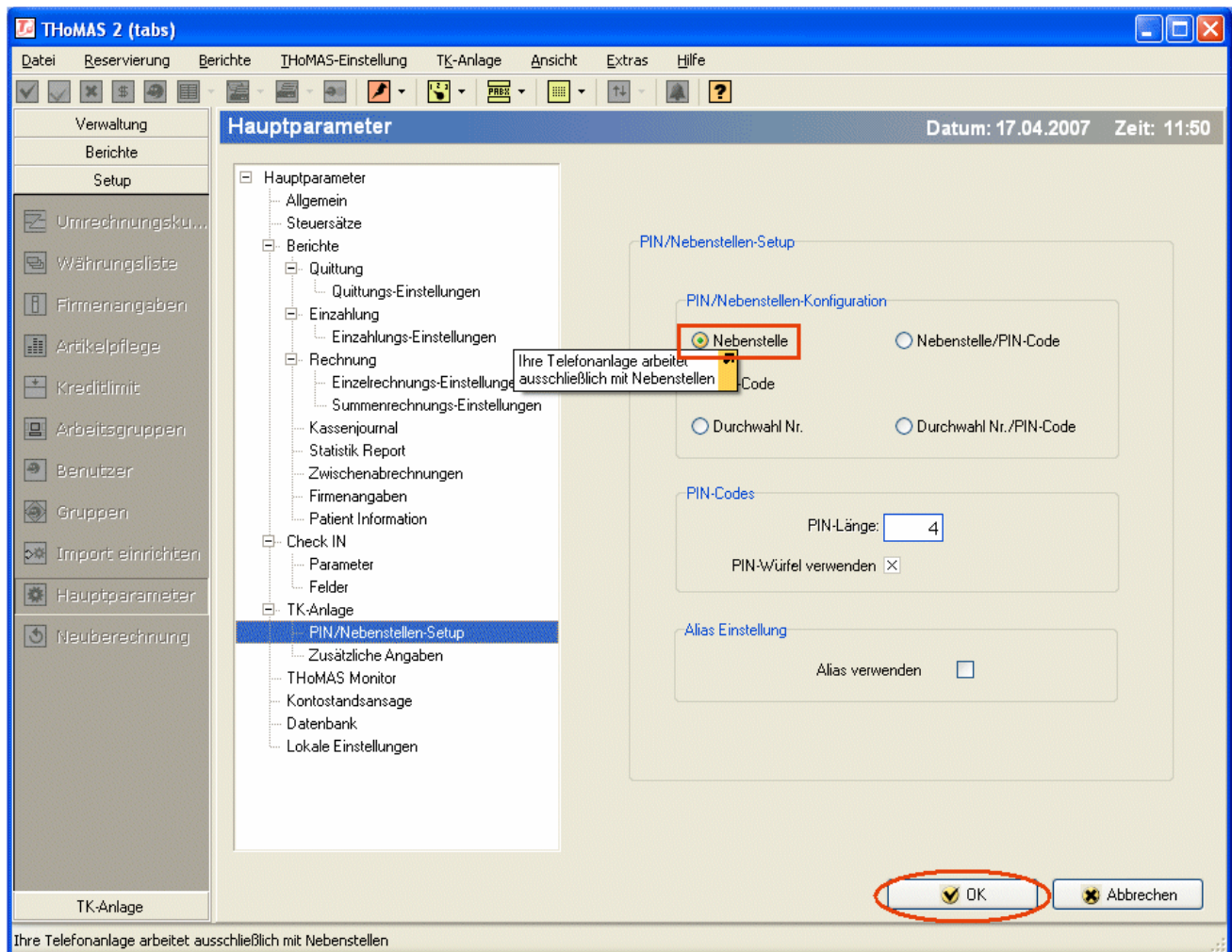
Figure 29: Define General PIN-Extension Settings - 2 - Choose PIN or Extension Usage

3.2.11. Add Extensions - 1 - Enter PIN_Extension Setup Screen

Click "PIN/Nebenstelleen" from the left frame of the main screen.
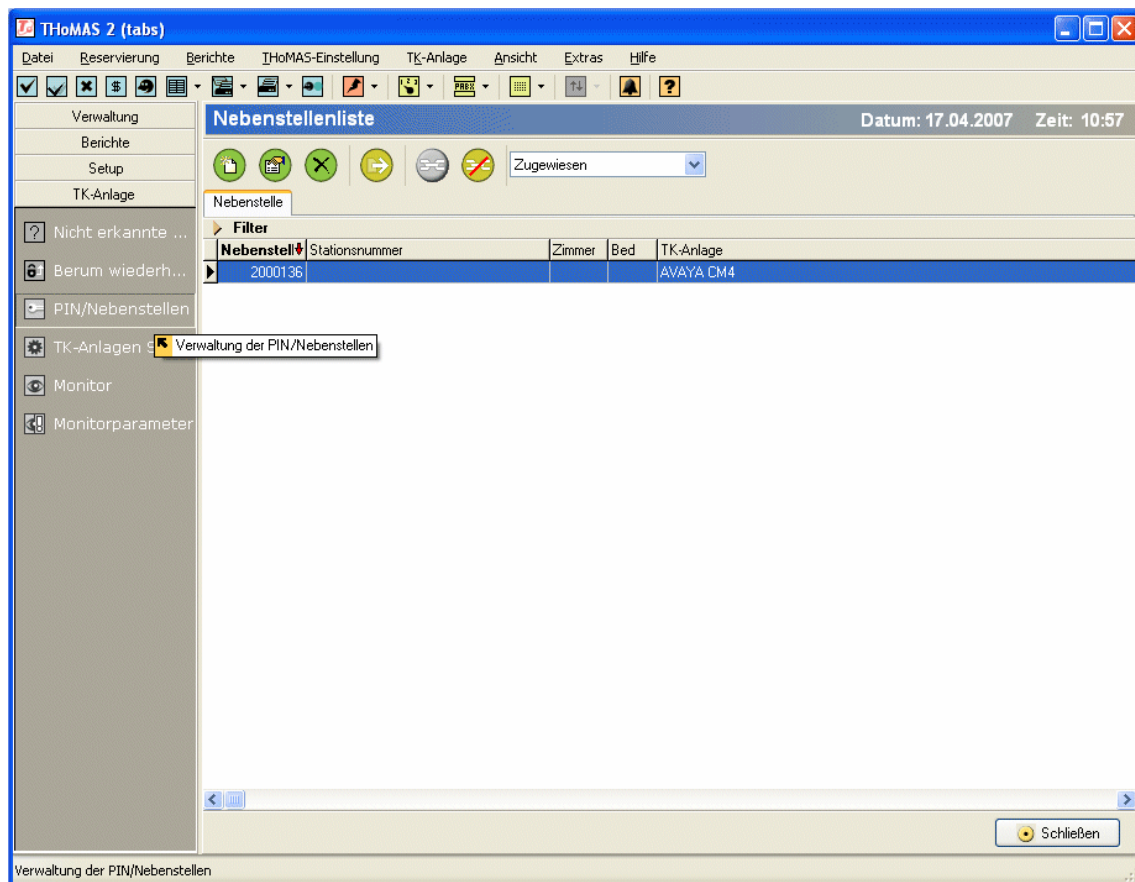
Figure 30: Add Extensions - 1 - Enter PIN_Extension Setup Screen

3.2.12. Add Extensions - 2 - Enter Add Extension Dialogue
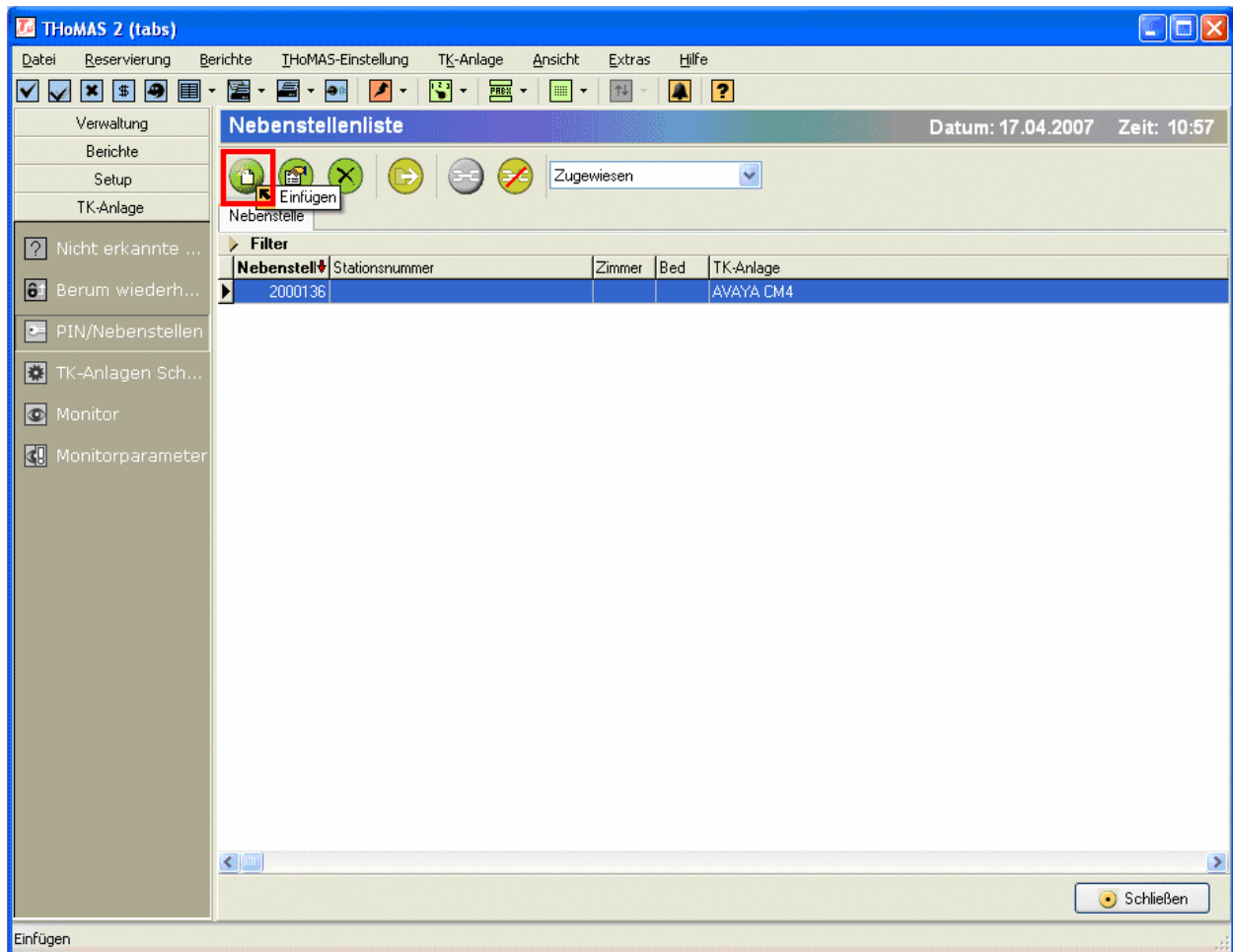
Click the "Insert" icon.

Figure 31: Add Extensions - 2 - Enter Add Extension Dialogue

3.2.13. Add Extensions - 3 - Define Extensions to Add

Create entries for each of the telephone extensions to be controlled by THoMAS, by setting the parameters as shown in **Table 16**.

Parameter	Usage
Erste Nummer	Enter the first of a series of extension numbers from **Table 1**.
Anzahl	Enter the number of extensions to be generated.
TK-Anlage	Select the entry for Avaya S8500 Server which was generated in **Figure 23** from the drop-down list.

Table 16: Extension Settings

Figure 32: Add Extensions - 3 - Define Extensions to Add

4. Verification Steps

Use the following steps to verify that THoMAS and Avaya Communication Manager are each configured correctly.

- Use the **display station** command from Avaya Communication Manager to verify that a THoMAS guest/patient check-in operation changes the COR of the affected telephone station to the value which allows PSTN access ("1" for the examples shown in these Application Notes), as described in **Figure 17** and **Figure 27**. Verify that this telephone can now make external calls.
- Use the **display station** command from Avaya Communication Manager to verify that a THoMAS guest/patient check-out operation changes the COR of the affected telephone station to the value which does not allow PSTN access ("2" for the examples shown in these Application Notes), as described in **Figure 17** and **Figure 27**. Verify that this telephone is unable to make external calls.
- Use the **display station** command from Avaya Communication Manager to verify that a THoMAS guest/patient check-in operation for which name setting is specified causes the "name" field of the affected telephone to be set to the name of the guest/patient, and the "security code" field is set to a value generated by THoMAS. Verify that the name is presented to the called party for calls made to local extensions from the guest/patient telephone. Verify that the security code is printed on the guest/patient check-in receipt.
- Use the **display station** command from Avaya Communication Manager to verify that a THoMAS guest/patient check-out operation changes "name" field of the affected telephone to "free station", and the security code is deleted. Verify that the name "free station" is signaled for calls made to local extensions after check-out.
- Use the **list authorization-code** command from Avaya Communication Manager to verify that a THoMAS guest/patient "check-in with PIN code" operation generates an authorization code which matches the PIN on the guest/patient check-in receipt. Verify that this PIN code can be used to make external calls from telephones which do not otherwise have PSTN access by entering the authorization code.
- Use the **list authorization-code** command from Avaya Communication Manager to verify that a THoMAS guest/patient check-out for a guest/patient for which a PIN code had been allocated deletes the security code. Verify that the PIN code can no longer be used to make external calls.

5. Conclusion

These Application Notes describe the compliance testing of the TCC THoMAS server with Avaya Communication Manager. The various features of the THoMAS server which involve interaction with telephony were tested. A detailed description of the configuration required for both the Avaya and the TCC equipment is documented within these Application Notes. The THoMAS server passed all of the tests performed, which included both functional and robustness tests.

6. Additional References

[1] *Administrator Guide for Avaya Communication Manager*, February 2007, Issue 3, Document Number 03-300509

[2] *Feature Description and Implementation for Avaya Communication Manager*, February 2007, Issue 5, Document Number 555-245-205

[3] *Technical Service Description THoMAS 2.0*

©2008 Avaya Inc. All Rights Reserved.
Avaya and the Avaya Logo are trademarks of Avaya Inc. All trademarks identified by ® and ™ are registered trademarks or trademarks, respectively, of Avaya Inc. All other trademarks are the property of their respective owners. The information provided in these Application Notes is subject to change without notice. The configurations, technical data, and recommendations provided in these Application Notes are believed to be accurate and dependable, but are presented without express or implied warranty. Users are responsible for their application of any products specified in these Application Notes.

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 DevConnect Program at devconnect@avaya.com.