Avaya Solution & Interoperability Test Lab

Application Notes for Visionutveckling Vision 80/20 with Avaya Communication Manager – Issue 1.0

Abstract

These Application Notes describe the conformance testing of the Visionutveckling Vision 80/20 with Avaya Communication Manager. These Application Notes contain an extensive description of the configurations for both Vision 80/20 and Avaya Communication Manager which were used for testing. The testing which was performed tested the major functions of the Vision 80/20 product.

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

Table of Contents

1. Introduction

These Application Notes describe the configuration used to test Vision 80/20 with Avaya Communication Manager. Vision 80/20 is a widely used application for managing presence information as well as to provide attendant functionality for small companies and large enterprises. Vision 80/20 is a complete application combining attendant console, APBX/PBX-integration and an interface for users to administer their extension/profile via a web application.

The Vision 80/20 for Avaya Communication Manager does not include a voicemail facility (a voicemail manager is included in the Avaya IP Office version of this package). For the Avaya Communications Manager platform, voicemail is normally provided by the Visionutveckling VIP 2000 package which can be installed together with this application (but is not included in this test configuration).

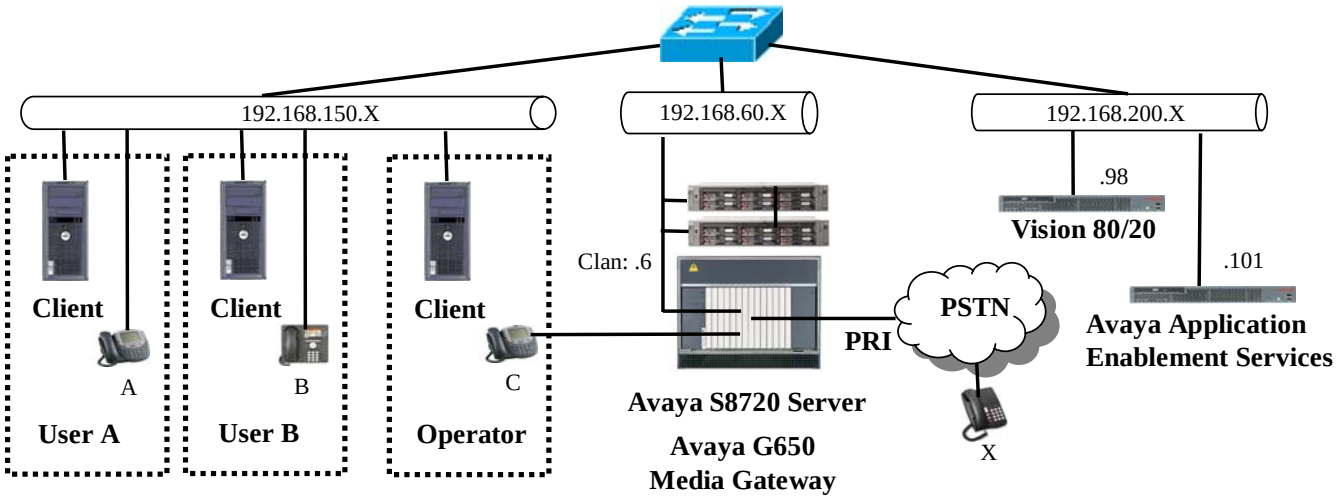

Figure 1: **Vision 80/20 Test Configuration**

In the above diagram, Vision 80/20 administers the presence state of users attached to the Avaya S8720 Server.

The following table contains details about the telephones which were used for testing.

Phone	Model	Extension	PSTN
A	4620SW IP	60121	069 907 xxxxx 60121
B	9640	60093	069 907 xxxxx 60093
C	2410	60007	069 907 xxxxx 60007
X			069 yyyy 6174

Table 1: Extensions Used for Endpoints

The following table contains a list of extensions which were assigned to entities other than telephone endpoints, including a reference to the location in this document where these extensions are defined or used.

Extension	Reference	Usage
423	**Figure 8** **Figure 9**	This extension is used to initiate a call diversion for a specific reason.
60423	**Figure 10** **Figure 11** **Figure 44**	This is the extension of a VDN which is used to signal Vision 80/20 that a user has initiated or ended a diversion for a specific reason.
61011	**Figure 22** **Figure 37**	A VDN which is used to identify operators.
61311	**Figure 20**	The extension assigned to the operator hunt group.
61610	**Figure 24**	The Login ID assigned to the operator.
69996	**Figure 16**	The extension which is assigned to the TSAPI link.

Table 2: Other Extensions Used

2. Equipment and Software Validated

Equipment	Version
Avaya Communication Manager	R015x.01.1.415.1
Avaya Application Enablement Services	r4-2-1-20-5-0
Avaya TSAPI Client	4.2.1-338
Avaya TN2312BP IP Server Interface	HW15/FW042
Avaya TN799DP Control LAN	HW01/FW026
Avaya TN2302AP Media Processor	HW20/FW033
Avaya TN2464CP DS1 Interface	HW01/FW19
Avaya 46xxSW IP Telephone (H.323)	2.887
Avaya 96xx IP Telephones (SIP)	2.0.3.0
Visionutveckling Vision 80/20 platform OS	MS Server 2003 SP 2
MySQL	5.0.24a
Visionutveckling Svara (operator console)	2.2
Visionutveckling Informera (web client)	2.2
Visionutveckling Vision 80/20SW	2.2

Table 3: Equipment and Version Validated

3. Configuration

3.1. Configure Avaya Communication Manager

The configuration and verification operations illustrated in this section were all performed using the Avaya Communication Manager System Access Terminal (SAT) via SSH port 5022.

The information provided in this section describes the configuration of Avaya Communication Manager for this solution. For all other provisioning information such as installation and configuration, please refer to the product documentation in references **[1]** and **[2]**.

Note that the configuration of the PRI interface to the Public Switched Telephone Network (PSTN) is not described in detail in this document, as this is not required for the operation of Vision 80/20.

3.1.1. Verify Optional Features

Use the **display system-parameters customer options** command to verify that Avaya Communication Manager is configured to meet the minimum requirements to run Vision 80/20. 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.

Parameter	Usage
Maximum Concurrently Registered IP Stations (p.2)	This must be sufficient to support the total number of IP stations.
Computer Telephony Adjunct Links (p.3)	This parameter must be set to “y”.
IP Stations (p.4)	This parameter must be set to “y”.
ISDN-PRI (p.4)	This is required to allow the allocation of the PRI trunk to be connected to the Vision 80/20 server.
Vectoring (Prompting) (p.6)	This is required to allow vectoring to collect DTMF digits.
IP_Phone (p.10)	This parameter must be set the number of IP stations.

Table 4: Optional Features Parameters

```
display system-parameters customer-options                      Page   2 of  11
                               OPTIONAL FEATURES

IP PORT CAPACITIES                                              USED
                     Maximum Administered H.323 Trunks: 100   60
          Maximum Concurrently Registered IP Stations: 12000 4
            Maximum Administered Remote Office Trunks: 0     0
Maximum Concurrently Registered Remote Office Stations: 0     0
             Maximum Concurrently Registered IP eCons: 10    0
  Max Concur Registered Unauthenticated H.323 Stations: 0     0
                  Maximum Video Capable H.323 Stations: 0     0
                   Maximum Video Capable IP Softphones: 0     0
                       Maximum Administered SIP Trunks: 1000  255
  Maximum Administered Ad-hoc Video Conferencing Ports: 0     0
   Maximum Number of DS1 Boards with Echo Cancellation: 10    0
                             Maximum TN2501 VAL Boards: 10    1
                     Maximum Media Gateway VAL Sources: 0     0
           Maximum TN2602 Boards with 80 VoIP Channels: 128   0
          Maximum TN2602 Boards with 320 VoIP Channels: 128   0
   Maximum Number of Expanded Meet-me Conference Ports: 0     0
```

Figure 2: Optional Features Screen, p. 2

```
display system-parameters customer-options                      Page   3 of  11
                               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? y
                 ARS/AAR Partitioning? y  Cvg Of Calls Redirected Off-net? n
          ARS/AAR Dialing without FAC? n                      DCS (Basic)? n
          ASAI Link Core Capabilities? y                DCS Call Coverage? n
          ASAI Link Plus Capabilities? y               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? y
                  Attendant Vectoring? n
```

Figure 3: Optional Features Screen, p. 3

```
display system-parameters customer-options                      Page   4 of  11
                               OPTIONAL FEATURES

   Emergency Access to Attendant? y                             IP Stations? y
            Enable 'dadmin' Login? y
            Enhanced Conferencing? y                      ISDN Feature Plus? n
                  Enhanced EC500? y       ISDN/SIP Network Call Redirection? y
    Enterprise Survivable Server? n                        ISDN-BRI Trunks? y
       Enterprise Wide Licensing? n                              ISDN-PRI? y
              ESS Administration? n              Local Survivable Processor? n
          Extended Cvg/Fwd Admin? y                    Malicious Call Trace? n
     External Device Alarm Admin? n                 Media Encryption Over IP? n
  Five Port Networks Max Per MCC? n    Mode Code for Centralized Voice Mail? n
               Flexible Billing? n
   Forced Entry of Account Codes? n                 Multifrequency Signaling? y
      Global Call Classification? n             Multimedia Call Handling (Basic)? n
             Hospitality (Basic)? y          Multimedia Call Handling (Enhanced)? n
 Hospitality (G3V3 Enhancements)? n                  Multimedia IP SIP Trunking? n
                       IP Trunks? y

           IP Attendant Consoles? y
```

Figure 4: Optional Features Screen, p. 4

```
change system-parameters customer-options                      Page   6 of  11
                        CALL CENTER OPTIONAL FEATURES

                         Call Center Release: 5.0

                                 ACD? y                        Reason Codes? n
                       BCMS (Basic)? n               Service Level Maximizer? n
          BCMS/VuStats Service Level? n             Service Observing (Basic)? y
  BSR Local Treatment for IP & ISDN? n     Service Observing (Remote/By FAC)? y
                  Business Advocate? n              Service Observing (VDNs)? y
                    Call Work Codes? n                          Timed ACW? n
      DTMF Feedback Signals For VRU? n                  Vectoring (Basic)? y
                  Dynamic Advocate? n                **Vectoring (Prompting)? y**
       Expert Agent Selection (EAS)? y             Vectoring (G3V4 Enhanced)? y
                           EAS-PHD? y              Vectoring (3.0 Enhanced)? n
                  Forced ACD Calls? n     Vectoring (ANI/II-Digits Routing)? n
              Least Occupied Agent? n     Vectoring (G3V4 Advanced Routing)? n
          Lookahead Interflow (LAI)? n                  Vectoring (CINFO)? n
Multiple Call Handling (On Request)? n      Vectoring (Best Service Routing)? n
    Multiple Call Handling (Forced)? n                Vectoring (Holidays)? n
  PASTE (Display PBX Data on Phone)? n                Vectoring (Variables)? n
```

Figure 5: Optional Features Screen, p. 6

```
display system-parameters customer-options                      Page  10 of  11
                    MAXIMUM IP REGISTRATIONS BY PRODUCT ID

Product ID  Rel. Limit          Used
IP_API_A       : 1000           0
IP_API_B       : 1000           0
IP_API_C       : 1000           0
IP_Agent       : 1000           0
IP_IR_A        : 1000           0
IP_Phone       : 12000          4
IP_ROMax       : 12000          0
IP_Soft        : 1000           0
IP_eCons       : 128            0
oneX_Comm      : 12000          0
```

Figure 6: Optional Features Screen p. 10

3.1.2. Verify Feature-Related System Parameters

Use the **display system-parameters features** command to set system features as shown in the following table.

Parameter	Usage
Station Call Transfer Recall Timer	Enter “20”.

Table 5: Feature-Related System Parameters

```
change system-parameters features                              Page   6 of  17
                     FEATURE-RELATED SYSTEM PARAMETERS
         Public Network Trunks on Conference Call: 5              Auto Start? n
   Conference Parties with Public Network Trunks: 6                Auto Hold? n
 Conference Parties without Public Network Trunks: 6           Attendant Tone? y
         Night Service Disconnect Timer (seconds): 180          Bridging Tone? n
                 Short Interdigit Timer (seconds): 3          Conference Tone? n
              Unanswered DID Call Timer (seconds):             Intrusion Tone? n
              Line Intercept Tone Timer (seconds): 30     Mode Code Interface? n
                 Long Hold Recall Timer (seconds): 0
                      Reset Shift Timer (seconds): 0
    Station Call Transfer Recall Timer (seconds): 20         Recall from VDN? n
                               DID Busy Treatment: tone

               Allow AAR/ARS Access from DID/DIOD? n
                 Allow ANI Restriction on AAR/ARS? n
     Use Trunk COR for Outgoing Trunk Disconnect? n
                 7405ND Numeric Terminal Display? n                  7434ND? n
```

Figure 7: Feature-Related System Parameters, p. 6

3.1.3. Configure Dial Plan and Call Routing

3.1.3.1 Configure Dial Plan

Use the **change dialplan analysis** command to specify the dialed strings for the number plan, as shown in the following table.

Dialed String	Usage
0	The prefix for PSTN numbers.
423	The VDN to be used for diversions, as show in **Figure 9**.
6	The leading digit of local extensions, as listed in **Table 1**.

Table 6: Dial Plan Parameters

```
change dialplan analysis                                       Page   1 of  12
                           DIAL PLAN ANALYSIS TABLE
                                 Location:  all          Percent Full:    0

      Dialed   Total  Call    Dialed   Total  Call     Dialed   Total  Call
      String   Length Type    String   Length Type     String   Length Type
    0           1    fac
    423         3    ext
    6           5    ext
    *9          2    dac
```

Figure 8: Dial Plan Analysis Table Screen

3.1.3.2 Configure Simple Routing Device

The VDN extension "423" followed by a reason code and "#"can be dialed by users to initiate a diversion for a specific reason, such as going to lunch. A list of possible reason codes is shown in **Figure 39**. Calls which are diverted to the operator as the result of such operations are then accompanied by a "screen pop" notification on the client PC of the operator indicating the reason for the absence of the user. An absence diversion can be cancelled by dialing "423#". Note that this number is often used in Scandinavian countries for this purpose irrespective of which telephone equipment is used.

```
change vdn 423                                              Page   1 of   2
                          VECTOR DIRECTORY NUMBER

                           Extension: 423
                               Name*: phone diversion
                      Vector Number: 123

                Meet-me Conferencing? n
                  Allow VDN Override? n
                                COR: 1
                                TN*: 1
                           Measured: none



                          1st Skill*:
                          2nd Skill*:
                          3rd Skill*:
```

Figure 9: Diversion VDN Form

```
change vector 123                                           Page   1 of   6
                                 CALL VECTOR

    Number: 123              Name: phone diversion
Multimedia? n                                Meet-me Conf? n          Lock? n
     Basic? y   EAS? y   G3V4 Enhanced? y   ANI/II-Digits? n   ASAI Routing? y
 Prompting? y   LAI? n  G3V4 Adv Route? n   CINFO? n   BSR? n   Holidays? n
 Variables? n   3.0 Enhanced? n
01 wait-time    1   secs hearing silence
02 collect      9    digits after announcement none
03 route-to     number 60423           with cov n if unconditionally
04 stop
05
```

Figure 10: Diversion Vector Form

The “diversion” VDN is used to signal the reason code for user absence. The extension assigned to this VDN must be the same as the value assigned to the “SimpleRoutingDevice” parameter in **Figure 44**.

```
change vdn 60423                                          Page   1 of   2
                          VECTOR DIRECTORY NUMBER

                            Extension: 60423
                                 Name*: diversion
                          Vector Number: 223

                     Meet-me Conferencing? n
                       Allow VDN Override? n
                                     COR: 1
                                     TN*: 1
                               Measured: none



                            1st Skill*:
                            2nd Skill*:
                            3rd Skill*:
```

Figure 11: Diversion VDN 2 Form

```
change vector 223                                         Page   1 of   6
                                  CALL VECTOR

    Number: 223              Name:
Multimedia? n                              Meet-me Conf? n           Lock? n
     Basic? y   EAS? y   G3V4 Enhanced? y   ANI/II-Digits? n   ASAI Routing? y
 Prompting? y   LAI? n  G3V4 Adv Route? n   CINFO? n   BSR? n   Holidays? n
 Variables? n   3.0 Enhanced? n
01 wait-time    100 secs hearing ringback
02 stop
```

Figure 12: Diversion Vector 2 Form

3.1.4. Configure IP Network Interface

Use the **change node-names ip** command to configure IP address, as shown in the following table.

Parameter	Usage
clan	Enter the IP address of the CLAN interface of the S8720.

Table 7: Node-Names IP Parameters

```
change node-names ip                                      Page   1 of   2
                                IP NODE NAMES
    Name              IP Address
clan                192.168.60.6
default             0.0.0.0
```

Figure 13: Node-Names IP Screen

3.1.5. Configure Interface to AES

Use the **change ip-services** command to configure the interface to the AES server, as shown in the following table.

Parameter	Usage
Service Type (p.1)	Enter "AESVCS".
Enabled (p.1)	Enter "y" to enable the service.
Local Node (p.1)	Enter the IP node name for the C-LAN interface.
Local Port (p.1)	Enter "8765".
AE Services Server (p.4)	Enter the name that was assigned to the AES server when it was installed.
Password (p.4)	Enter the password that was assigned to the switch connection, as shown in **Figure 29**.
Enabled (p.4)	Enter "y" to enable the connection.

Table 8: IP Services Parameters

```
change ip-services                                          Page   1 of   4

                                  IP SERVICES
 Service     Enabled     Local       Local       Remote      Remote
  Type                   Node        Port        Node        Port
AESVCS        y      clan            8765
```

Figure 14: IP Services Screen, p. 1

```
change ip-services                                          Page   4 of   4
                          AE Services Administration

   Server ID    AE Services       Password          Enabled    Status
                   Server
      1:      aes_server_1      XXXXXXXXXXXXXXXX      y        in use
```

Figure 15: IP Services Screen, p. 4

Use the **add cti-link** command to add a CTI link for use by TSAPI. The link number can be any value between 1 and 64 which is not currently assigned to another link. The link number specified must be the same value that is used in the "Switch CTI Link Number" field shown in **Figure 32**. Use an unused extension as the value for the "Extension" parameter. The value chosen for the "Name" parameter is a matter of personal preference.

```
change cti-link 4                                           Page   1 of   3
                                  CTI LINK
 CTI Link: 4
Extension: 69996
     Type: ADJ-IP
                                                                 COR: 1
     Name: AES-devcon223-tsapi
```

Figure 16: CTI-Link Screen

3.1.6. User Stations

Use the **add station** command to create an IP station for extensions A and B, as shown in **Table 1**.

Parameter	Usage
Extension	Use an unused extension which is compatible with the dial plan.
Type	Use a type value which corresponds to the physical station to be used.
Name	Any alphanumeric string can be assigned as an extension name, which is used for identification purposes.
Security Code	Enter an appropriate numeric string to be used as a security code.
Coverage Path 1	Enter the number of the coverage path which is defined in **Figure 18**.

Table 9: Configuration User IP Stations

```
change station 60121                                          Page   1 of   5
                                    STATION

Extension: 60121                        Lock Messages? n              BCC: 0
     Type: 4620                         Security Code: 12106           TN: 1
     Port: S00101                     Coverage Path 1: 999            COR: 1
     Name: extn 60121                   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: 60121
           Speakerphone: 2-way                Mute Button Enabled? y
        Display Language: english
 Survivable GK Node Name:
          Survivable COR: internal              Media Complex Ext:
   Survivable Trunk Dest? y                          IP SoftPhone? n




                                             Customizable Labels? y
```

Figure 17: User IP Station Screen

Use the **add coverage path** command to create a coverage path to be used to direct coverage for User stations to the Operator(s). Enter the parameters shown in the following table.

Parameter	Usage
Active	Enter “y” to have calls to a user with a busy call appearance directed to coverage.
Busy	Enter “y” to have calls to a user with all call appearances busy directed to coverage.
Don’t Answer	Enter “y” to have calls to have unanswered calls directed to coverage.
Coverage Point1	Enter the number of the operator hunt group defined in **Figure 20**.

Table 10: User Coverage Path Parameters

```
add coverage path 999                                          Page   1 of   1
                                COVERAGE PATH

                  Coverage Path Number: 999
    Cvg Enabled for VDN Route-To Party? n        Hunt after Coverage? n
                      Next Path Number:          Linkage

COVERAGE CRITERIA

    Station/Group Status    Inside Call     Outside Call
              Active?            y               y
                Busy?            y               y
       Don't Answer?             y               y         Number of Rings: 2
                 All?            n               n
 DND/SAC/Goto Cover?             n               n
   Holiday Coverage?             n               n

COVERAGE POINTS
    Terminate to Coverage Pts. with Bridged Appearances? n
  Point1: h11            Rng:    Point2:
  Point3:                        Point4:
  Point5:                        Point6:
```

Figure 18: User Coverage Path Screen

3.1.7. Configure Operator

Although there is only one operator configured for the test configuration, multiple operators can be configured such that they together receive operator-directed calls collectively via a hunt group, which is configured within this section

3.1.7.1 Add Operator Station

Use the **add station** command to create an IP station for extension C, the operator, as shown in **Table 1**.

Parameter	Usage
Extension	Use an unused extension which is compatible with the dial plan.
Type	Use a type value which corresponds to the physical station to be used.
Name	Any alphanumeric string can be assigned as an extension name, which is used for identification purposes.
Security Code	Enter an appropriate numeric string to be used as a security code.

Table 11: Configuration Operator IP Stations

```
add station 60121                                          Page   1 of   5
                                    STATION

Extension: 60121                        Lock Messages? n              BCC: 0
     Type: 4620                         Security Code: 12106           TN: 1
     Port: S00101                     Coverage Path 1:                COR: 1
     Name: extn 60121                 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: 60121
           Speakerphone: 2-way               Mute Button Enabled? y
        Display Language: english
 Survivable GK Node Name:
          Survivable COR: internal             Media Complex Ext:
   Survivable Trunk Dest? y                         IP SoftPhone? n




                                          Customizable Labels? y
```

Figure 19: Operator IP Station Screen

3.1.7.2 Configure Hunt Group

Use the **add hunt-group** command to create a hunt group which is used to distribute calls to operators.

Parameter	Usage
Group Name	Any alphanumeric string can be used as a Group Name.
Group Extension	Use an unused extension which is compatible with the dial plan.
Skill	Set this parameter to “y”.

Table 12: Configuration Hunt Group

```
add hunt-group 11                                          Page   1 of  61
                                HUNT GROUP

           Group Number: 11                                 ACD? y
             Group Name: V8020                            Queue? y
        Group Extension: 61311                           Vector? y
             Group Type: ead-mia
                     TN: 1
                    COR: 1                      MM Early Answer? n
          Security Code:                  Local Agent Preference? n
 ISDN/SIP Caller Display: grp-name

            Queue Limit: 100
 Calls Warning Threshold:      Port:
  Time Warning Threshold:      Port:
```

Figure 20: Hunt Group Screen, p. 1

```
add hunt-group 11                                          Page   2 of   3
                                HUNT GROUP

                   Skill? y
                     AAS? n
                Measured: none
    Supervisor Extension:


     Controlling Adjunct: none









                              Redirect on No Answer (rings):
                                          Redirect to VDN:
                  Forced Entry of Stroke Counts or Call Work Codes? n
```

Figure 21: Hunt Group Screen, p. 2

3.1.7.3 Add Operator Vector Directory Number

Use the **add vdn** command to create a Vector Directory Number which is to be used for operators.

Parameter	Usage
Name	Enter an appropriate name to identify the operators.
Vector Number	Enter the vector number which is configured for the operators in **Figure 23**.
1st Skill	Enter the skill which is designated for the operator in **Figure 25**.

Table 13: Operator Vector Directory Number Parameters

```
add vdn 61011                                                Page   1 of   2
                          VECTOR DIRECTORY NUMBER

                            Extension: 61011
                                Name*: V8020
                          Vector Number: 11

                    Meet-me Conferencing? n
                      Allow VDN Override? n
                                    COR: 1
                                    TN*: 1
                              Measured: none



                              1st Skill*: 11
                              2nd Skill*:
                              3rd Skill*:


* Follows VDN Override Rules
```

Figure 22: Operator Vector Directory Number Screen

3.1.7.4 Configure Vector

Use the **change vector** command to enter the vector steps for the operator vector. The vector number should be the same as that which is assigned to the operator VDN in **Figure 22**.

```
change vector 11                                          Page   1 of   6
                                CALL VECTOR

    Number: 11               Name: V8020
Multimedia? n                                Meet-me Conf? n           Lock? n
     Basic? y   EAS? y   G3V4 Enhanced? y   ANI/II-Digits? n   ASAI Routing? y
 Prompting? n   LAI? n  G3V4 Adv Route? n   CINFO? n   BSR? n   Holidays? n
 Variables? n   3.0 Enhanced? n
01 wait-time    0   secs hearing silence
02 queue-to     skill 1st  pri m
03 wait-time    999 secs hearing ringback
04 goto step    2             if unconditionally
05 stop
06
07
08
09
10
11
12
```

Figure 23: Operator Vector Screen

3.1.7.5 Add Operator Agent

Use the **add agent-loginID** command to specify the vector steps for the operator vector. The value which is used as the ID should be an unused extension which is contained within the dial plan, as shown in **Figure 8**.

Parameter	Usage
Name (p.1)	Enter an appropriate name to identify the operators.
SN (p.2)	Enter an otherwise unused skill number. This value is also used in **Figure 22**.
SL (p.2)	Enter a skill level of "1".

Table 14: Operator Vector Directory Number Parameters

```
add agent-loginID 61610                                        Page   1 of   2
                                AGENT LOGINID

               Login ID: 61610                                    AAS? n
                   Name: V8020                                  AUDIX? n
                     TN: 1                              LWC Reception: spe
                    COR: 1                     LWC Log External Calls? n
          Coverage Path:                     AUDIX Name for Messaging:
          Security Code:
                                       LoginID for ISDN/SIP Display? n
                                                           Password: 61610
                                             Password (enter again): 61610
                                                      Auto Answer: station
                                                  MIA Across Skills: system
                                          ACW Agent Considered Idle: system
                                          Aux Work Reason Code Type: system
                                            Logout Reason Code Type: system
                       Maximum time agent in ACW before logout (sec): system
                                           Forced Agent Logout Time:   :

    WARNING:  Agent must log in again before changes take effect
```

Figure 24: Operator Agent LoginID Screen, p. 1

```
add agent-loginID 61610                                        Page   2 of   2
                                AGENT LOGINID
     Direct Agent Skill:
Call Handling Preference: skill-level              Local Call Preference? n

    SN      SL          SN      SL          SN      SL          SN      SL
 1: 11      1       16:                 31:                 46:
 2:                 17:                 32:                 47:
 3:                 18:                 33:                 48:
 4:                 19:                 34:                 49:
 5:                 20:                 35:                 50:
 6:                 21:                 36:                 51:
 7:                 22:                 37:                 52:
 8:                 23:                 38:                 53:
 9:                 24:                 39:                 54:
10:                 25:                 40:                 55:
11:                 26:                 41:                 56:
12:                 27:                 42:                 57:
13:                 28:                 43:                 58:
14:                 29:                 44:                 59:
15:                 30:                 45:                 60:
```

Figure 25: Operator Agent LoginID Screen, p. 2

3.2. Configure Avaya AES

The AES server is configured via a web browser by accessing the following URL:

https://<AES server IP address>:8443/MVAP/

Once the login screen appears, enter either the appropriate login ID/password for performing administrative activities or user management.

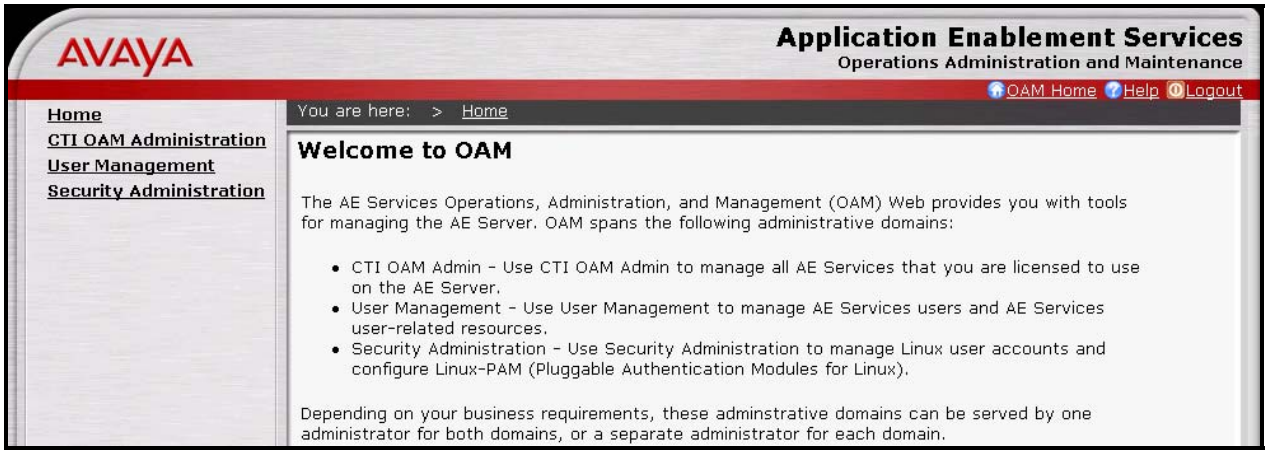

Figure 26: AES Welcome Screen

After logging in, select “CTI OAM Administration” which displays the following screen. Verify that the AES server installation has a TSAPI service license. If this is not the case, please contact an Avaya representative regarding licensing.

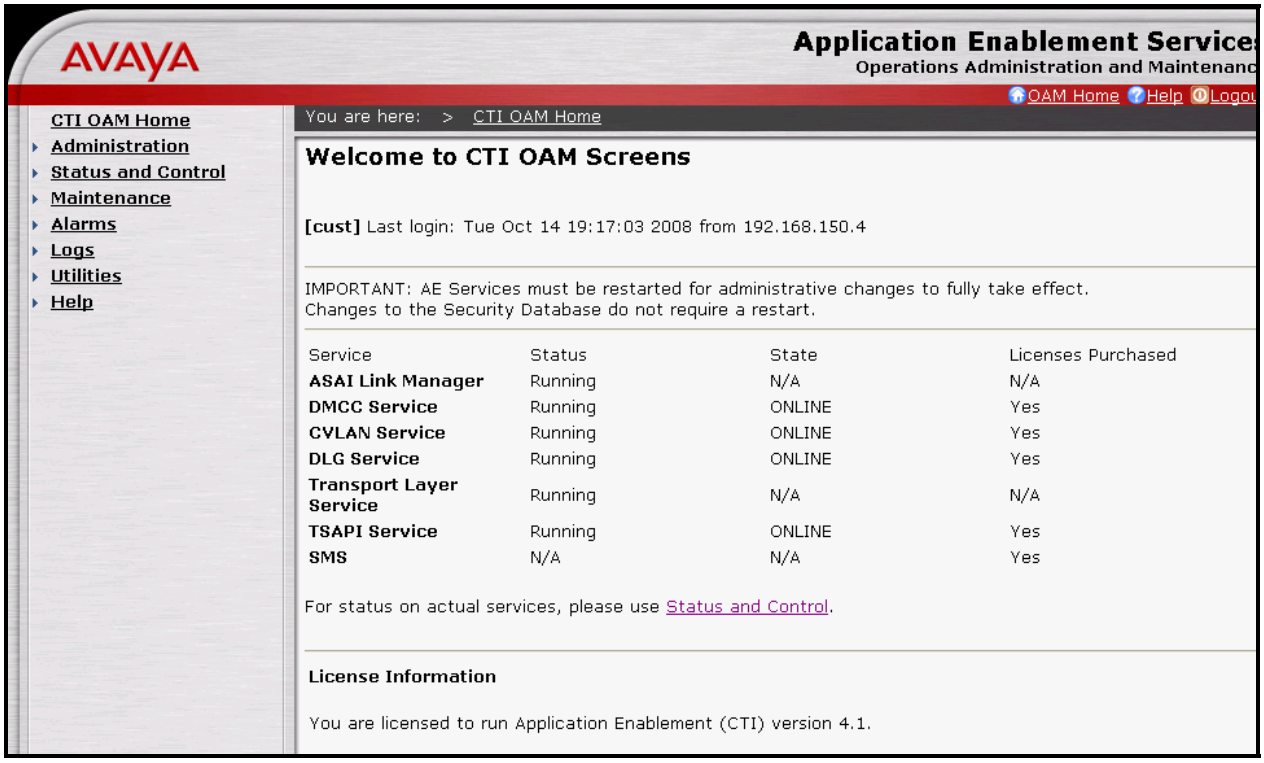

Figure 27: AES CTI OAM Welcome Screen

Navigate to **Administration->Switch Connections**. Enter the name of the Switch Connection to be added, and click on the “Add Connection” button. This name should match that which is used by the Visionutveckling Vision 80/20 in **Figure 36.**

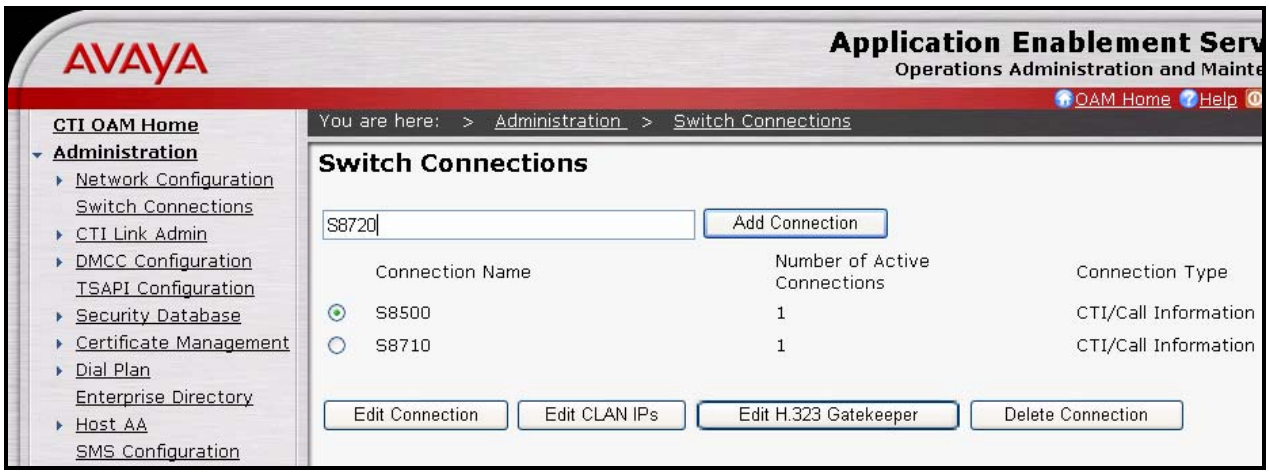

Figure 28: Switch Connection Screen

This causes the following screen to be presented. At this point, enter the screen fields as described in the following table, and click the "Apply" button.

Parameter	Usage
Switch Connection Type	Specify a type of CTI/Call Information.
Switch Password	The Switch Password must be the same as was entered into the Avaya Communication Manager AE Services Administration form via the "change ip-services" command, described in **Figure 15**. Passwords must consist of 12 to 16 alphanumeric characters
SSL	SSL (Secure Socket Layer) is enabled by default. Keep the default setting unless you are adding a Switch Connection for a DEFINITY Server CSI

Table 15: Configuration of Switch Password

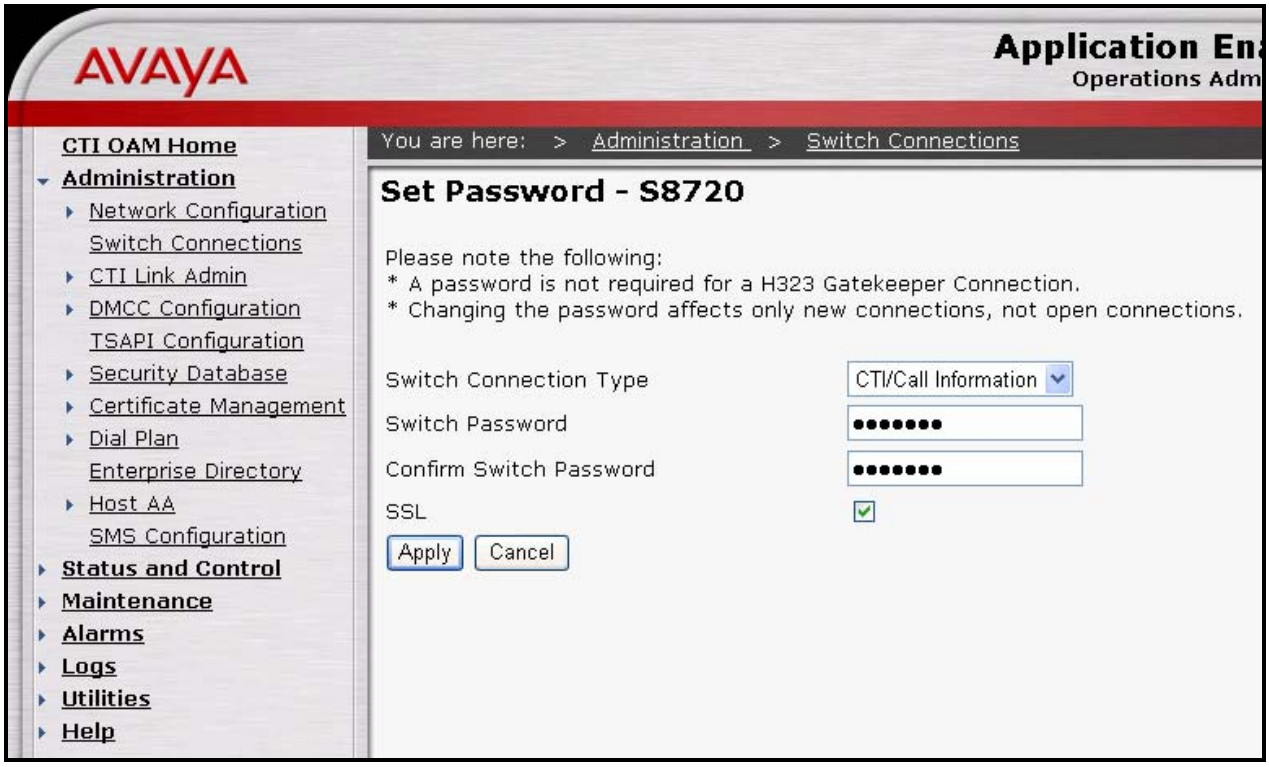

Figure 29: Set Switch Password Screen

From the **Administration->Switch Connections** screen, click the "Edit CLAN IPs" button to display the screen show below. Enter the IP address of the C-LAN that the AES is to use for communication with the switch, and click the "Add Name or IP" button.

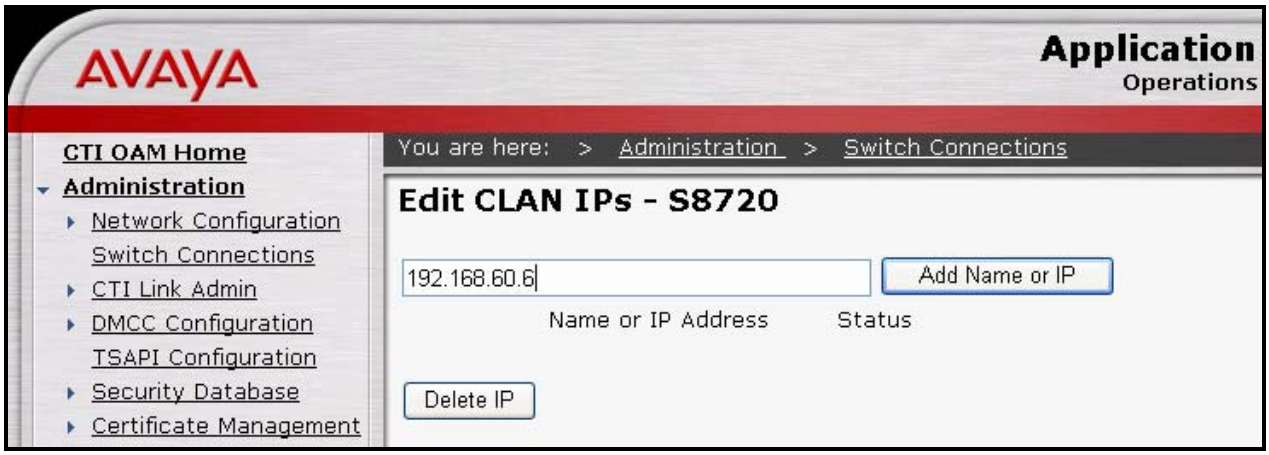

Figure 30: CLAN Screen

On the left margin of the screen, navigate to **Administration->CTI Link Admin->TSAPI Links.** The following screen is displayed. Click the "Add Link" button.

Figure 31: TSAPI Links Screen

Fill in the parameters for the link to be added. The “Link” parameter must be a value between 1 and 16 which is not assigned to another link. The “Switch Connection” parameter should be the name of the Avaya Server which is to be controlled by this link. The value for the TSAPI “Switch CTI Link Number” must be a value between 1 and 64, and must be the same as was used in the Avaya Communication Manager “add cti-link” configuration command in **Figure 16**. Click the “Apply Changes” button.

Figure 32: Add TSAPI Link Screen

Navigate to **User Management->Add User**.

The "CT User" field for this user must be set to "Yes". In this case, the AES user is the Vision 80/20 application, which uses AES to monitor stations and initiate switching operations. The "User Id" and "User Password" must be the same as those configured for Visionutveckling Vision 80/20 in **Figure 43.**

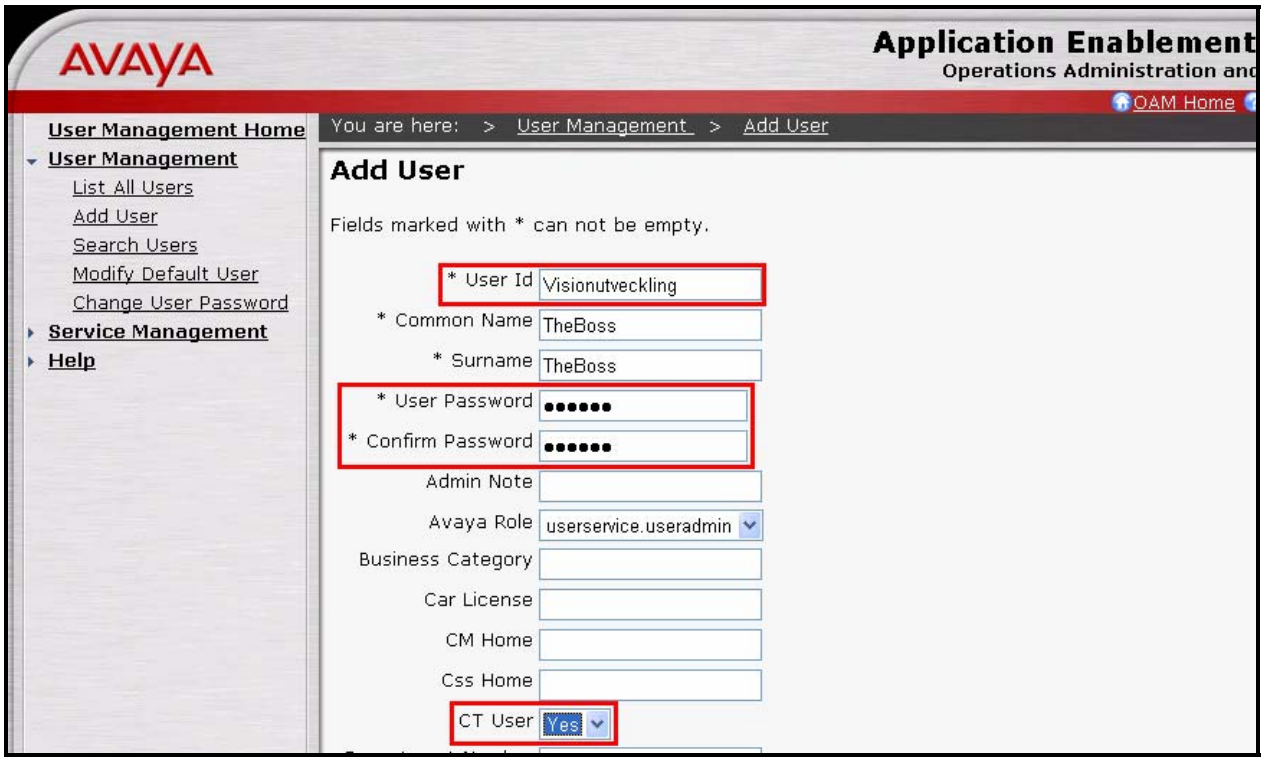

Figure 33: Add User Screen

Navigate to **Administration -> Security Database -> CTI Users -> List All Users**, and then click “Edit User” for the newly added user “Visionutveckling”. Enable “Unrestricted Access” and click “Apply Changes”.

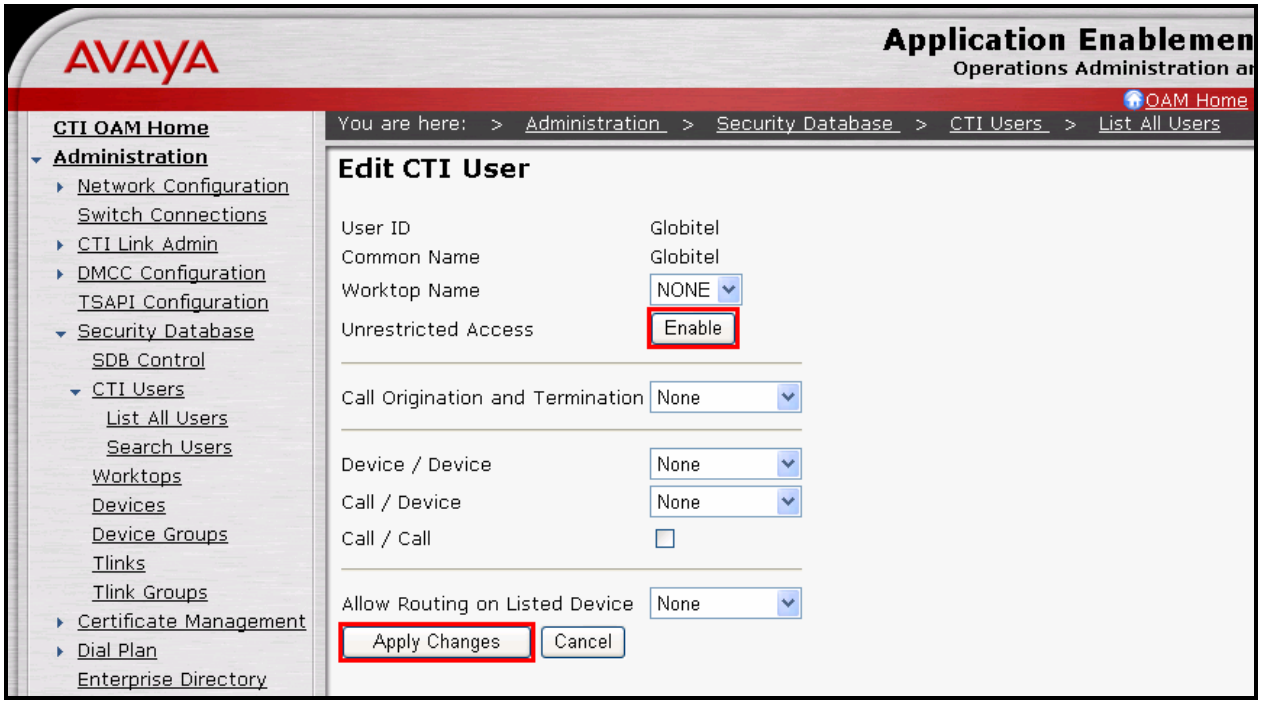

Figure 34: Edit CTI User Screen

3.3. Configure Avaya IP Telephones

Configure **46xxsettings.txt** text file to be used by Avaya IP Telephones. The parameters that are required to be configured in this file are shown in the following table. This is a “flat” ASCII file that must reside in the directory of the TFTP server accessible by the Avaya IP Telephones. Avaya IP Telephones must be configured so that the “FileSv” parameter is set to the address of the TFTP server that contains this configuration file, which is re-read each time the phone is restarted.

Parameter	Usage
ENHDIALSTAT	Set this parameter to “0” to indicate that enhanced dialing is not required.

Table 16: Parameters for Telephone Setting File

```
SET ENHDIALSTAT     0
```

Figure 35: Telephone Settings File Content

3.4. Configure Vision 80/20 Server

Install the Vision 80/20 application and database from the installation media, accepting all the default settings.

3.4.1. Configure Administrera

Execute the "C:\vision8020\Admin.exe" program, select the "PBX Configuration" menu point in the left frame, and configure the menu fields as shown in the following table.

Parameter	Usage
Kind of PBX	Select "Avaya CM" from the drop-down menu.
Extension number length	Enter "5", which corresponds to the length of the extensions shown in **Table 1**.
Name on PBX	Enter an appropriate name to identify the PBX.
Message Waiting	Select "Always" from the drop-down menu.
IP address to PBX	Enter the connection string shown in **Table 18**.
Password to PBX	Enter the AES User password which is shown in **Figure 33**.

Table 17: PBX Configuration Settings

Parameter	Usage
AVAYA	This is a fixed value.
S8720	This is the name that was assigned to the Switch Connection in **Figure 28**.
CSTA	This is a fixed value.
AES-SERVER1	This is the name that was assigned to the Avaya AES server when the Avaya AES software installation was performed.

Table 18: Composition of the TSAPI Server Name Parameter

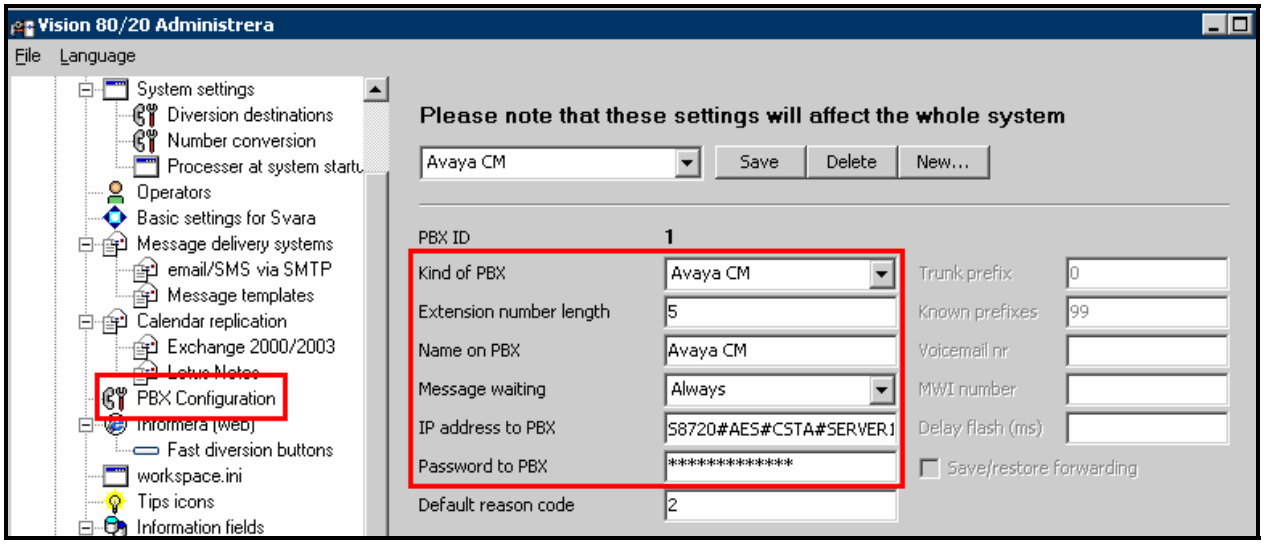

Figure 36: PBX Configuration Screen

Select the “System settings->Diversion destinations” menu point in the left frame, and add an entry for “Operator” with the “Destination” value that was assigned to the Operator VDN in **Figure 22**.

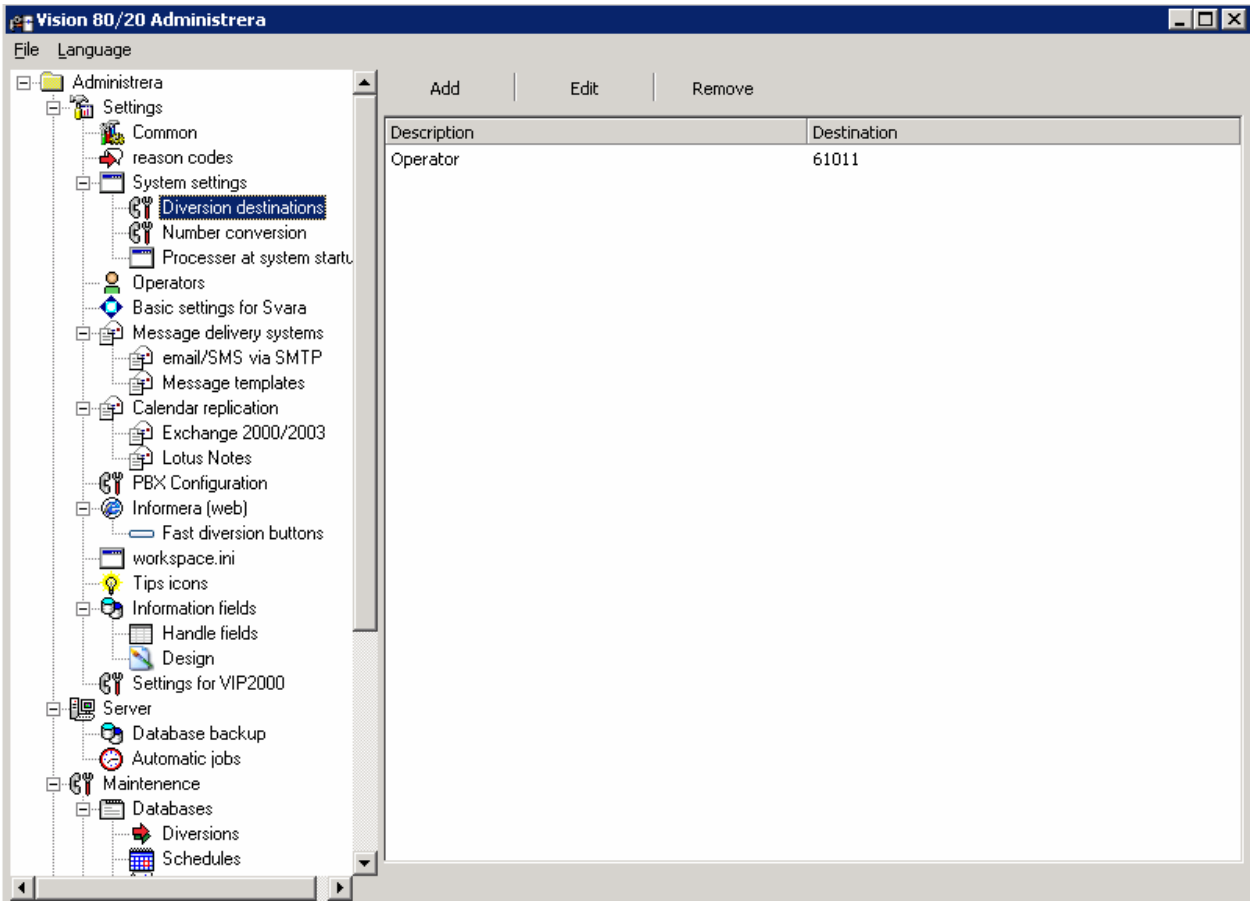

Figure 37: Diversion Destinations Screen

Select the “Operators” menu point in the left frame, and add a “Username” for each of the “users” shown in **Figure 1**. Add an entry for “Operator ID” entry for each of the operators shown in **Table 1**.

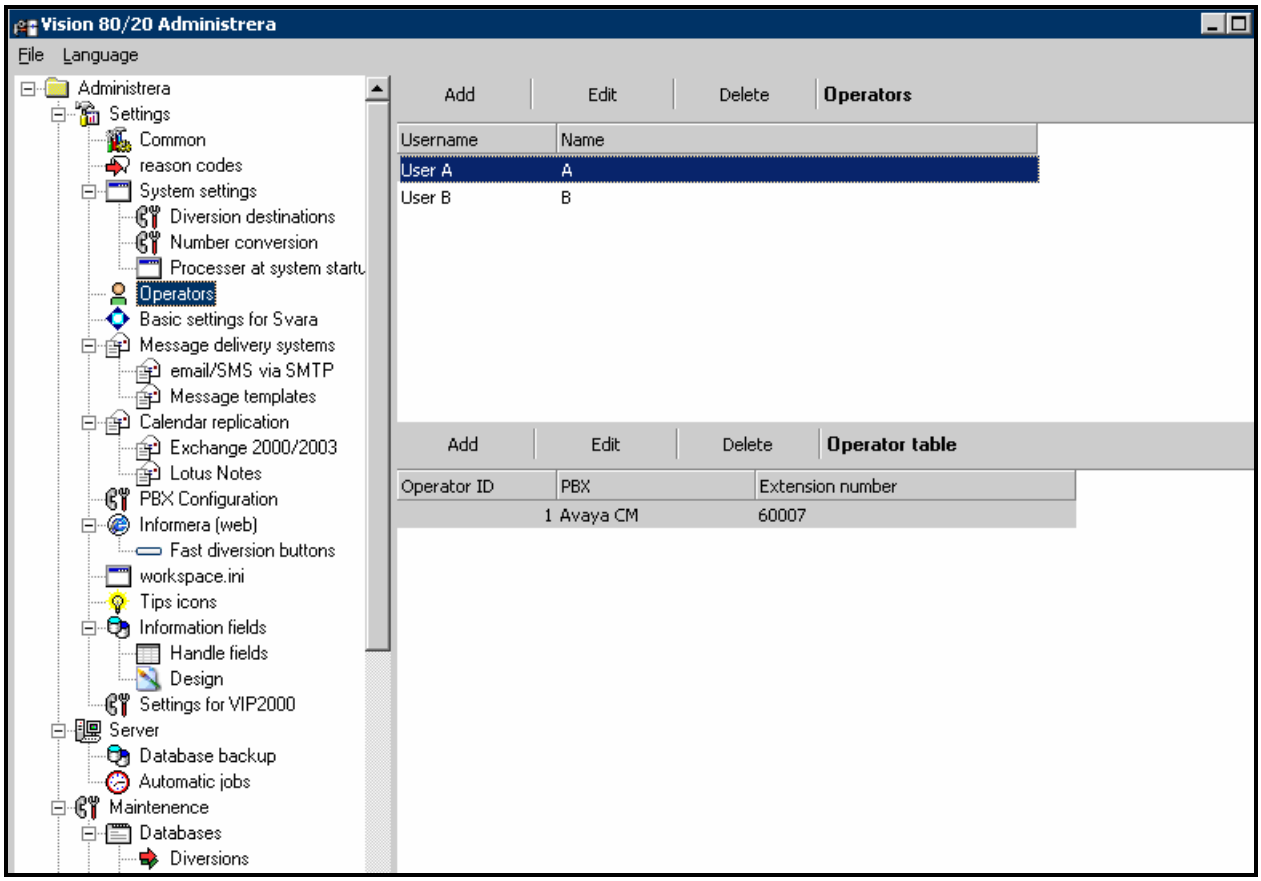

Figure 38: Operators Screen

Select the “reason codes” menu point from the left frame and add the user absence reason codes shown in the following screen, which are used to inform the operator. These reason codes are then inputted after the dial sequence “423” to indicate a reason for the absence, in conjunction with the “423” VDN described in **Figure 9**.

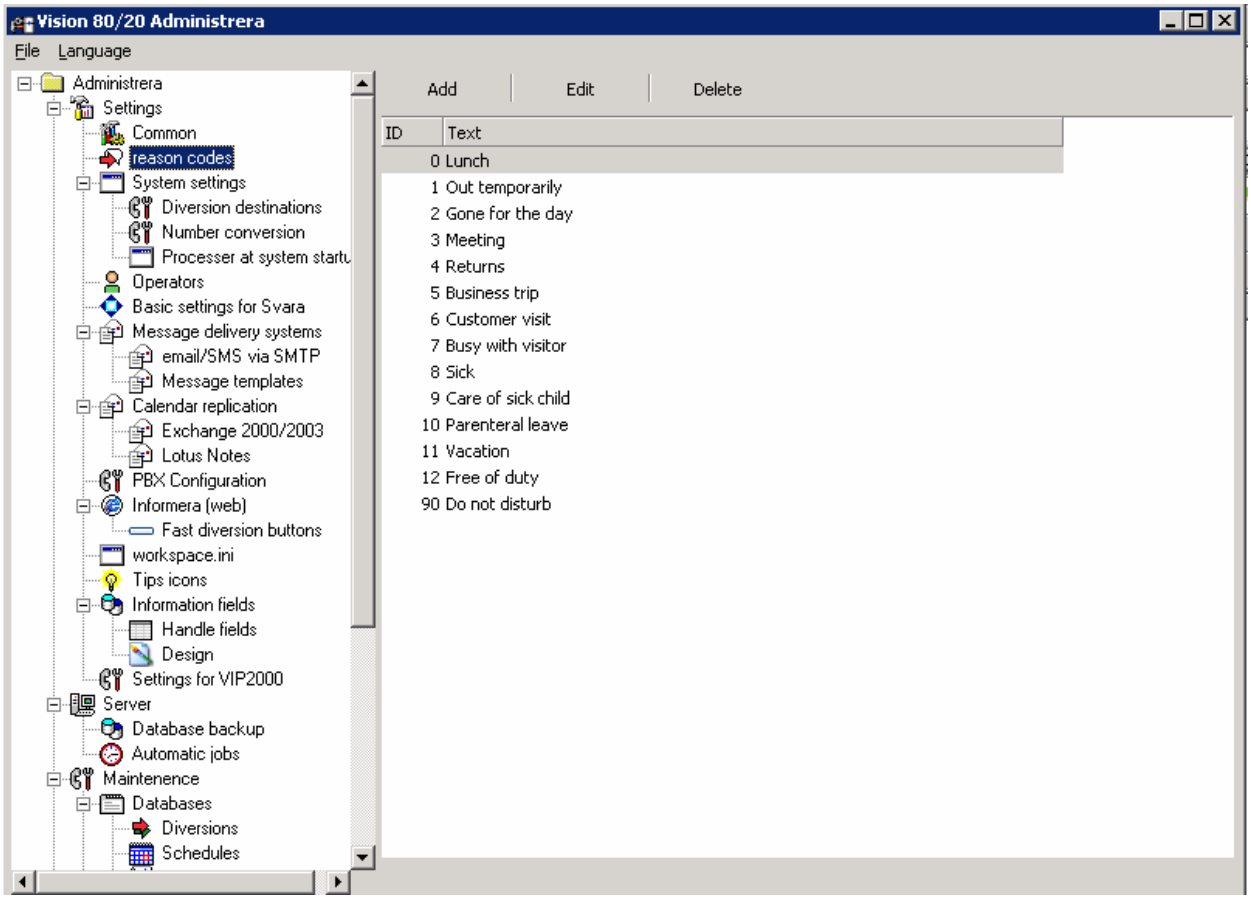

Figure 39: Reason Codes Screen

Parameter	Usage
Customer Name	Enter an appropriate name to identify the Vision 80/20 server.
Default action for diversions	Select “Operator” from the drop-down menu.
IP address Vision 80/20 server	Enter the IP address of the Vision 80/20 server.

Table 19: Parameters for Telephone Setting File

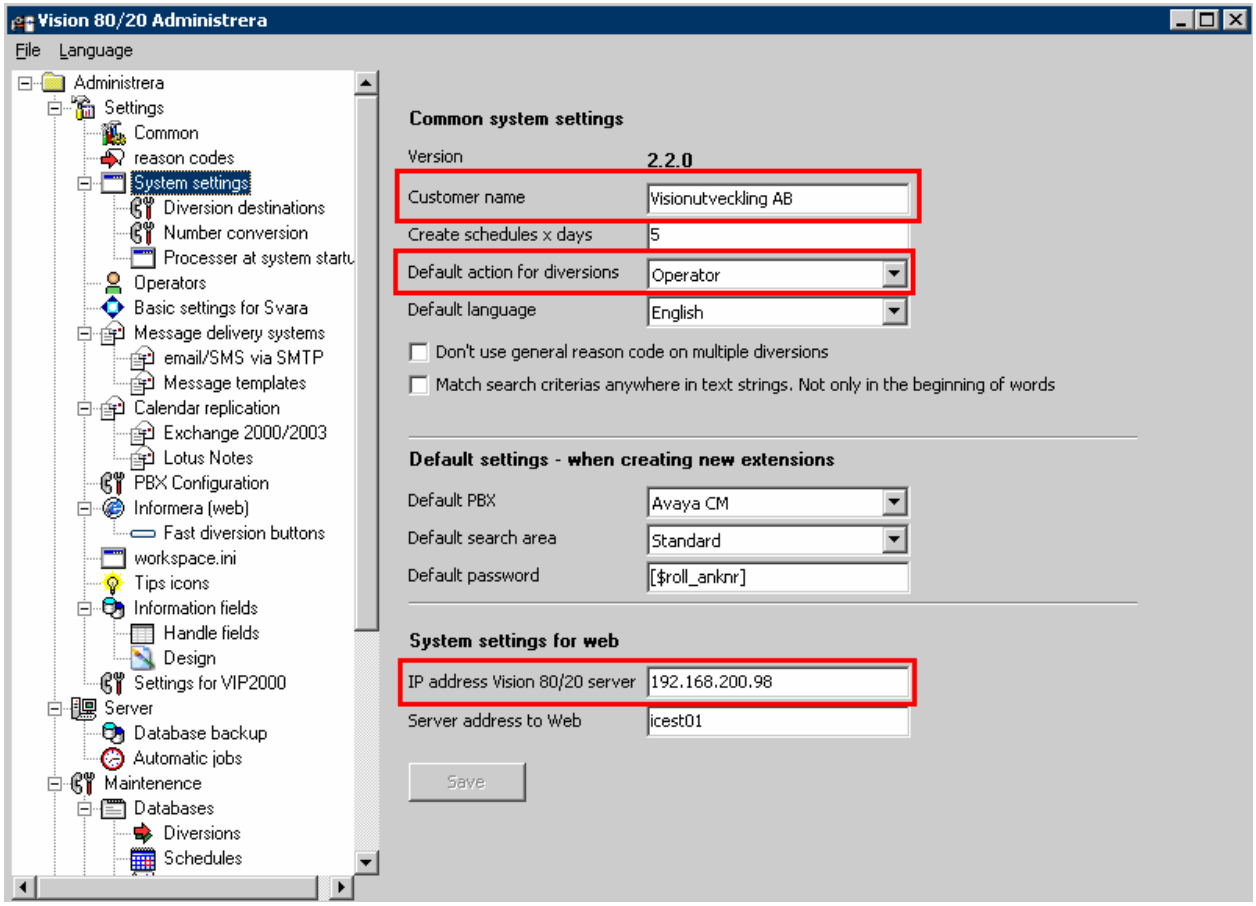

Figure 40: System Settings Screen

3.4.2. Configure XML Files

Execute the “C:\vision8020\ edbd.exe” program and select the “WFS” menu point in the left frame.

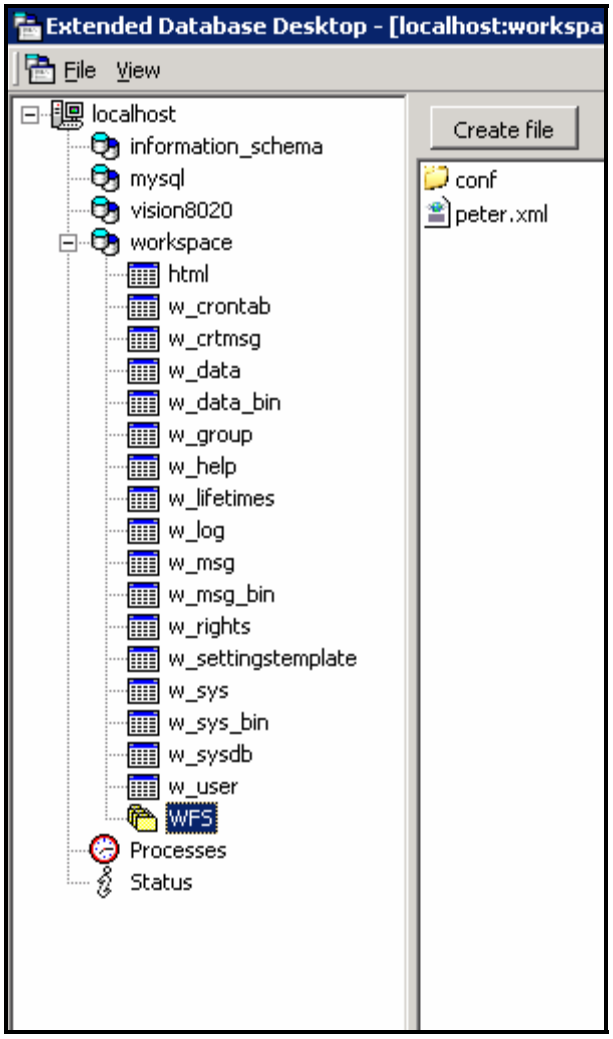

Figure 41: Telephone Settings File Content

Subsequently double-click the “KopplaAvaya.xml” and “pPBX1.xml” files, and edit as shown below.

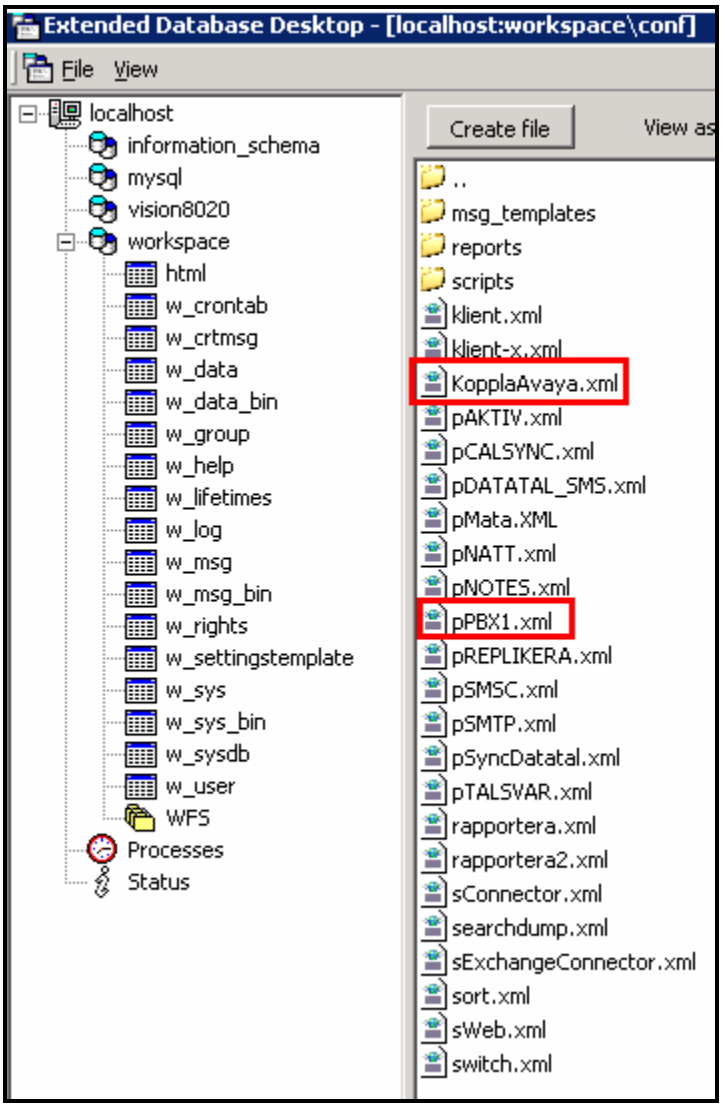

Figure 42: XML File List

After selecting the "KopplaAvaya.xml" file, use the editor which appears to configure the parameters as shown in the following table.

Parameter	Usage
CSTAServer	Enter the PBX selection string which is defined in **Table 18**.
CSTAUsername	Enter the AES User Name which is allocated in **Figure 33.**
CSTAPassword	Enter the AES User Password which is defined in **Figure 33**.
UseDialPanel	Set this value to "True".
HandleBusyStatus	Set this value to "True".
UseHoldParking	Set this value to "True".
TrunkPrefix	Enter the dial prefix of "0" which is used to access the PSTN.

Table 20: Parameters for KopplaAvaya.xml File

```
<xml>
    <Settings>
        <CSTAServer>AVAYA#S8720#CSTA#AES-SERVER1</CSTAServer>
        <CSTAUsername>Visionutveckling</CSTAUsername>
        <CSTAPassword>Password-1234</CSTAPassword>
        <UseDialPanel>True</UseDialPanel>
        <HandleBusyStatus>True</HandleBusyStatus>
        <UseHoldParking>True</UseHoldParking>
         <TrunkPrefix>0</TrunkPrefix>
    </Settings>
</xml>
```

Figure 43: KopplaAvaya.xml File Screen

After selecting the "pPBX1.xml" file, use the editor which appears to configure the parameters as shown in the following table. SimpleRoutingDevice is the VDN.

Parameter	Usage
PBXLogon	Enter the AES User Name which is allocated in **Figure 33.**
PBXPassword	Enter the AES User Password which is defined in **Figure 33**.
CSTAServer	Enter the PBX selection string which is defined in **Table 18**.
SimpleRoutingDevice	Enter the extension assigned to the diversion VDN in **Figure 11**.
TrunkPrefix	Enter the dial prefix of "0" which is used to access the PSTN.

Table 21: Parameters for Telephone Setting File

```
<xml>
    <settings>
        <PBXLogon>Visionutveckling</PBXLogon>
        <PBXPassword>Password-1234</PBXPassword>
        <CSTAServer>AVAYA#S8720#CSTA#AES-SERVER1</CSTAServer>
        <SimpleRoutingDevice>60423</SimpleRoutingDevice>
        <Avaya>
            <TrunkPrefix>0</TrunkPrefix>
            <ClearDndOnFwd>False</ClearDndOnFwd>
            <ClearFwdOnDnd>False</ClearFwdOnDnd>
        </Avaya>
    </settings>
</xml>
```

Figure 44: Telephone Settings File Content

4. Interoperability Compliance Testing

The objective of the compliance testing done on the Visionutveckling Vision 80/20 product was to verify that it is compatible with Avaya Communication Manager. This includes verifying that the essential Vision 80/20 features function properly when used with Avaya Communication Manager, and that Avaya Communication Manager features are not hindered by the interaction with Vision 80/20. Furthermore, the robustness of the Vision 80/20 was verified.

4.1. General Test Approach

The test method employed can be described as follows:

- Avaya Communication Manager was configured to support various local IP telephones, as well as a networked PBX connection and a PSTN connection.
- A PSTN interface was attached to Avaya Communication Manager, which was used to communicate with external telephones.
- The major Vision 80/20 features and functions were verified using the above-mentioned local and external telephones.
- The following test scenarios were used to test the various Vision 80/20 features:

- Create a diversion with a specific reason
- Delete a diversion
- Leave a message
- Retrieve a message
- Verify that both the Operator and User interface shows when extensions goes on/off hook
- Operator Tests (for both local and external endpoints)
  - Answer incoming call
  - Initiate initial call
  - Initiate second call
  - Blind transfer
  - Supervised transfer
  - Blind transfer with timeout
  - Toggle call between users
  - Park call
  - Unpark call
  - Diversion to hunt group
  - Coverage to hunt group after busy, DNA
  - Diversion to operator, unconditional
  - Diversion to operator extension after busy, DNA
- The robustness of the Vision 80/20 was tested by verifying its ability to recover from interruptions to its LAN connection between the Vision 80/20 and the network and to start automatically.

All testing was performed manually. The tests were all functional in nature, and no performance testing was done.

4.2. Test Results

Only one problem was encountered while testing: if a call is blind-transferred by the operator to an external endpoint, the operator is not informed when a timeout occurs if the transferred-to party does not answer.

5. Verification Steps

The following steps can be performed to verify the correct installation and configuration of Vision 80/20:

- Verify that the Avaya AES and Vision 80/20 systems can ping each other.
- Verify that the various telephones can call each other.
- Log into the Avaya AES as described in Section 3.2 and perform the following:
  - Verify that CTI OAM Status and Control "Switch Connection Summary" shows that the connection between Avaya AES and Avaya Communication Manager is operational.
  - Verify that CTI OAM Status and Control "Services Summary" shows that TSAPI service is operational.

6. Support

Support for Vision 80/20 is available at:

Visionutveckling AB
support@visionutveckling.se
Phone: +46 303 389 000
Fax: +46 303 72 92 60

7. Conclusion

These Application Notes describe the conformance testing of the Visionutveckling Vision 80/20 with Avaya Communication Manager. A detailed description of the configuration required for both the Avaya and the Visionutveckling equipment is documented within these Application Notes. The Vision 80/20 passed all of the tests performed, which included both functional and robustness tests.

8. References

[1] *Administrator Guide for Avaya Communication Manager*, January 2008, Issue 4.0, Document Number 03-300509.
[2] *Feature Description and Implementation for Avaya Communication Manager*, January 2008, Issue 6, Document Number 555-245-205.
[3] *4600 Series IP Telephone LAN Administrator Guide*, October 2007, Issue 7, Document Number 555-233-507.
[4] Vision 80/20 Product Description: http://www.vision8020.se/misc/Vision%208020_eng_2008-11.pdf

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.