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Avaya Solution & Interoperability Test Lab

Application Notes for InVision Enterprise WFM with Avaya Call Management System using ODBC Interface – Issue 1.0

Abstract

These Application Notes describe the configuration steps required to integrate InVision Enterprise WFM (iWFM) with Avaya Call Management System using the ODBC interface to capture ACD call center data from Avaya Communication Manager. The ODBC interface is used to import splits/skills, Vector Directory Numbers (VDNs), and agent data into iWFM periodically. iWFM is a web-based software solution for enterprise-wide workforce management. It supports the workforce management process from forecasting to scheduling, optimization, time management and monitoring.

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

These Application Notes describe the configuration steps required to integrate InVision Enterprise WFM (iWFM) with Avaya Call Management System (CMS) using the ODBC interface to capture ACD call center data from Avaya Communication Manager. The ODBC interface is used to import splits/skills, Vector Directory Numbers (VDNs), and agent data into iWFM periodically. iWFM is a web-based software solution for enterprise-wide workforce management. It supports the workforce management process from forecasting to scheduling, optimization, time management and monitoring.

InVision Enterprise WFM uses the ODBC interface to access the Informix database in Avaya CMS to import interval-based call and agent activity data. The data may be imported on an on-demand basis or automatically at pre-defined intervals. The historical reports that are supported by iWFM through this interface include a splits/skills report, a VDN report, an agent login/logout report, and an agent workmode/AUX reason report. These reports can be viewed within the iWFM Shift Center and OnlineCockpit, or in reports generated by iWFM.
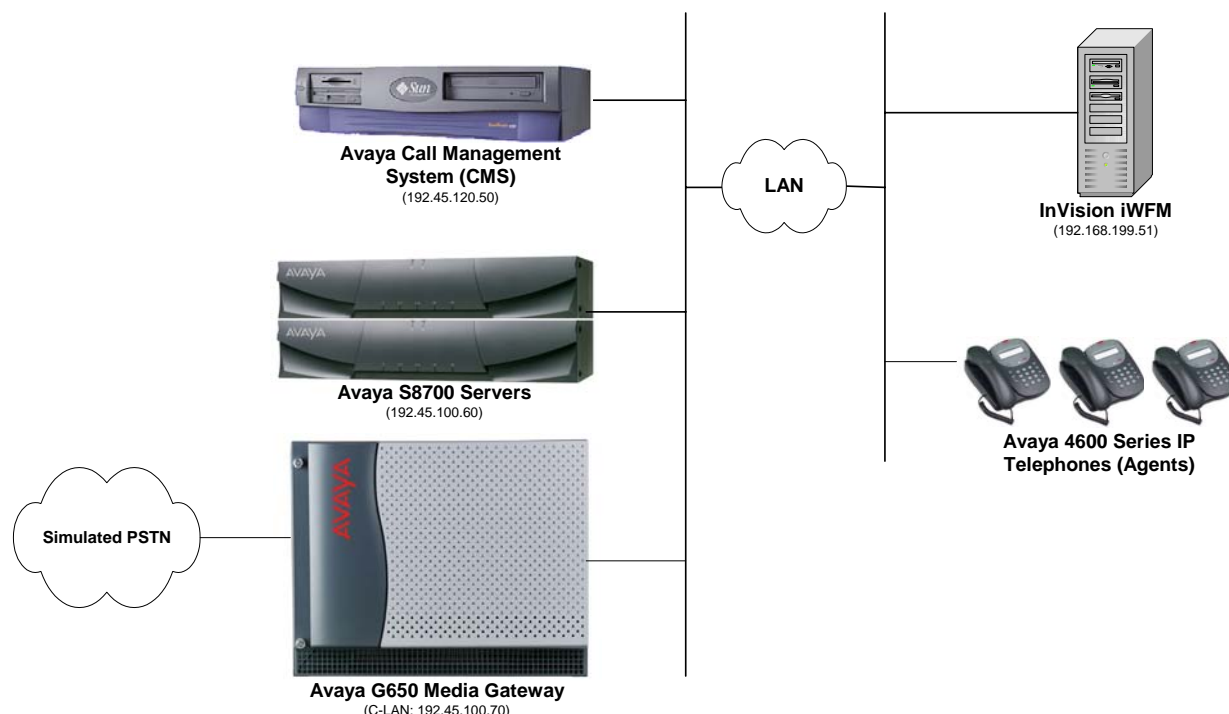

Figure 1: InVision Enterprise WFM with Avaya Call Management System

2. Equipment and Software Validated

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

Equipment	Software
Avaya S8700 Servers with G650 Media Gateway	Avaya Communication Manager 4.0.1, load 731.2
Avaya Call Management System	r14aa.h
Avaya 4600 Series IP Telephones	2.8 (H.323)
InVision Enterprise WFM (iWFM)	4.5.0

3. Configure Avaya Communication Manager

This section provides the procedures for configuring Avaya Communication Manager. The procedures include the following areas:

- Verify Avaya Communication Manager Options.
- Administer adjunct CMS release.
- Administer IP node names for C-LAN.
- Administer IP interface for C-LAN.
- Administer data module for C-LAN.
- Administer processor interface channel.
- Administer measured VDN.
- Administer measured Skill.

The detailed administration of contact center devices such as ACD/Skill, VDN, Vector, and Agents are assumed to be in place. These Application Notes will only cover how to enable ACD/Skill, VDN, and Agent data to be sent to Avaya CMS.

3.1. Verify Avaya Communication Manager Software Options

Log into the System Access Terminal (SAT) to verify that the Avaya Communication Manager license has proper permissions for features illustrated in these Application Notes. Use the "display system-parameters customer-options" command to verify that the **G3 Version** field is set to "V14" on **Page 1**, as shown below.

```
display system-parameters customer-options                    Page   1 of  11
                            OPTIONAL FEATURES

    G3 Version: V14
      Location: 1                              RFA System ID (SID): 1
      Platform: 6                              RFA Module ID (MID): 1

                                                              USED
                              Platform Maximum Ports: 44000 727
                                    Maximum Stations: 36000 239
                             Maximum XMOBILE Stations: 0      0
                  Maximum Off-PBX Telephones - EC500: 0      0
                  Maximum Off-PBX Telephones -   OPS: 50     8
                  Maximum Off-PBX Telephones - PBFMC: 0      0
                  Maximum Off-PBX Telephones - PVFMC: 0      0
                  Maximum Off-PBX Telephones - SCCAN: 0      0

        (NOTE: You must logoff & login to effect the permission changes.)
```

Navigate to **Page 6**, and verify that the **Call Center Release** field is set to "4.0", as shown below.

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

                        Call Center Release: 4.0

                                  ACD? y                       Reason Codes? y
                        BCMS (Basic)? y              Service Level Maximizer? n
          BCMS/VuStats Service Level? y            Service Observing (Basic)? y
 BSR Local Treatment for IP & ISDN? n     Service Observing (Remote/By FAC)? y
               Business Advocate? y              Service Observing (VDNs)? y
                  Call Work Codes? n                              Timed ACW? y
        DTMF Feedback Signals For VRU? y                    Vectoring (Basic)? y
                Dynamic Advocate? y                   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)? y
                                           Vectoring (G3V4 Advanced Routing)? y
          Lookahead Interflow (LAI)? n                    Vectoring (CINFO)? y
Multiple Call Handling (On Request)? y     Vectoring (Best Service Routing)? y
   Multiple Call Handling (Forced)? y                 Vectoring (Holidays)? y
 PASTE (Display PBX Data on Phone)? y                 Vectoring (Variables)? n
        (NOTE: You must logoff & login to effect the permission changes.)
```

3.2. Administer Adjunct CMS Release

Use the "change system-parameters features" command and navigate to **Page 12**. Set the **Adjunct CMS Release** field to the software release of the Avaya CMS. In this case, "R14" is used to correspond to Avaya CMS software release R14.0.

```
change system-parameters features                          Page  12 of  17
                        FEATURE-RELATED SYSTEM PARAMETERS

 AGENT AND CALL SELECTION
                          MIA Across Splits or Skills? y
                           ACW Agents Considered Idle? y
                           Call Selection Measurement: current-wait-time
    Service Level Supervisor Call Selection Override? n
                                   Auto Reserve Agents: all

 CALL MANAGEMENT SYSTEM
                                REPORTING ADJUNCT RELEASE
                                       CMS (appl mis): R14
                                       CCR (appl ccr):

                                  BCMS/VuStats LoginIDs? y
                   BCMS/VuStats Measurement Interval: hour
           BCMS/VuStats Abandon Call Timer (seconds):
                       Validate BCMS/VuStats Login IDs? n
                             Clear VuStats Shift Data: on-login
                   Remove Inactive BCMS/VuStats Agents? n
```

3.3. Administer IP Node Name for C-LAN

Use the "change node-names ip" command, to add entries for Avaya CMS and the C-LAN that will be used for connectivity. In this case, "cms" and "192.45.120.50" are entered as **Name** and **IP Address** for the Avaya CMS server, and "clan2" and "192.45.100.70" are entered as **Name** and **IP Address** for the C-LAN. The actual node names and IP addresses may vary. Submit these changes.

```
change node-names ip                                      Page   1 of   1
                              IP NODE NAMES
    Name              IP Address          Name          IP Address
clan              192.45 .100.66                        .   .   .
clan-1a05-AES2    192.45 .100.146                        .   .   .
cms               192.45 .120.50                         .   .   .
clan2             192.45 .100.70                         .   .   .
```

3.4. Administer IP Interface for C-LAN

Add the C-LAN to the system configuration using the "add ip-interface 2a02" command. The actual slot number may vary. In this case, "2a02" is used as the slot number. Enter the C-LAN node name assigned from **Section 3.3** into the **Node Name** field. The **IP Address** field will be populated automatically.

Enter proper values for the **Subnet Mask** and **Gateway Address** fields. In this case, "255.255.255.0" and "192.45.100.1" are used to correspond to the network configuration in these Application Notes. Set the **Enable Ethernet Port** field to "y". Default values may be used in the remaining fields. Submit these changes.

```
add ip-interface 2a02                                          Page   1 of   1
                               IP INTERFACES


                   Type: C-LAN
                   Slot: 02A02
            Code/Suffix: TN799  D
              Node Name: clan2
             IP Address: 192.45 .100.70
            Subnet Mask: 255.255.255.0
        Gateway Address: 192.45 .100.1
     Enable Ethernet Port? y
         Network Region: 1
                   VLAN: n

Number of CLAN Sockets Before Warning: 400
       Receive Buffer TCP Window Size: 8320
                               ETHERNET OPTIONS
                   Auto? y
```

3.5. Administer Data Module for C-LAN

Add a new data module using the "add data-module n" command, where "n" is an available extension. Enter the following values, and submit these changes.

- **Name:**   A descriptive name.
- **Type:**   "ethernet"
- **Port:**   Same slot number from **Section 3.4** above and port "17".
- **Link:**   An available link number.

```
change data-module 24981                                       Page   1 of   1
                               DATA MODULE

  Data Extension: 24981           Name: Clan2
            Type: ethernet
            Port: 02A0217
            Link: 2


Network uses 1's for Broadcast Addresses? y
```

3.6. Administer Processor Interface Channel

Assign a new processor interface channel with the "change communication-interface processor-channels" command. Add an entry with the following values, and submit these changes.

- **Enable:** "y"
- **Appl.:** "mis"
- **Mode:** "s" for server mode.
- **Interface Link:** Link number for data module Ethernet port from **Section 3.5**.
- **Interface Chan:** TCP channel number for Avaya CMS. In this case "5001".
- **Destination Node:** Avaya CMS server node name from **Section 3.3**.
- **Destination Port:** "0"
- **Session Local:** Corresponding channel number in **Proc Chan** field. In this case "1".
- **Session Remote:** Corresponding channel number in **Proc Chan** field. In this case "1".

The **Interface Chan** field contains the Avaya CMS TCP channel number, which is defined as part of the Avaya CMS installation. For the compliance testing, the default TCP channel number of "5001" was used.

```
change communication-interface processor-channels          Page   1 of  24
                        PROCESSOR CHANNEL ASSIGNMENT
Proc                 Gtwy      Interface        Destination      Session   Mach
Chan Enable   Appl.   To  Mode Link/Chan        Node      Port  Local/Remote IDnp
  1:  y      mis           s    2  5001   cms                0     1     1
  2:  n                                                      0
```

3.7. Administer Measured VDN

Use the "change vdn n" command, where "n" is the extension of the VDN to be measured by Avaya CMS. Set the **Measured** field to "external" or "both" to enable measurement data on the VDN to be sent to Avaya CMS. Repeat this step for all VDNs that will be monitored by Avaya CMS.

```
change vdn 38000                                            Page   1 of   2
                         VECTOR DIRECTORY NUMBER

                           Extension: 38000
                               Name*: InVision VDN 1
                       Vector Number: 380

                  Meet-me Conferencing? n
                   Allow VDN Override? n
                                 COR: 1
                                 TN*: 1
                            Measured: both
        Acceptable Service Level (sec): 10
              Service Objective (sec): 20
        VDN of Origin Annc. Extension*:
                           1st Skill*:
                           2nd Skill*:
                           3rd Skill*:

* Follows VDN Override Rules
```

3.8. Administer Measured Skill

Use the "change hunt-group n" command, where "n" is the extension of the ACD/Skill group number to be measured by Avaya CMS. Set the **Measured** field to "external" or "both" to enable real-time measurement data on the ACD/Skill group and the associated agents to be sent to Avaya CMS. Repeat this step for all ACD/Skill groups that will be measured by Avaya CMS.

```
change hunt-group 280                                       Page   2 of   3
                              HUNT GROUP

                    Skill? y       Expected Call Handling Time (sec): 180
                      AAS? n         Service Level Target (% in sec): 80 in 20
                Measured: both                 Service Objective (sec): 20
       Supervisor Extension:               Service Level Supervisor? y
                                    Activate on Oldest Call Waiting? y
                                            Call Selection Override? n
           Controlling Adjunct: none         Level 1 Threshold (sec): 50
                                             Level 2 Threshold (sec):
                                    Dynamic Threshold Adjustment? n
        VuStats Objective:
 Timed ACW Interval (sec):                     Dynamic Queue Position? n
   Multiple Call Handling: none

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

4. Configure Avaya Call Management System

This section covers the configuration of Avaya CMS to support the import of splits/skills, VDN, and agent data from InVision Enterprise WFM via the ODBC interface.

Use a terminal emulator to connect to the Avaya CMS server, and log in with the proper credentials. Enter "cms" at the command prompt to display the **MainMenu** screen. The first step is to configure the **Current ACD**, which in this case is *devcon31*, an ACD name assigned on Avaya CMS. From the CMS terminal emulator click on the **Commands** option button at the bottom of the screen. Navigate to **Options→Current ACD** to specify the current ACD and press the **Enter** key.
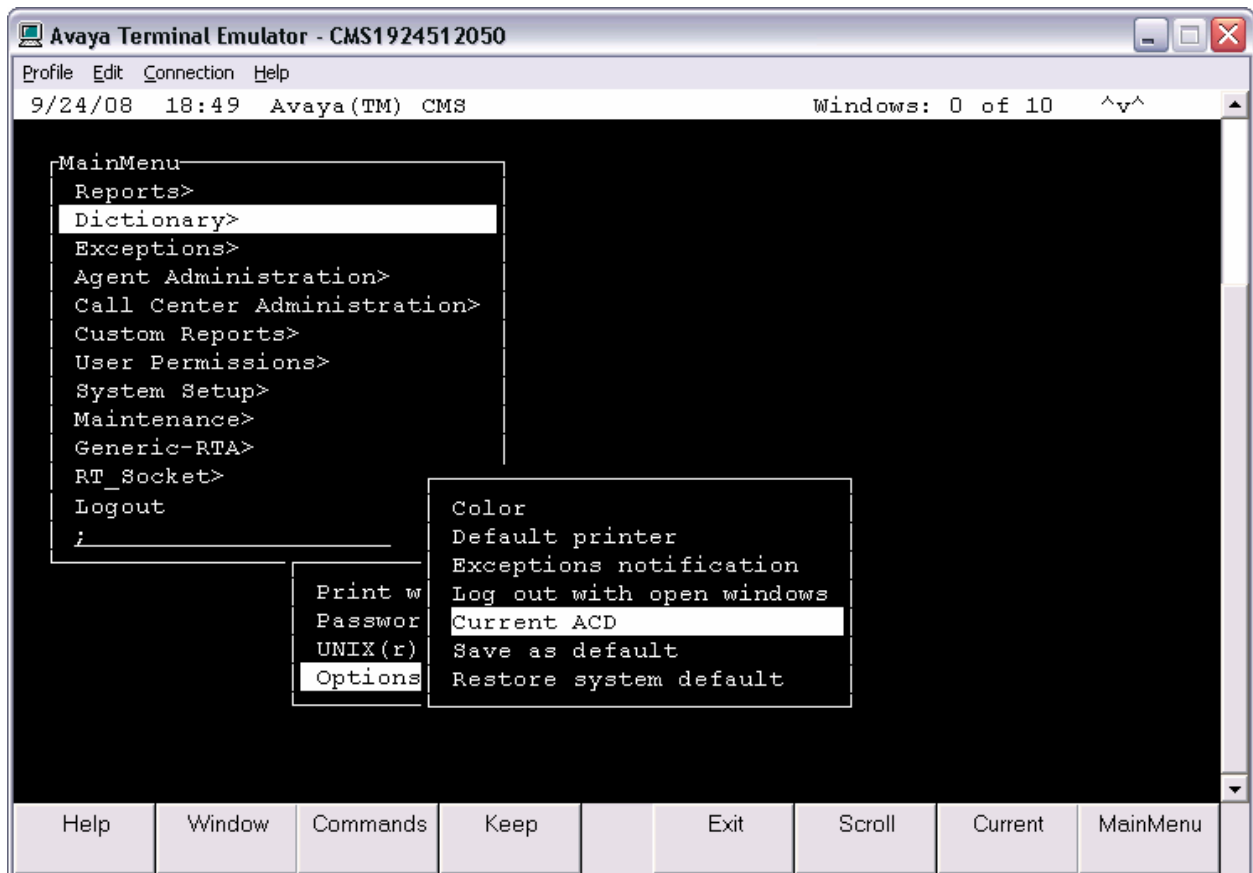
In the following screen, set the **Current ACD** field to *devcon31* and then select **Modify** in the right pane of the screen. Hit the **Enter** key. Upon completion, *Successful* is displayed in the dialog box as shown in the figure below. Click the **Exit** button to return to the CMS main menu.
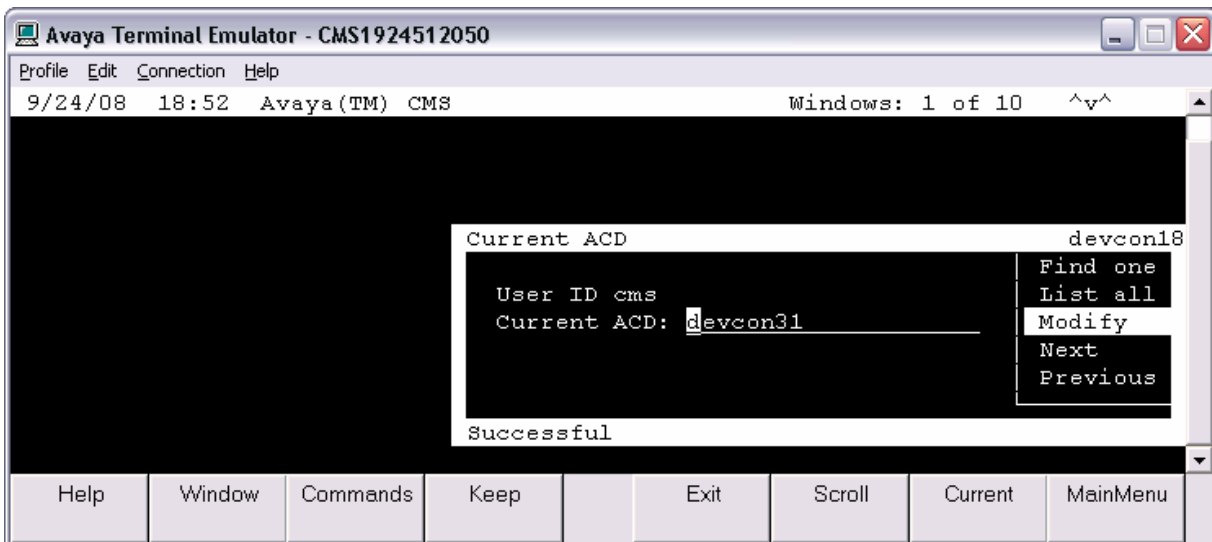
From the CMS main menu, navigate to **Dictionary➔Splits/Skills,** as shown below, to configure the splits/skills that will be monitored by iWFM. Hit the **Enter** key.
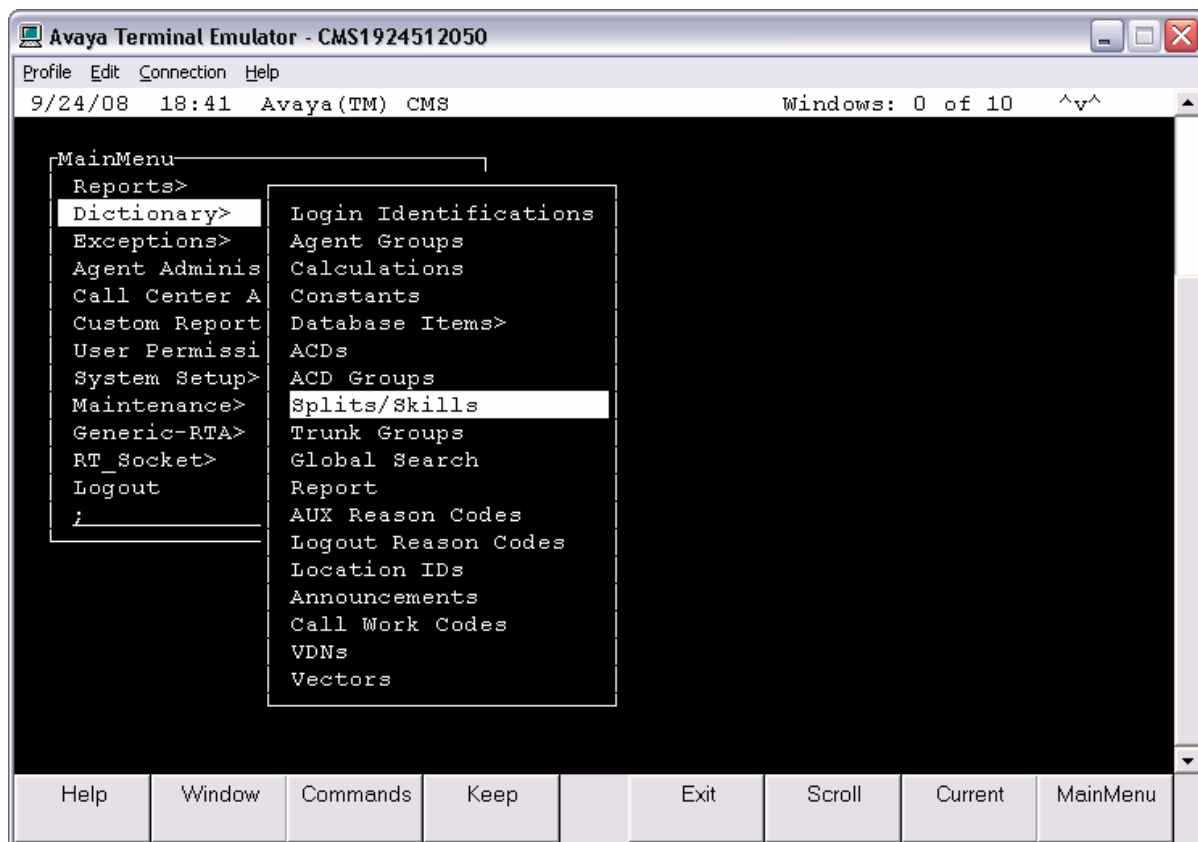
The **Dictionary: Splits/Skills** screen is displayed. Provide a descriptive name for the split/skill and the number assigned to the split/skill in Avaya Communication Manager (see **section 3.8**). Click the **Add** option in the right pane. Repeat this step for each split/skill to be monitored by iWFM.
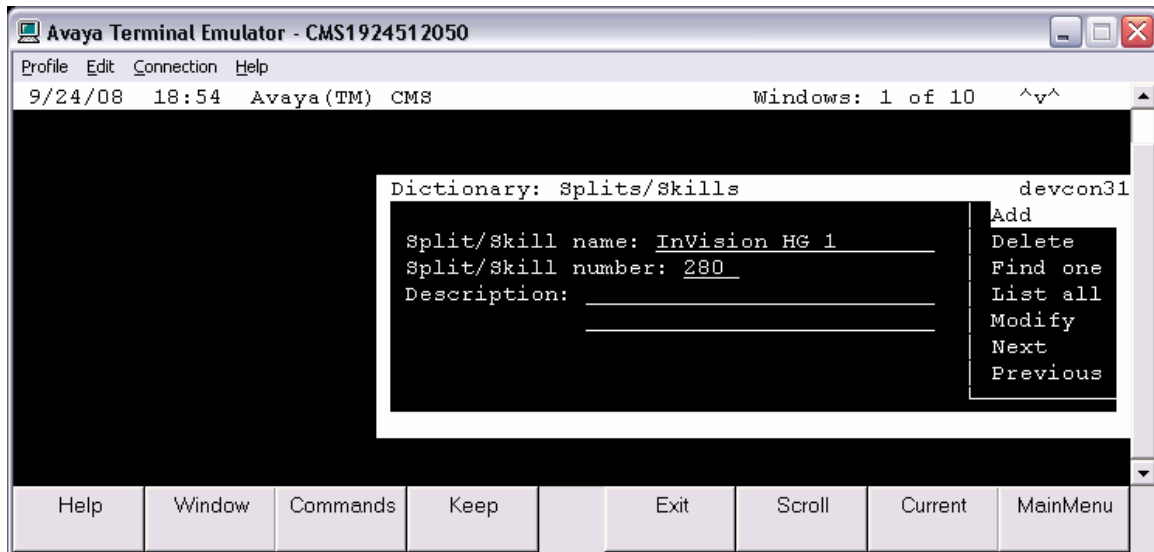
Return to the CMS main menu and navigate to **Dictionary→VDNs**, as shown below, to configure the VDNs to be monitored by iWFM.
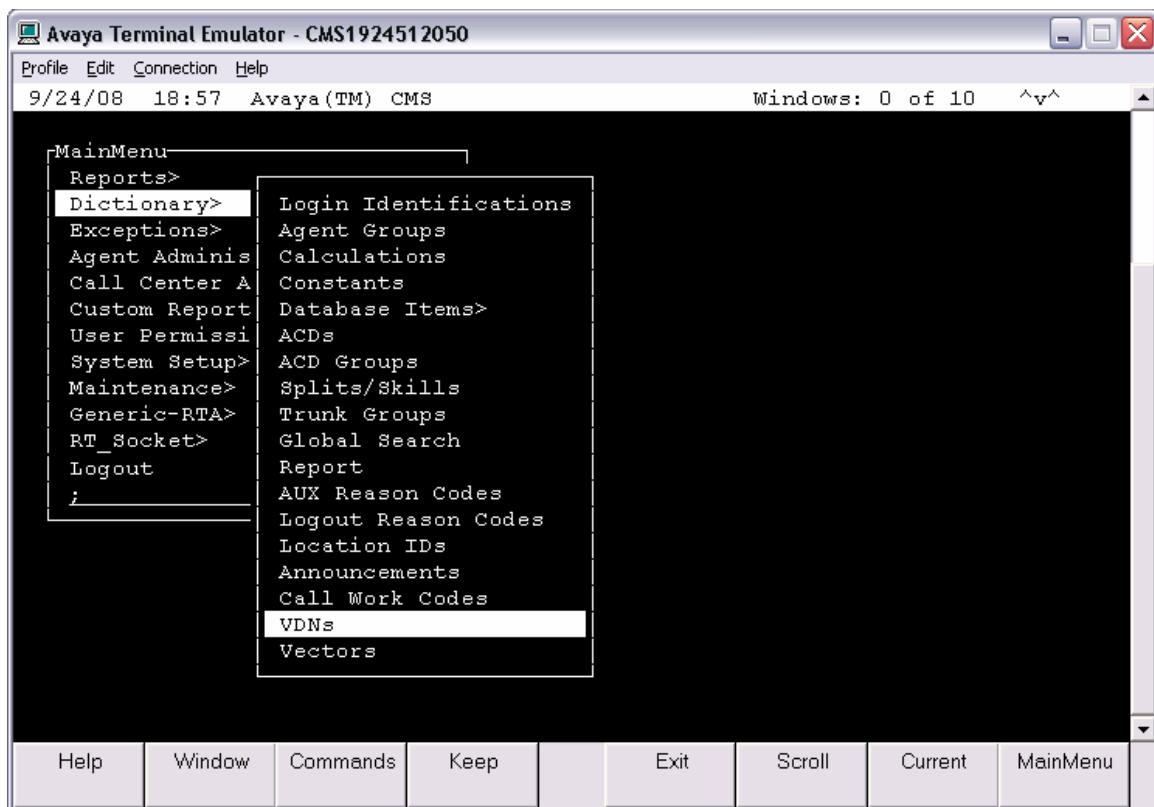
The **Dictionary: VDNs** screen is displayed. Provide a descriptive name for the VDN and the extension assigned to the VDN in Avaya Communication Manager (see **section 3.7**). Click the **Add** option in the right pane. Repeat this step for each VDN to be monitored by iWFM.
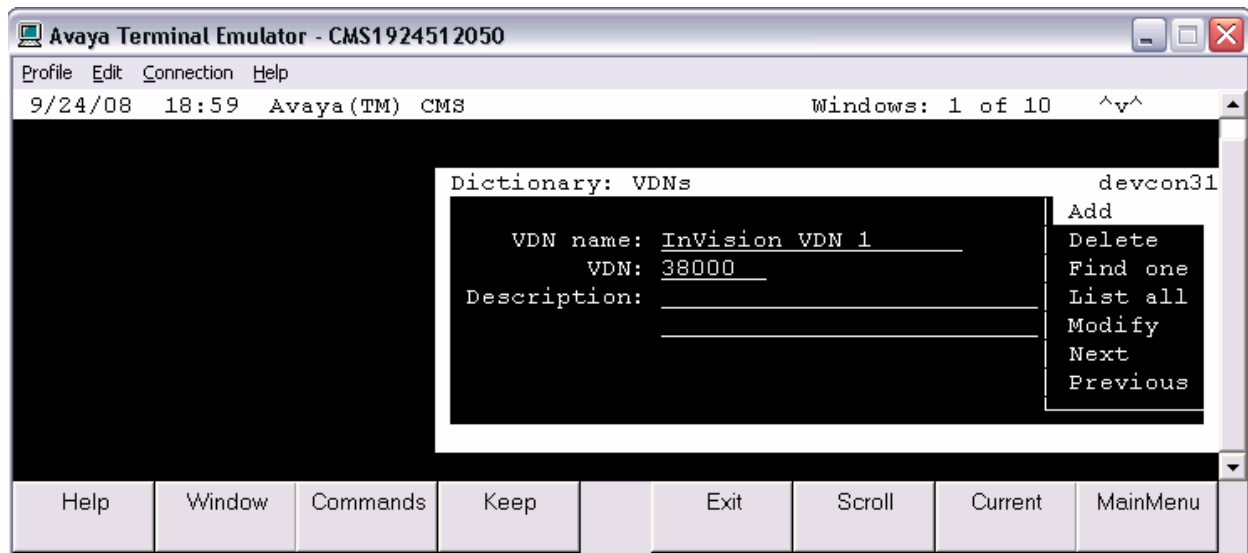
Next, agent tracing needs to be enabled for each ACD agent configured in Avaya Communication Manager to support the agent workmode/AUX reason report in iWFM. From the CMS main menu, navigate to **Agent Administration→Activate Agent Trace** and hit the **Enter** key.
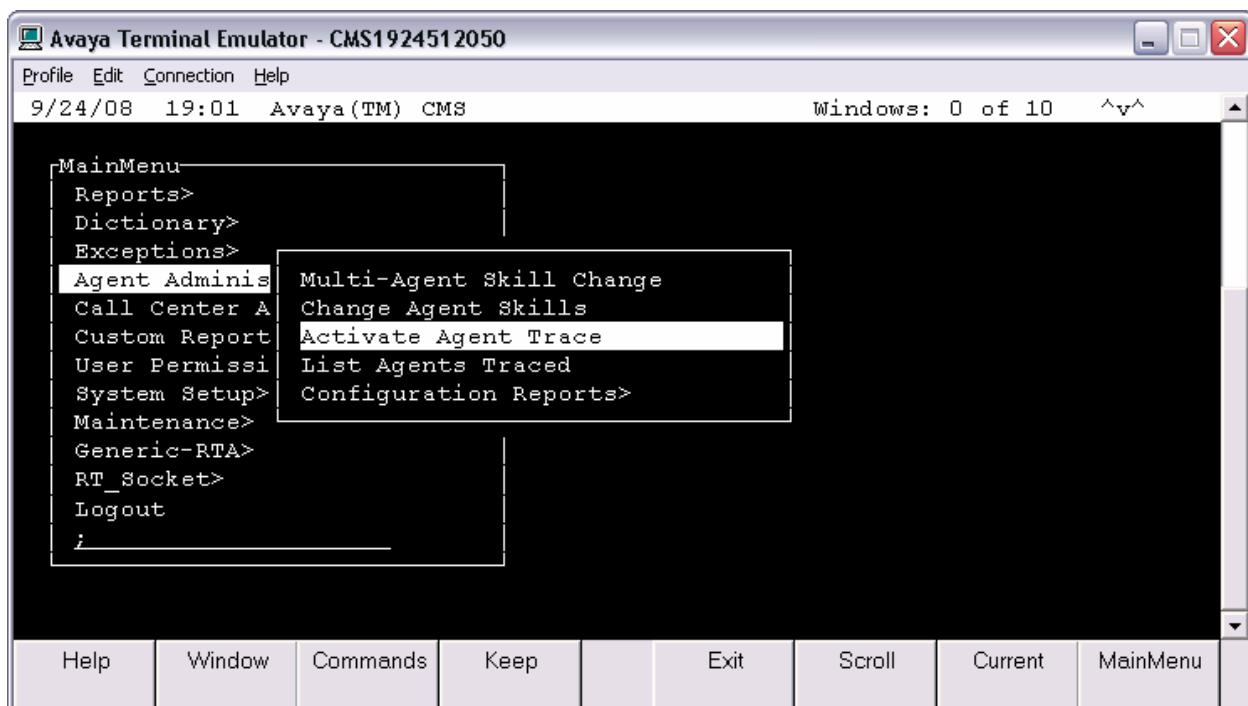
From the **Agent Administration: Activate Agent Trace** screen shown below provide the login agent IDs for each agent and set the **Agent trace** field to *on*. Select **Modify** in the right pane. Click the **Exit** button at the bottom of the screen to return to the CMS main menu.

```
Avaya Terminal Emulator - CMS1924512050                           _ □ ✕
Profile  Edit  Connection  Help
 9/24/08   19:03   Avaya(TM) CMS                    Windows: 1 of 10    ^v^

    Agent Administration: Activate Agent Trace                     devcon31
                                                       │ Find one
     Agent names or logids: 29101_____   │ List all
                            _____    │ Modify
                                                       │ Next
     Agent trace (Select one):                         │ Previous
        <x> On
        <_> Off


    Help    Window   Commands   Keep          Exit      Scroll   Current   MainMenu
```

5. Configure InVision Enterprise WFM (iWFM)

This section provides the procedure for configuring InVision Enterprise WFM for the historical splits/skills, VDN, and agent reports. There are two agent reports supported, an agent login/logout report and an agent workmode/AUX reason code report. The procedure includes the following steps:

- Configure the ODBC Interface
- Configure the `Isps_Ul.ini` File
- Administer External System for Avaya CMS
- Configure Master Data in iWFM for the Splits/Skills and VDN Reports including:
  - Queues
  - Value Types
  - Map Value Types to Queues
  - Associate the Value Type in iWFM with the data items in Avaya CMS
- Configure Master Data in iWFM for the Agent Login/Logout Report including:
  - Planning Unit to group master data
  - Contracts for employees in call center
  - Employees for Call Center Agents
  - Activities for Splits/Skills
  - Map Activities, Planning Unit, and External System to Employees
  - Map External System to Activities
- Configure Master Data in iWFM for Agent Workmode/AUX Reason Code Report including:
  - Activities for Workmodes and AUX Reason Codes

5.1. Configure the ODBC Interface

This section covers the configuration of the ODBC interface to Avaya CMS. A connection to the Avaya CMS Informix database is established using an ODBC driver installed on the InVision Enterprise WFM server. The ODBC client software is supplied with the Avaya CMS software. To configure the ODBC interface, navigate to **Administrative Tools→Data Sources (ODBC)** in the Windows control panel. The following screen is displayed. Note that the following screen lists the ODBC interface, which is already configured for Avaya CMS.
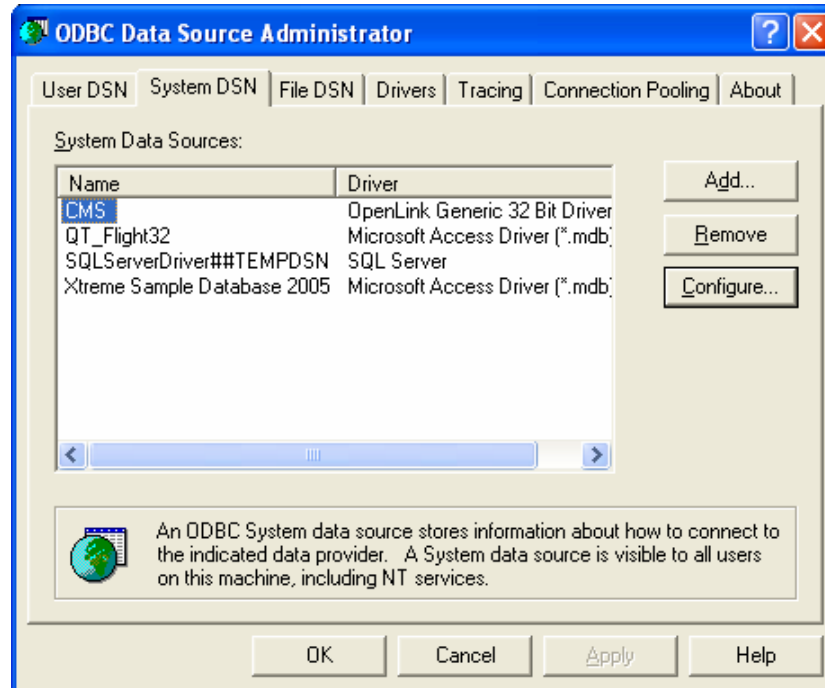
The ODBC interface for Avaya CMS is configured as shown in the figure below.
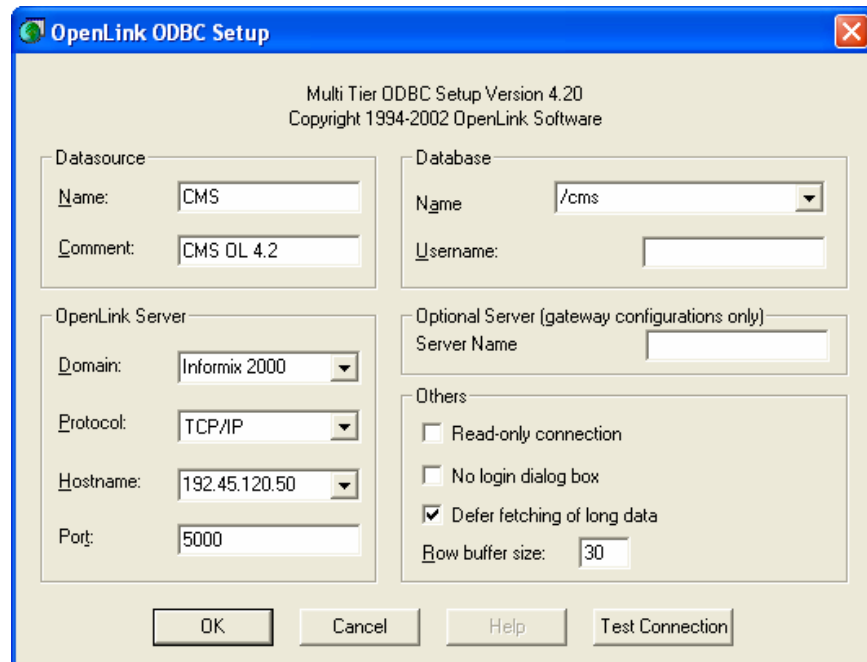
To test the ODBC connection, click on the **Test Connection** button in the window above. The **ODBC Login** window shown below is displayed. Enter the login credentials for Avaya CMS and click the **Connect** button.
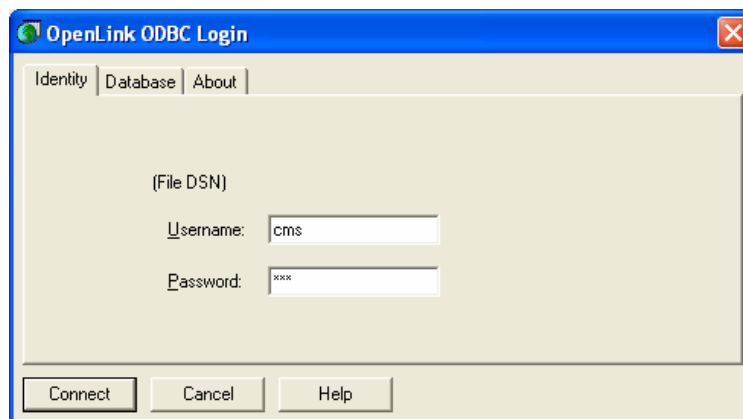
If the ODBC connection is successfully estalished to Avaya CMS, the following status window is displayed.

5.2. Configure the `Isps_Ul.ini` File

The internal settings of the ODBC interface are specified in the `Isps_Ul.ini` file. The parameters should be configured as follows:

- **Protocol** should be set to '1' to enable debug on the interface.
- **TimeZone** provides a numerical value specifying the desired time zone.
- **Source** specifies the name of the ODBC connection configured in section 5.1.
- **User** and **Password** should be set to the login information for the ODBC connection.
- **Interval** defines the interval setting in minutes for grouping call data statistics.

The last four parameters in the Avaya ODBC section of the file are required for the historical agent reports. These fields are not required for the historical splits/skills and VDN reports. The **IgnoreBreaks** parameter should be set to '1' if only the Agent login/logout report will be supported. If the Agent workmode/AUX reason code report will be supported, then the **IgnoreBreaks** parameters should be set to '0'. The other parameters should be configured as shown below.

```
[GENERAL]
CallLastAutoImportDate=22.08.2003
CallAutoImportMode=2
CallAutoImportTime=06:00
CallAutoImportInterval=15
AgentLastAutoImportDate=22.08.2003
AgentAutoImportMode=2
AgentAutoImportTime=06:30
AgentAutoImportInterval=15
NoAutoImportStartTime=
NoAutoImportEndTime=
Protocol=1
CallAutoImportIntervalReferenceTime=00:00
AgentAutoImportIntervalReferenceTime=00:00
AutomaticImportForMissingDays=1
WriteAlways=0

[DB]
1=R4-System,0,admin,D2038D07FE62503015

[R4-System]
CallVersionId=101
AgentLevelId=5000

[Avaya ODBC]
Protocol=1
TimeZone=12
Source=CMS
User=cms
Password=XXXXX
Interval=30
IgnoreBreaks=0
LoadAllAgentActivities=1
IncludeWorkmodeForAgent=1
MinimumActivityDuration=0
```

5.3. Configure Master Data in InVision Enterprise WFM for Historical Reports

This section covers the configuration of master data in InVision Enterprise WFM. Master data includes external systems, planning units, queues, value types, contracts, employees, and activities. To configure master data on iWFM, launch an Internet browser and enter the IP address of the iWFM server in the URL field. Log in using the appropriate "admin" credentials. The webpage shown below is displayed. iWFM configuration is performed through the AdminPro module of iWFM accessed by selecting the **Administration** option in the left pane.
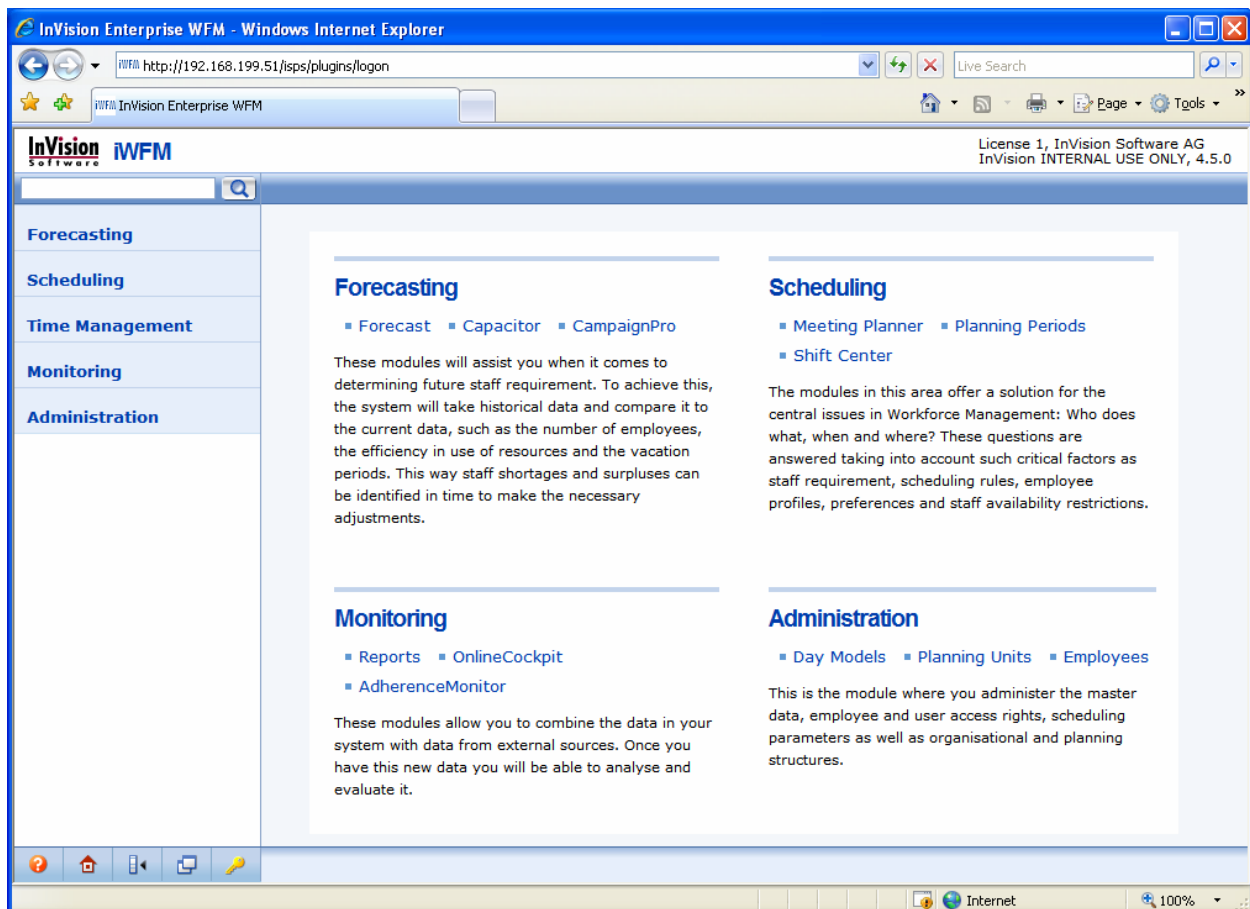
5.3.1. Administer the External System for Avaya CMS

Before ACD call center data can be imported from Avaya CMS using the ODBC interface, an external system must be added to iWFM to represent the Avaya CMS system. External systems are defined in the AdminPro module of iWFM. From iWFM, navigate to **Administration→System→External Systems**. Click on the "+" icon to add a new external system. When adding an external system, set the **System Description** field to *Avaya CentreVu CMS* and provide a descriptive name (e.g., Avaya ODBC). For the splits/skills and VDN reports, enable the **PhoneLink** checkbox. For the agent reports, enable the **TimeLink** checkbox. Click **OK** to submit the form.

5.3.2. Configure Master Data for Splits/Skills and VDN Reports

This section covers the administration of master data for the splits/skills and VDN reports.

5.3.2.1 Administer Queues

Create **Queues** for splits/skills and VDNs. Navigate to **Administration→Forecasting→Queues** in AdminPro and provide a descriptive name and abbreviation for the split/skill. Enable the **Active** checkbox. Click **OK** to submit the form. Repeat for each split/skill and VDN to be monitored by iWFM.

The following screen provides an example of a **Queue** configured for a VDN.

5.3.2.2 Administer Value Types

Create **Value Types** corresponding to the call center data statistics imported by iWFM. Navigate to **Administration**➔**Forecasting**➔**Value Types** in AdminPro and provide a descriptive name and abbreviation for each data item in the historical reports. These data items are available from Avaya CMS through the ODBC interface. The figure below provides an example of a value type for the *ABNCALLS* data item. Click **OK** to submit the form. Repeat this step for each data item in the historical splits/skills and VDN reports.

5.3.2.3 Map Value Types to Queues

Edit the **Queue** configured in **section 5.3.2.1** for each split/skill and scroll down to the **Value Types** section and map the value types configured in **section 5.3.2.2** to this queue by clicking on the "+" icon in that section. The figure below displays the value types relevant to the queue associated with the splits/skills.

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InVision-ODBC
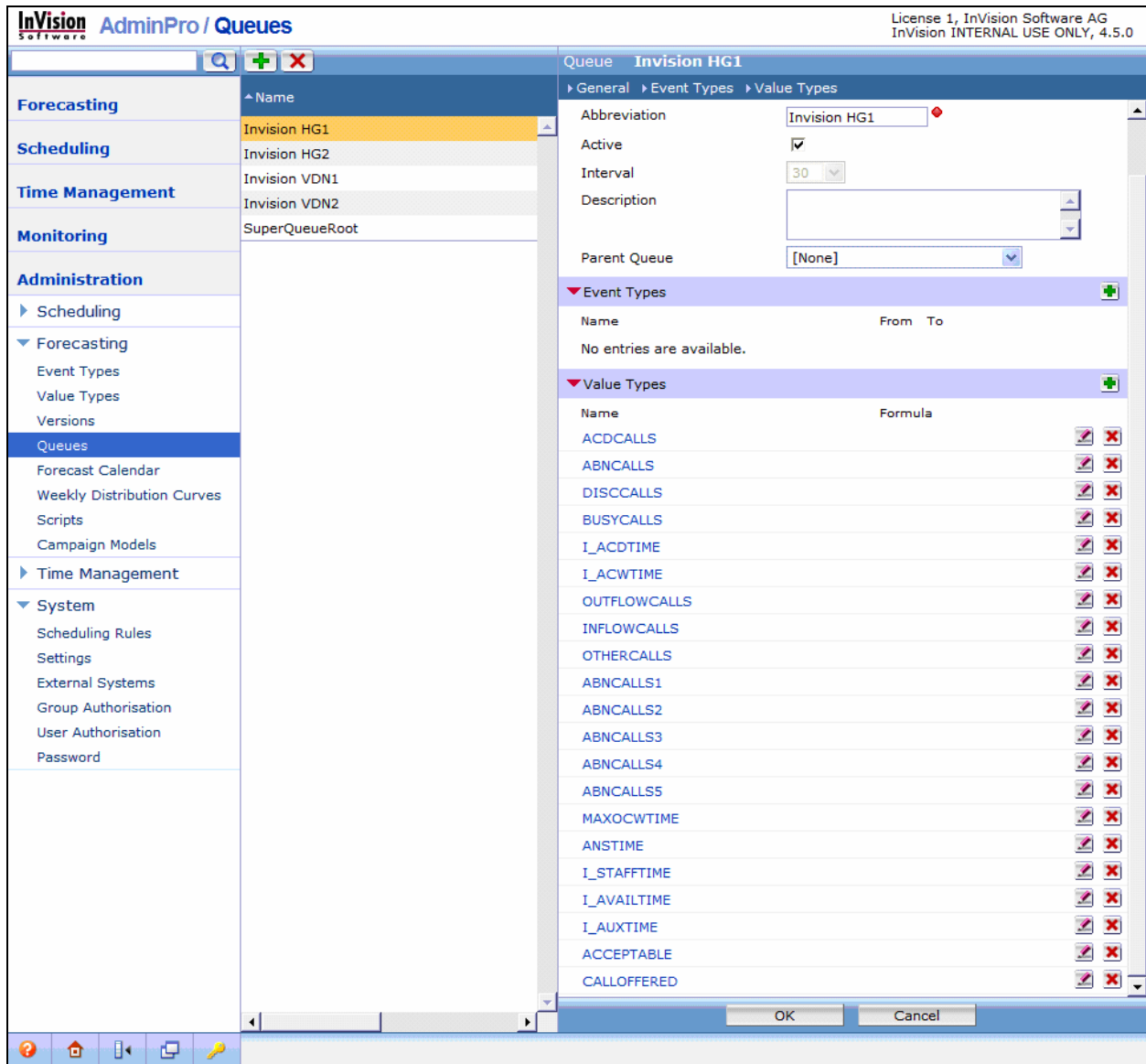
Edit the **Queue** configured in **section 5.3.2.1** for each VDN and scroll down to the **Value Types** section and map the value types configured in **section 5.3.2.2** to this queue by clicking on the "+" icon in that section. The figure below displays the value types relevant to the queue associated with the VDNs.
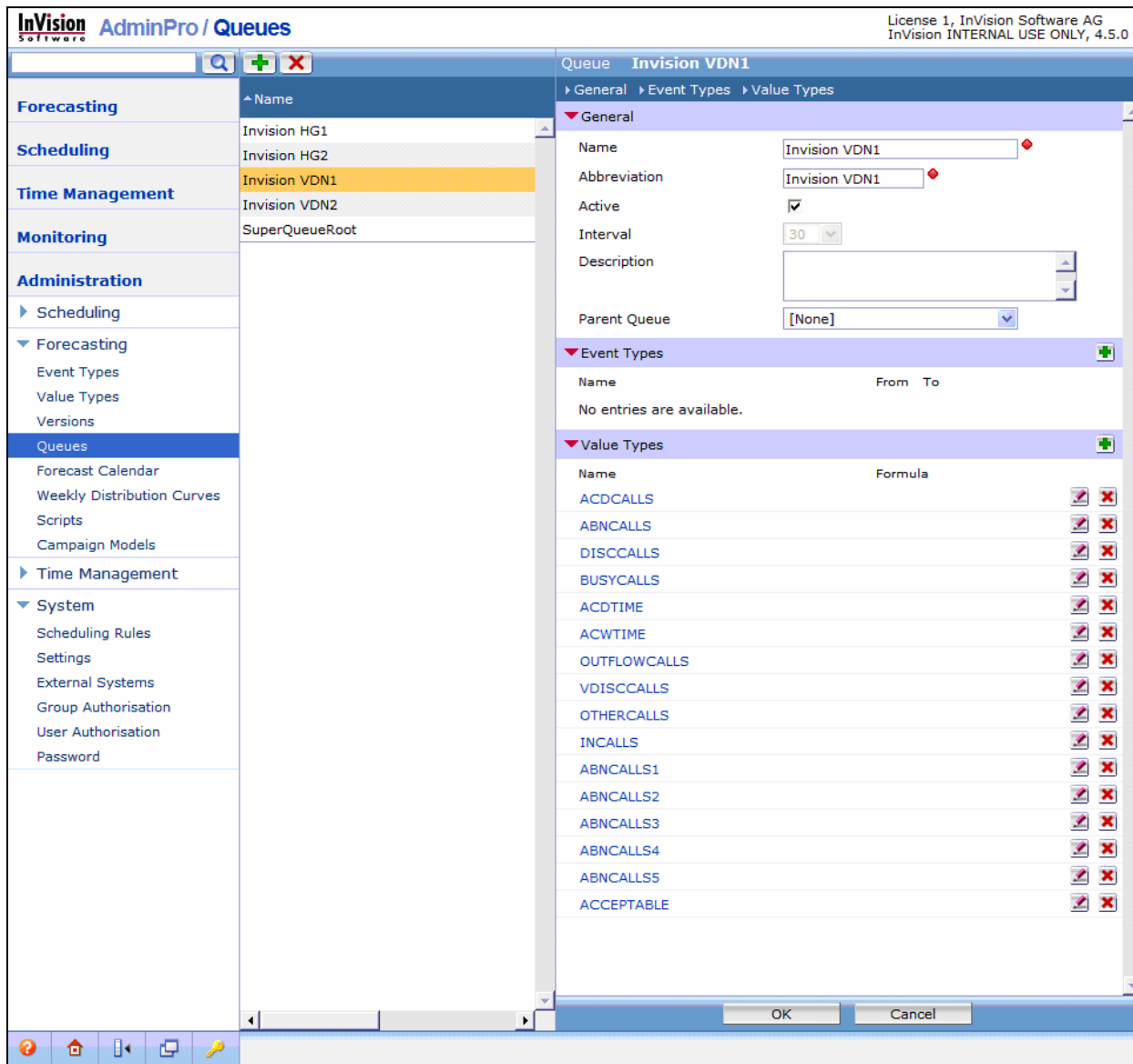
5.3.2.4 Associate iWFM Value Types to Avaya CMS Data Items

Start the **XLink** application to associate the value types configured in iWFM in **section 5.3.2.2** to the data items available from Avaya CMS via the ODBC interface. The Isps_Ul.ini file configured in **section 5.2** is used by **XLink**. To start **XLink**, run the `Isps_Uls.exe` application located in the `C:\Program Files\InVision Enterprise WFM\Client` directory. The window shown below is displayed.
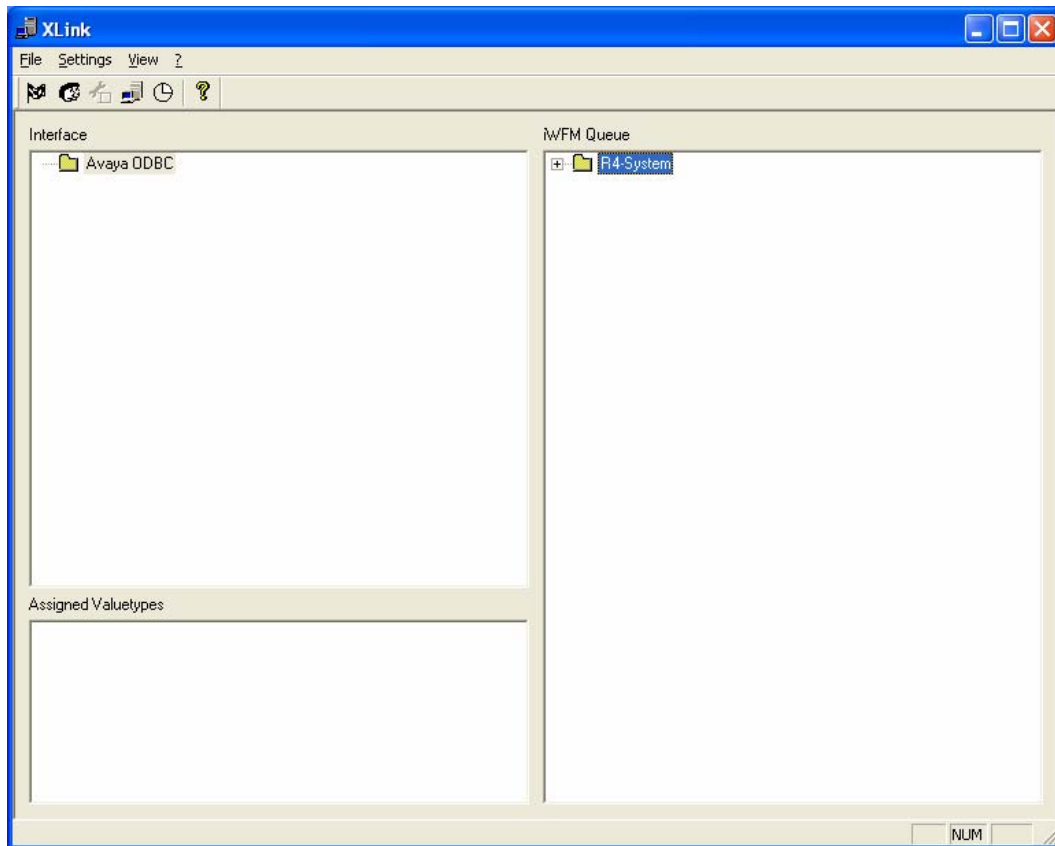
From the **Settings** menu option, select **ODBC-Settings** to configure the ODBC source and login credentials as shown below.
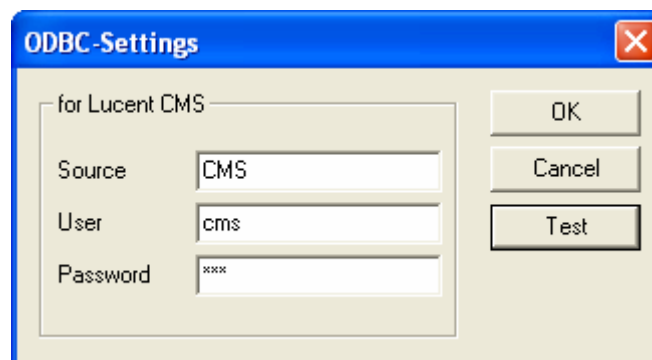
XLink displays the Avaya CMS data items available on the left and the iWFM value type on the right. These sub-items are displayed by expanding the options on each side of the screen. To associate an iWFM value type to a CMS data item, select the value type (e.g., ACDCALLS) and then double-click on the corresponding data item in the Avaya ODBC side (e.g., ACDCALLS). The association can be seen in the **Assigned Valuetypes** section of the window. Repeat these steps for all value types under all splits/skills and VDNs to be monitored by iWFM.

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InVision-ODBC
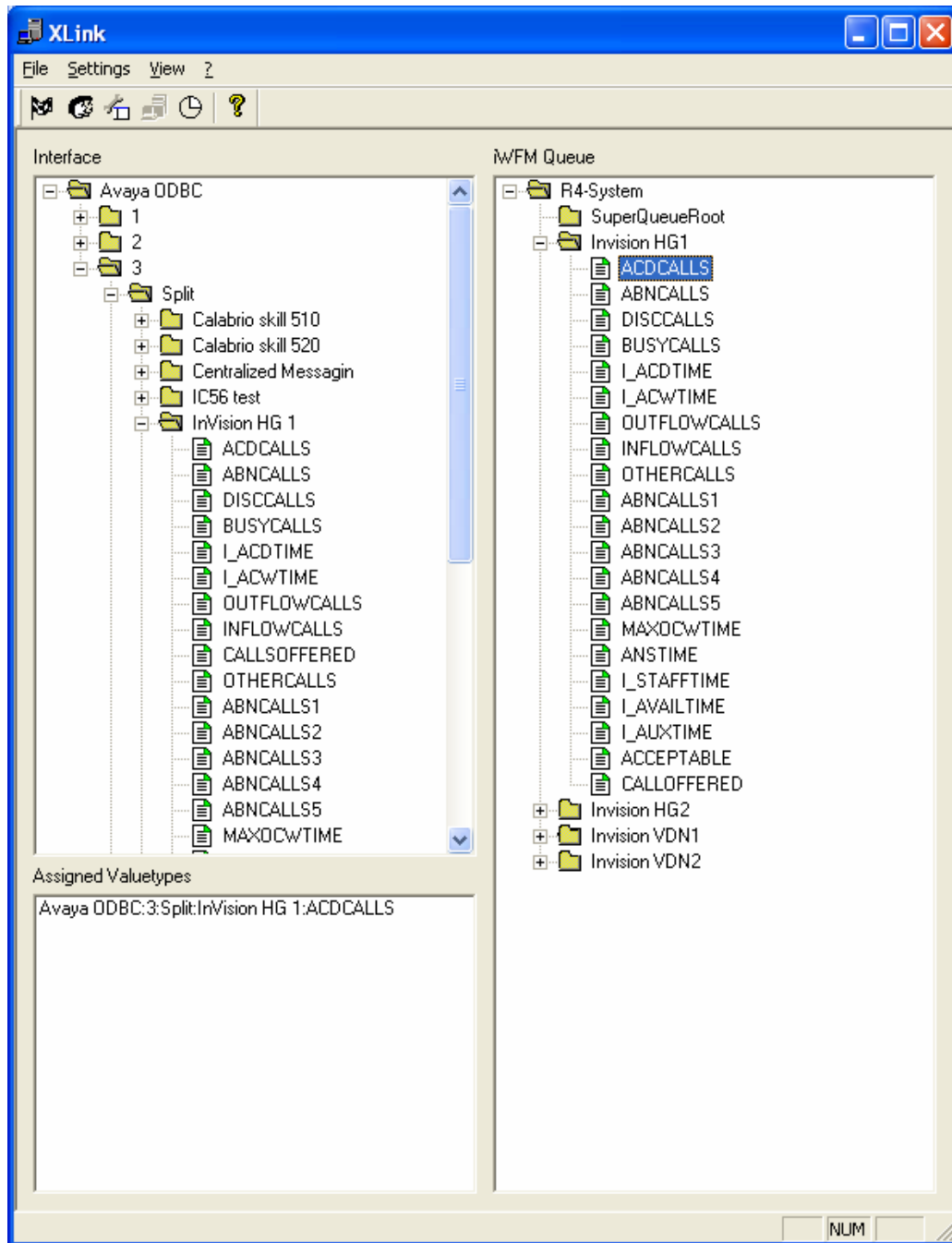
The next step is to generate the script for each association. To access this window, double-click the valuetype on the iWFM queue display. Click the **Generate** button to generate the script automatically which is displayed in the **Macro** sub-window shown below.
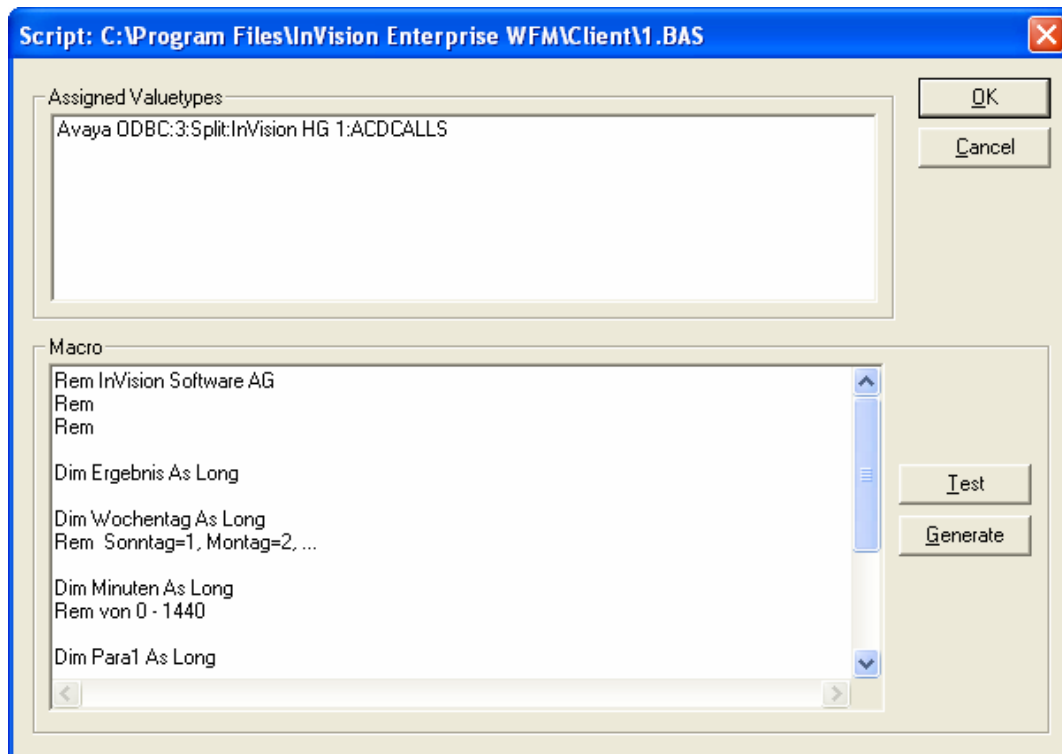
5.3.3. Configure Master Data for Agent Login/Logout Report

This section covers the administration of master data for the Agent Login/Logout report.

5.3.3.1 Administer the Planning Unit

Create a planning unit to group employees and other master data. To define a planning unit, navigate to **Administration**➔**Scheduling**➔**Planning Units** in the AdminPro module. Provide a descriptive name and abbreviation for the planning unit and set the **Interval** field to the appropriate value. Click **OK** to submit the form.

5.3.3.2 Administer Contract

Create a **Contract** for all of the employees who will be scheduled in iWFM. Contracts contain data about working hours, company regulations, and scheduling rules parameters that are important for scheduling each individual employee. To add a contract, navigate to **Administration→Scheduling→Contracts** in AdminPro. Provide a descriptive name and abbreviation for the contract and configure the other mandatory fields, indicated by a red bullet. Click **OK** to submit the form.

5.3.3.3 Administer Employees

Add an employee corresponding to each agent in the call center. To add an employee, navigate to **Administration➔Scheduling➔Employees** in AdminPro. Provide a **Personnel Number** and a **Last Name**. The **First Name** is optional. Click **OK** to submit the form.

Scroll down to the **Contracts** section and map the contract configured in **section 5.3.3.2** to the employee by clicking on the "+" icon in that section. Next, map the **Planning Unit** configured in **section 5.3.3.1** to the employee.

Finally, scroll down to the **External Systems** section and map the external system configured in **section 5.3.1** to the employee as shown in the figure below.

Repeat these steps for each agent in the call center.

5.3.3.4 Administer Activities

Define **Activities** corresponding to splits/skills and VDNs. To add activities, navigate to **Administration➔Scheduling➔Activities** in AdminPro. Click on the "+" icon to add an activity. The following screen shows the configuration of a split/skill as an example. Provide a descriptive name and abbreviation for the activity and set the activity type to the appropriate value. For the split/skill, the **Type** field is set to **Presence**. Click **OK** to submit the form.

In the **External Systems** section, map the external system configured in **section 5.3.1** to this activity. The iWFM ODBC interface creates system activities to which iWFM activities can be mapped based on the supplied configuration. Repeat these steps for each split/skill.
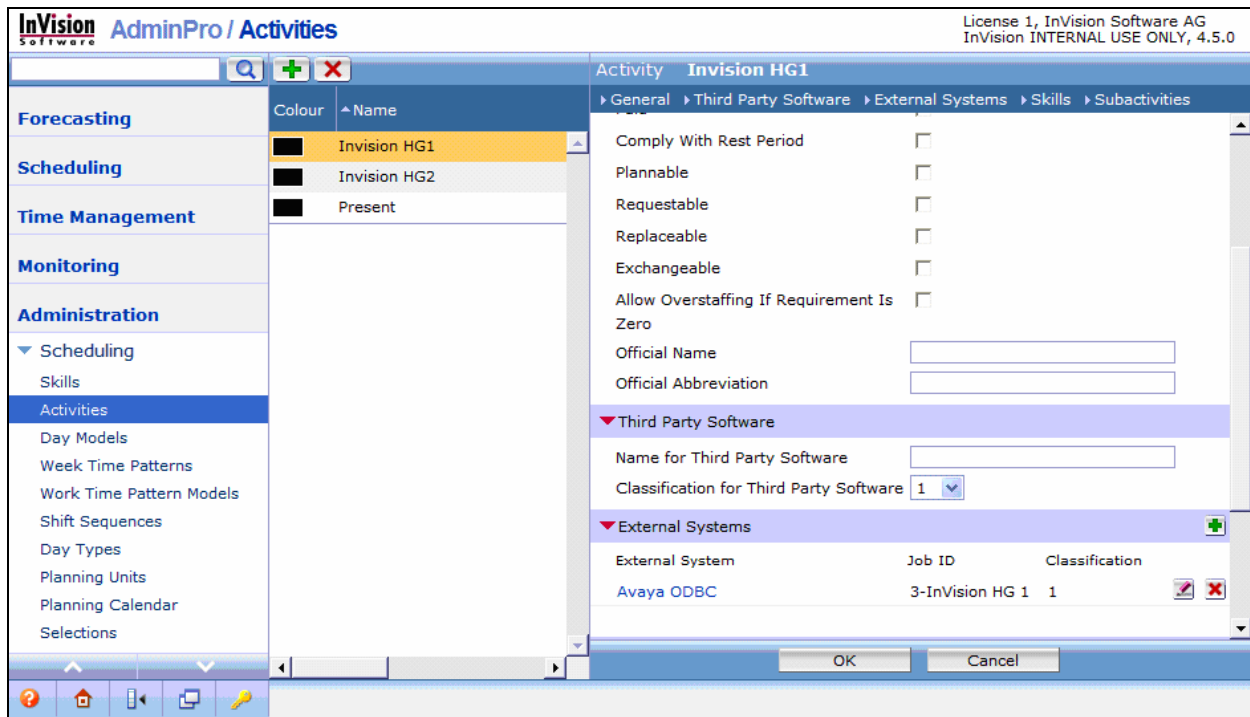
5.3.3.5 Map Activities to Planning Unit

Edit the **Planning Unit** configured in **section 5.3.3.1**. Map the Activities configured in **section 5.3.3.4** to this planning unit.

5.3.4. Configure Master Data for Agent Workmode/AUX Reason Codes Report

This section covers the administration of master data for the Agent Workmode/AUX Reason Codes report. This report requires all of the master data configured in **section 5.3.3** and additional **Activities** for workmodes and AUX reason codes.

5.3.4.1 Administer Activities

Define **Activities** corresponding to workmodes and AUX reason codes. To add activities, navigate to **Administration**→**Scheduling**→**Activities** in AdminPro. Click on the "+" icon to add an activity. The following screen shows the configuration of the *ACD* workmode as an example. Provide a descriptive name and abbreviation for the activity and set the activity type to the appropriate value. For the ACD workmode, the **Type** field is set to **Presence**. Click **OK** to submit the form. In the **External Systems** section, map the external system configured in **section 5.3.1** to this activity. Repeat these steps for each workmode. The figure below displays the workmodes and AUX reason codes configured for this test configuration.

JAO; Reviewed:
SPOC 10/29/2008

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AUX reason codes are also configured as activities. The following screen shows the configuration of the *Training* AUX reason code as an example. Some AUX reason codes, such as Break and Lunch are configured with a **Type** of *Break*.

5.3.4.2 Map Activities to Planning Unit

Edit the **Planning Unit** configured in **section 5.3.3.1**. Map the Activities configured in **section 5.3.4.1** to this planning unit.

6. Interoperability Compliance Testing

The interoperability compliance test included feature testing focused on verifying the ability of InVision Enterprise WFM to import ACD call center data from Avaya CMS using the ODBC interface and displaying splits/skills, VDN, and agent data on iWFM Shift Center and OnlineCockpit.

6.1. General Test Approach

The feature test cases were performed manually. Incoming calls were made to the monitored splits/skills and VDNs to generate call center statistics to be imported into iWFM. In addition, agent activity was generated for the historical agent reports. The verification of all tests included checking the proper display of historical splits/skills, VDN, and agent data in iWFM, including data accuracy.

6.2. Test Results

All test cases were executed and passed.

7. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Avaya Communication Manager, Avaya Call Management System, and InVision Enterprise WFM.

7.1. Verify Avaya Communication Manager

Verify the status of the processor interface channel by using the "status processor-channels n" command, where "n" is the processor channel number from **Section 3.6**. Verify that the **Session Layer Status** is "In Service", and that the **Socket Status** is "TCP connected", as shown below.

```
status processor-channels 1
                       PROCESSOR-CHANNEL STATUS

          Channel Number: 1
    Session Layer Status: In Service
           Socket Status: TCP connected
             Link Number: 2
               Link Type: ethernet
   Message Buffer Number: 0

            Last Failure: Far end sent disconnect message
                      At: 03/31/08 15:04
```

Verify the status of the TCP/IP link number by using the "status link n" command, where "n" is the TCP/IP link number assigned to the C-LAN used to connect to the Avaya CMS server from **Section 3.5**. Verify that the **Link Status** is "connected", and that the **Service State** is "in-service/active", as shown below.

```
status link 2                                                Page   1 of   5
                            LINK/PORT STATUS

                 Link Number: 2
                 Link Status: connected
                   Link Type: ethernet
                   Link Name: Clan2
        Service Port Location: 02A0217
 Service Port Data Extension: 24981
               Service State: in-service/active
                   Node Name: clan2
           Source IP Address: 192.45.100.70
                 Subnet Mask: 255.255.255.0
           Broadcast Address: 192.45.100.255
            Physical Address: 00:04:0d:4b:28:08
                    Enabled? yes
           Maintenance Busy? no
             Active Channels: 1
```

7.2. Verify Avaya Call Management System

From the **MainMenu**, verify the status of the connection to Avaya Communication Manager by selecting **Maintenance → Connection Status**, as shown below.
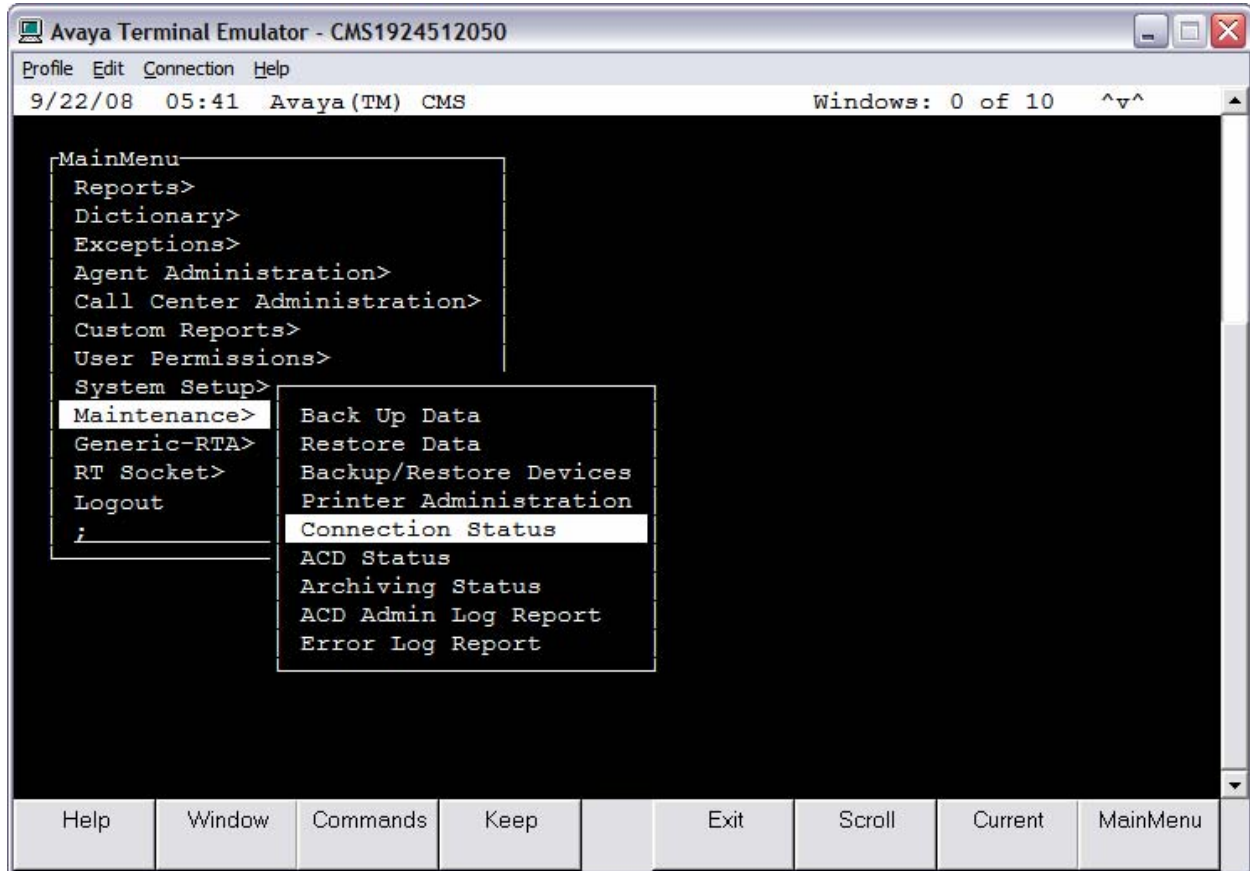
Enter the corresponding **ACD(s)** number. For the compliance testing, the corresponding switch connection is ACD system "3". Tab over to **Find one** and press **Enter**.
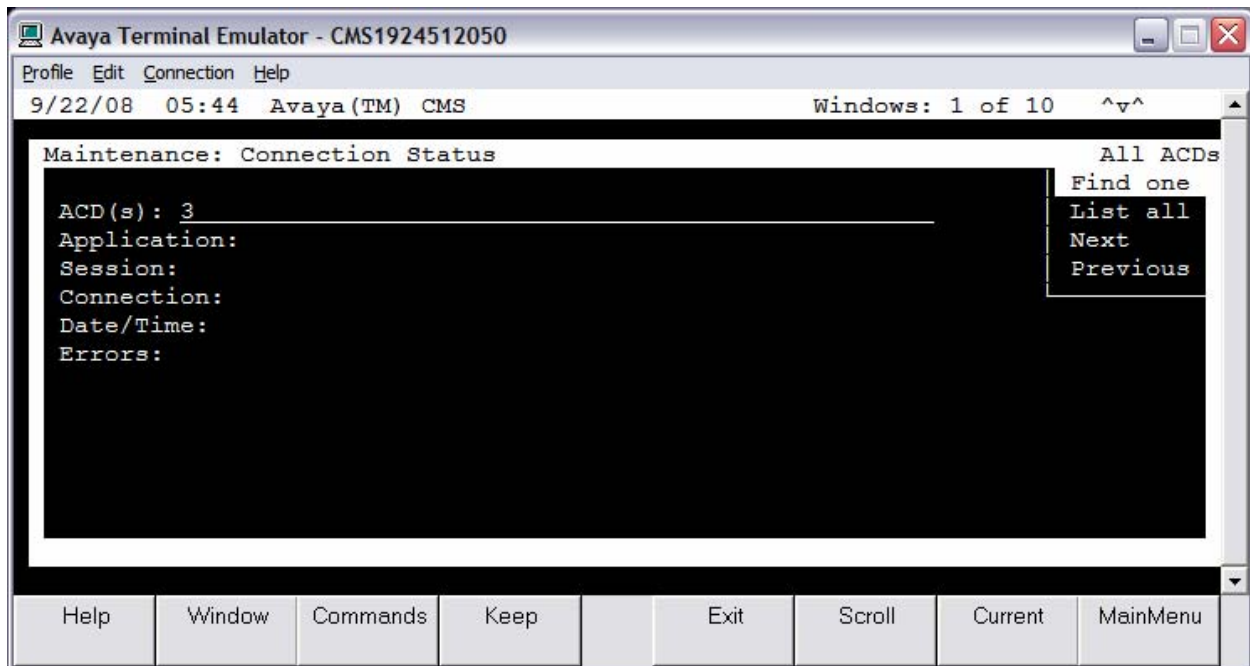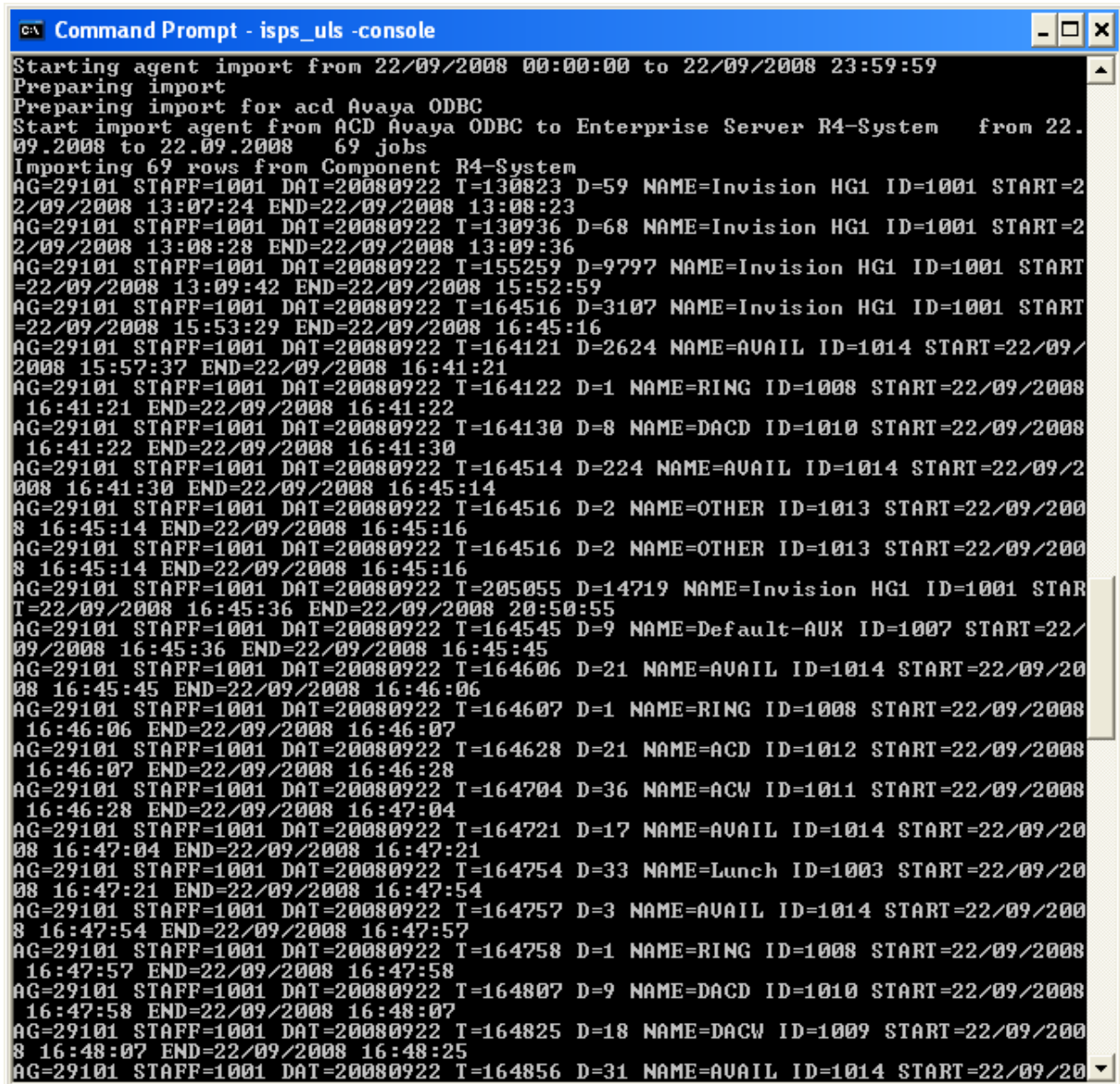

The switch connection status is displayed. Check the status in the **Session** and **Connection** fields, as shown below.
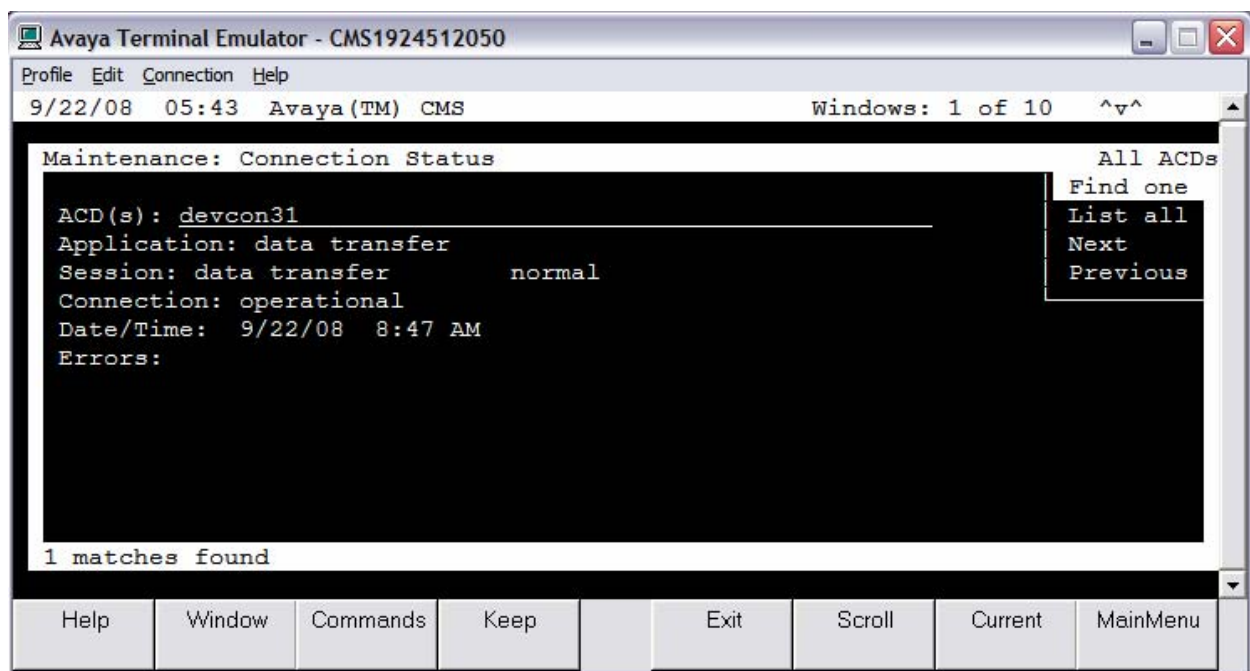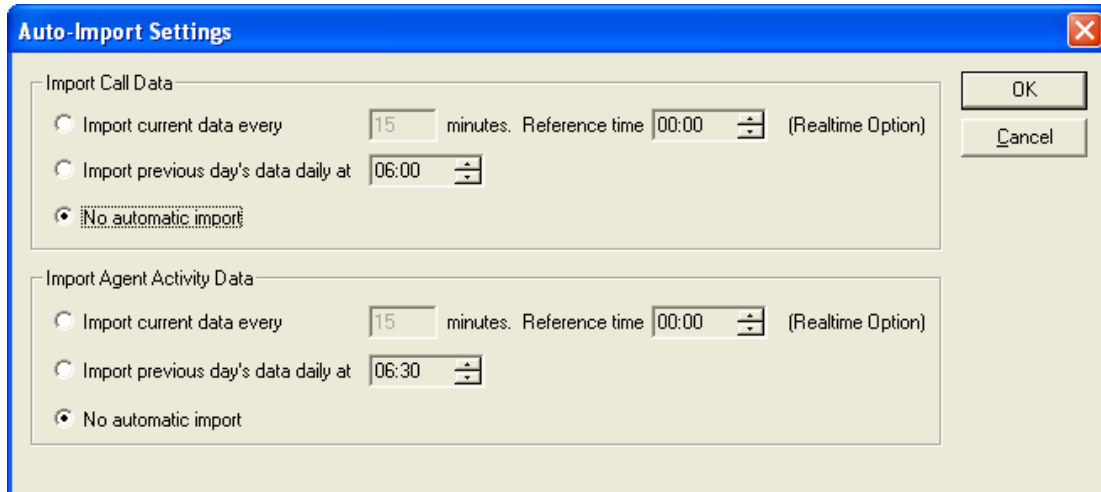
7.3. Verify InVision Enterprise WFM

To run the Avaya CMS ODBC interface on InVision Enterprise WFM, navigate to the
`C:\Program Files\InVision Enterprise WFM\Server` directory using Windows
Explorer and double-click on the *Isps_Uls.exe* application. The window shown below is
displayed and updates in real-time as data is being imported via the ODBC interface. Note that
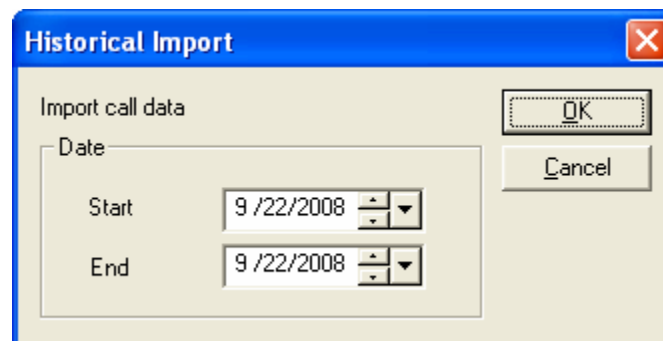data can be imported on an on-demand basis or automatically at pre-defined intervals.

```
Command Prompt - isps_uls -console                                        _ □ ×
Starting agent import from 22/09/2008 00:00:00 to 22/09/2008 23:59:59
Preparing import
Preparing import for acd Avaya ODBC
Start import agent from ACD Avaya ODBC to Enterprise Server R4-System   from 22.
09.2008 to 22.09.2008   69 jobs
Importing 69 rows from Component R4-System
AG=29101 STAFF=1001 DAT=20080922 T=130823 D=59 NAME=Invision HG1 ID=1001 START=2
2/09/2008 13:07:24 END=22/09/2008 13:08:23
AG=29101 STAFF=1001 DAT=20080922 T=130936 D=68 NAME=Invision HG1 ID=1001 START=2
2/09/2008 13:08:28 END=22/09/2008 13:09:36
AG=29101 STAFF=1001 DAT=20080922 T=155259 D=9797 NAME=Invision HG1 ID=1001 START
=22/09/2008 13:09:42 END=22/09/2008 15:52:59
AG=29101 STAFF=1001 DAT=20080922 T=164516 D=3107 NAME=Invision HG1 ID=1001 START
=22/09/2008 15:53:29 END=22/09/2008 16:45:16
AG=29101 STAFF=1001 DAT=20080922 T=164121 D=2624 NAME=AVAIL ID=1014 START=22/09/
2008 15:57:37 END=22/09/2008 16:41:21
AG=29101 STAFF=1001 DAT=20080922 T=164122 D=1 NAME=RING ID=1008 START=22/09/2008
 16:41:21 END=22/09/2008 16:41:22
AG=29101 STAFF=1001 DAT=20080922 T=164130 D=8 NAME=DACD ID=1010 START=22/09/2008
 16:41:22 END=22/09/2008 16:41:30
AG=29101 STAFF=1001 DAT=20080922 T=164514 D=224 NAME=AVAIL ID=1014 START=22/09/2
008 16:41:30 END=22/09/2008 16:45:14
AG=29101 STAFF=1001 DAT=20080922 T=164516 D=2 NAME=OTHER ID=1013 START=22/09/200
8 16:45:14 END=22/09/2008 16:45:16
AG=29101 STAFF=1001 DAT=20080922 T=164516 D=2 NAME=OTHER ID=1013 START=22/09/200
8 16:45:14 END=22/09/2008 16:45:16
AG=29101 STAFF=1001 DAT=20080922 T=205055 D=14719 NAME=Invision HG1 ID=1001 STAR
T=22/09/2008 16:45:36 END=22/09/2008 20:50:55
AG=29101 STAFF=1001 DAT=20080922 T=164545 D=9 NAME=Default-AUX ID=1007 START=22/
09/2008 16:45:36 END=22/09/2008 16:45:45
AG=29101 STAFF=1001 DAT=20080922 T=164606 D=21 NAME=AVAIL ID=1014 START=22/09/20
08 16:45:45 END=22/09/2008 16:46:06
AG=29101 STAFF=1001 DAT=20080922 T=164607 D=1 NAME=RING ID=1008 START=22/09/2008
 16:46:06 END=22/09/2008 16:46:07
AG=29101 STAFF=1001 DAT=20080922 T=164628 D=21 NAME=ACD ID=1012 START=22/09/2008
 16:46:07 END=22/09/2008 16:46:28
AG=29101 STAFF=1001 DAT=20080922 T=164704 D=36 NAME=ACW ID=1011 START=22/09/2008
 16:46:28 END=22/09/2008 16:47:04
AG=29101 STAFF=1001 DAT=20080922 T=164721 D=17 NAME=AVAIL ID=1014 START=22/09/20
08 16:47:04 END=22/09/2008 16:47:21
AG=29101 STAFF=1001 DAT=20080922 T=164754 D=33 NAME=Lunch ID=1003 START=22/09/20
08 16:47:21 END=22/09/2008 16:47:54
AG=29101 STAFF=1001 DAT=20080922 T=164757 D=3 NAME=AVAIL ID=1014 START=22/09/200
8 16:47:54 END=22/09/2008 16:47:57
AG=29101 STAFF=1001 DAT=20080922 T=164758 D=1 NAME=RING ID=1008 START=22/09/2008
 16:47:57 END=22/09/2008 16:47:58
AG=29101 STAFF=1001 DAT=20080922 T=164807 D=9 NAME=DACD ID=1010 START=22/09/2008
 16:47:58 END=22/09/2008 16:48:07
AG=29101 STAFF=1001 DAT=20080922 T=164825 D=18 NAME=DACW ID=1009 START=22/09/200
8 16:48:07 END=22/09/2008 16:48:25
AG=29101 STAFF=1001 DAT=20080922 T=164856 D=31 NAME=AVAIL ID=1014 START=22/09/20
```

All of the historical reports can be imported on-demand or automatically at pre-defined intervals. The import settings are configured by selecting **Settings→Auto-Import Settings** from the **XLink** window shown in **section 5.3.2.4**. The figure below shows the configuration for a manual import.

If iWFM is configured for manual data imports, then an import can be triggered by selecting **File→Start Import** from the **XLink** window. The following Import call data window is displayed. Specify the **Start** and **End** date for the report and then click **OK**.
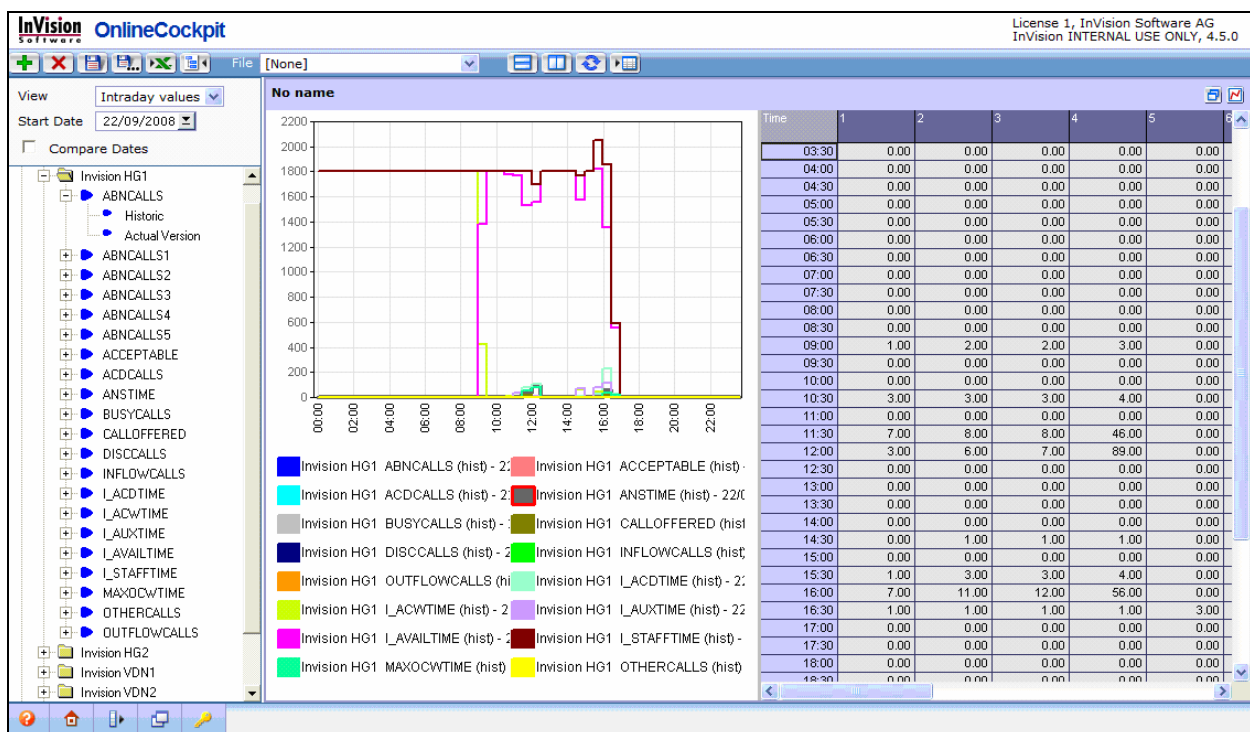
In addition, a data log file is created in the `C:\Program Files\InVision Entperise WFM\Auxillary\Logs` directory that contains the raw data imported by iWFM from Avaya CMS. The following log contains the data imported for the splits/skills report.

```
09/22/08 22:07:56 >   SELECT ROW_DATE, STARTTIME,
INTRVL,ACDCALLS,ABNCALLS,DISCCALLS,BUSYCALLS,I_ACDTIME,I_ACWTIME,OUTFLOWCALLS,INFLOWCA
LLS,CALLSOFFERED,OTHERCALLS,ABNCALLS1,ABNCALLS2,ABNCALLS3,ABNCALLS4,ABNCALLS5,MAXOCWTI
ME,ANSTIME,I_STAFFTIME,I_AVAILTIME,I_AUXTIME,ACCEPTABLE FROM hsplit WHERE ( ROW_DATE
BETWEEN {d '2008-09-22'} AND {d '2008-09-22'} ) AND SPLIT = 280 AND ACD = 3
09/22/08 22:07:57 >    0;30;0;0;0;0;0;1800;0;0;0;0;0;0;0;0;0;0;0;1800;0;0;0
09/22/08 22:07:57 >    30;30;0;0;0;0;0;1800;0;0;0;0;0;0;0;0;0;0;0;1800;0;0;0
09/22/08 22:07:57 >    100;30;0;0;0;0;0;1800;0;0;0;0;0;0;0;0;0;0;0;1800;0;0;0
09/22/08 22:07:57 >    130;30;0;0;0;0;0;1800;0;0;0;0;0;0;0;0;0;0;0;1800;0;0;0
09/22/08 22:07:57 >    200;30;0;0;0;0;0;1800;0;0;0;0;0;0;0;0;0;0;0;1800;0;0;0
09/22/08 22:07:57 >    230;30;0;0;0;0;0;1800;0;0;0;0;0;0;0;0;0;0;0;1800;0;0;0
09/22/08 22:07:57 >    300;30;0;0;0;0;0;1800;0;0;0;0;0;0;0;0;0;0;0;1800;0;0;0
09/22/08 22:07:57 >    330;30;0;0;0;0;0;1800;0;0;0;0;0;0;0;0;0;0;0;1800;0;0;0
09/22/08 22:07:57 >    400;30;0;0;0;0;0;1800;0;0;0;0;0;0;0;0;0;0;0;1800;0;0;0
09/22/08 22:07:57 >    430;30;0;0;0;0;0;1800;0;0;0;0;0;0;0;0;0;0;0;1800;0;0;0
09/22/08 22:07:57 >    500;30;0;0;0;0;0;1800;0;0;0;0;0;0;0;0;0;0;0;1800;0;0;0
09/22/08 22:07:57 >    530;30;0;0;0;0;0;1800;0;0;0;0;0;0;0;0;0;0;0;1800;0;0;0
09/22/08 22:07:57 >    600;30;0;0;0;0;0;1800;0;0;0;0;0;0;0;0;0;0;0;1800;0;0;0
09/22/08 22:07:57 >    630;30;0;0;0;0;0;1800;0;0;0;0;0;0;0;0;0;0;0;1800;0;0;0
09/22/08 22:07:57 >    700;30;0;0;0;0;0;1800;0;0;0;0;0;0;0;0;0;0;0;1800;0;0;0
09/22/08 22:07:57 >    730;30;0;0;0;0;0;1800;0;0;0;0;0;0;0;0;0;0;0;1800;0;0;0
09/22/08 22:07:57 >    800;30;0;0;0;0;0;1800;0;0;0;0;0;0;0;0;0;0;0;1800;0;0;0
09/22/08 22:07:57 >    830;30;0;0;0;0;0;1800;0;0;0;0;0;0;0;0;0;0;0;1800;0;0;0
09/22/08 22:07:57 >    900;30;2;1;0;0;1;420;0;0;3;0;1;0;0;0;0;2;3;1800;1378;0;2
09/22/08 22:07:57 >    930;30;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;1800;1800;0;0
09/22/08 22:07:57 >    1000;30;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;1800;1800;0;0
09/22/08 22:07:57 >    1030;30;3;3;0;0;4;8;0;0;6;0;3;0;0;0;0;2;4;1800;1781;0;3
09/22/08 22:07:57 >    1100;30;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;1800;1769;31;0
09/22/08 22:07:57 >    1130;30;8;7;0;0;80;0;0;0;15;0;2;1;1;1;1;55;46;1800;1533;0;8
09/22/08 22:07:57 >    1200;30;7;3;0;0;104;0;0;0;10;0;3;0;0;0;0;77;89;1698;1558;10;6
09/22/08 22:07:57 >    1230;30;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;1800;1800;0;0
09/22/08 22:07:57 >    1300;30;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;1800;1800;0;0
09/22/08 22:07:57 >    1330;30;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;1800;1800;0;0
09/22/08 22:07:57 >    1400;30;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;1800;1800;0;0
09/22/08 22:07:57 >    1430;30;1;0;0;0;8;64;0;0;1;0;0;0;0;0;0;1;1;1770;1574;71;1
09/22/08 22:07:57 >    1500;30;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;0;1800;1800;0;0
09/22/08 22:07:57 >    1530;30;3;1;0;0;29;46;0;0;4;0;1;0;0;0;0;2;4;2053;1824;76;3
09/22/08 22:07:57 >
1600;30;12;7;0;0;226;37;1;0;20;1;4;1;1;1;0;37;56;1861;1352;117;11
09/22/08 22:07:57 >    1630;30;1;1;0;3;28;0;0;0;5;3;0;1;0;0;0;18;1;586;555;2;1
09/22/08 22:07:57 >   END AFTER 34 ROWS.
```
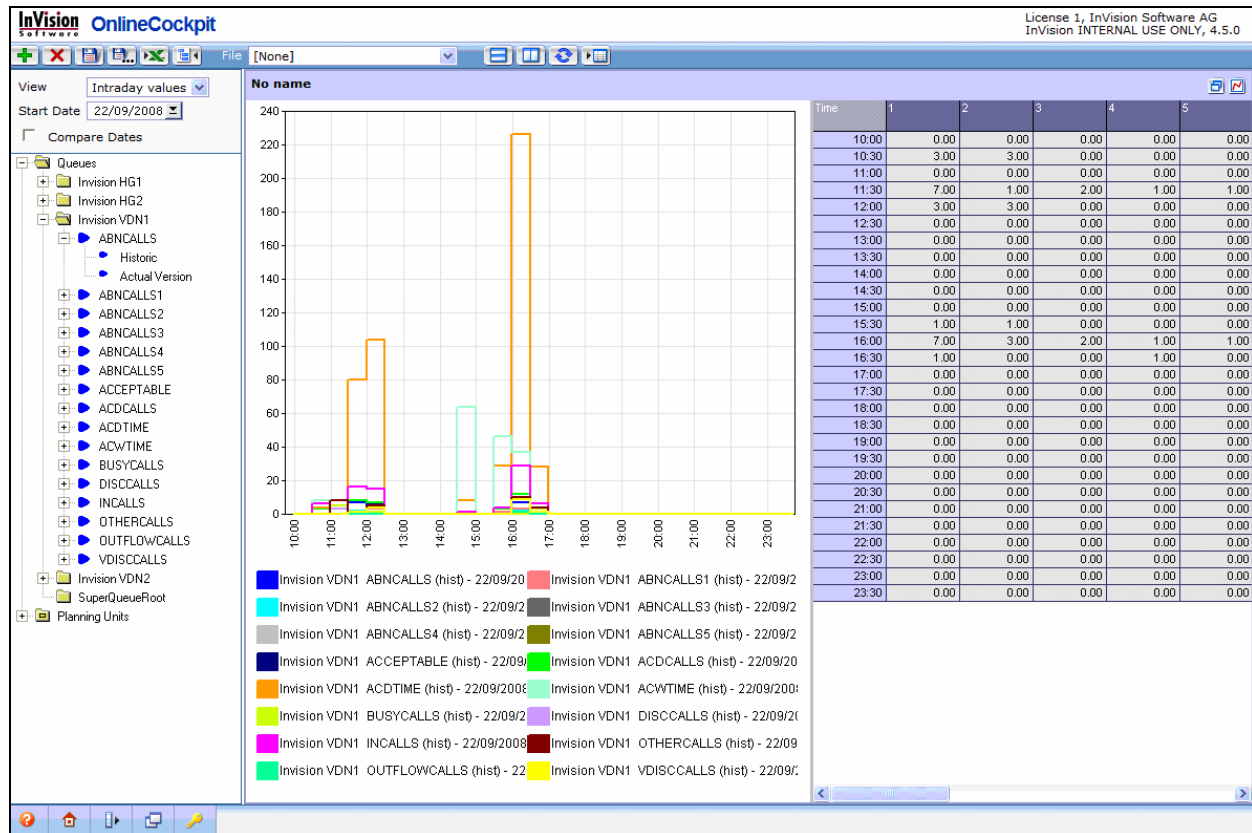
The log file below shows the data imported for the VDN report.

```
09/22/08 22:07:50 >  SELECT ROW_DATE, STARTTIME,
INTRVL,ACDCALLS,ABNCALLS,DISCCALLS,BUSYCALLS,ACDTIME,ACWTIME,OUTFLOWCALLS,VDISCCALLS,O
THERCALLS,INCALLS,ABNCALLS1,ABNCALLS2,ABNCALLS3,ABNCALLS4,ABNCALLS5,ACCEPTABLE FROM
hvdn WHERE ( ROW_DATE BETWEEN {d '2008-09-22'} AND {d '2008-09-22'} ) AND VDN='38000'
AND ACD = 3
09/22/08 22:07:50 >   900;30;2;1;0;0;174;28800;0;0;0;3;1;0;0;0;0;2
09/22/08 22:07:50 >   1030;30;3;3;0;0;4;8;0;0;0;6;3;0;0;0;0;3
09/22/08 22:07:50 >   1100;30;0;0;0;5;0;0;0;0;5;5;0;0;0;0;0;0
09/22/08 22:07:50 >   1100;30;0;0;3;0;0;0;0;0;3;3;0;0;0;0;0;0
09/22/08 22:07:50 >   1130;30;8;7;1;0;80;0;0;1;1;16;1;2;1;1;1;8
09/22/08 22:07:50 >   1200;30;5;2;0;0;24;0;0;0;0;7;2;0;0;0;0;5
09/22/08 22:07:50 >   1200;30;0;0;0;1;0;0;0;0;1;1;0;0;0;0;0;0
09/22/08 22:07:50 >   1200;30;2;1;4;0;80;0;0;4;4;7;1;0;0;0;0;1
09/22/08 22:07:50 >   1430;30;1;0;0;0;8;64;0;0;0;1;0;0;0;0;0;1
09/22/08 22:07:50 >   1530;30;3;1;0;0;29;46;0;0;0;4;1;0;0;0;0;3
09/22/08 22:07:50 >   1600;30;1;0;0;0;1;0;1;0;1;2;0;0;0;0;0;1
09/22/08 22:07:50 >   1600;30;0;0;3;0;0;0;0;0;3;3;3;0;0;0;0;0
09/22/08 22:07:50 >   1600;30;11;7;6;0;225;37;0;6;6;24;3;2;1;1;0;11
09/22/08 22:07:50 >   1630;30;1;1;1;3;28;0;0;1;4;6;0;0;1;0;0;1
09/22/08 22:07:51 >  END AFTER 14 ROWS.
```

To view the splits/skills report in the iWFM **OnlineCockpit**, navigate to the **OnlineCockpit** from the iWFM window displayed in **section 5.3**. From the **OnlineCockpit**, drag and drop the data items in the left pane into the right pane. The following window displays an example of a historical report for splits/skills.

The following window displays an example of a historical report for VDNs.

Time	1	2	3	4	5
10:00	0.00	0.00	0.00	0.00	0.00
10:30	3.00	3.00	0.00	0.00	0.00
11:00	0.00	0.00	0.00	0.00	0.00
11:30	7.00	1.00	2.00	1.00	1.00
12:00	3.00	3.00	0.00	0.00	0.00
12:30	0.00	0.00	0.00	0.00	0.00
13:00	0.00	0.00	0.00	0.00	0.00
13:30	0.00	0.00	0.00	0.00	0.00
14:00	0.00	0.00	0.00	0.00	0.00
14:30	0.00	0.00	0.00	0.00	0.00
15:00	0.00	0.00	0.00	0.00	0.00
15:30	1.00	1.00	0.00	0.00	0.00
16:00	7.00	3.00	2.00	1.00	1.00
16:30	1.00	0.00	0.00	1.00	0.00
17:00	0.00	0.00	0.00	0.00	0.00
17:30	0.00	0.00	0.00	0.00	0.00
18:00	0.00	0.00	0.00	0.00	0.00
18:30	0.00	0.00	0.00	0.00	0.00
19:00	0.00	0.00	0.00	0.00	0.00
19:30	0.00	0.00	0.00	0.00	0.00
20:00	0.00	0.00	0.00	0.00	0.00
20:30	0.00	0.00	0.00	0.00	0.00
21:00	0.00	0.00	0.00	0.00	0.00
21:30	0.00	0.00	0.00	0.00	0.00
22:00	0.00	0.00	0.00	0.00	0.00
22:30	0.00	0.00	0.00	0.00	0.00
23:00	0.00	0.00	0.00	0.00	0.00
23:30	0.00	0.00	0.00	0.00	0.00

To view the agent login/logout report in the SchedulePro module of iWFM, navigate to **SchedulePro→Shift Center**. The list of employees (i.e., agents), along with their login and logout times, is displayed.

If the agent workmodes and AUX reason codes are also imported (as indicated by the **IgnoreBreaks** parameter being set to '0'), the agent status report is viewed the same way as the login/logout report.

8. Support

Contact InVision Software for technical support on iWFM via web or phone.

- **Web:** www.invisionwfm.com
- **Phone:** Check http://www.invisionwfm.com/uk/enguk/about_invision/offices for contact information

9. Conclusion

These Application Notes describe the configuration steps required for InVision Enterprise WFM to successfully interoperate with Avaya Communication Manager using the ODBC interface of Avaya Call Management System. All feature and serviceability test cases were completed successfully.

10.   References

This section references the product documentation relevant to these Application Notes.

- *Administrator Guide for Avaya Communication Manager*, Document 03-300509, Issue 3.1, February 2007, available at http://support.avaya.com.

- *Avaya Call Management System Switch Connections, Administration, and Troubleshooting*, Document ID 07-601582, February 2006, available at http://support.avaya.com.

- *AdminPro User Manual for InVision Enterprise WFM,* Release 4.5.0a, Edition November 1, 2007.

- *OnlineCockpit User Manual for InVision Enterprise WFM,* Release 4.5.0a, Edition November 1, 2007.

- *SchedulePro User Manual for InVision Enterprise WFM,* Release 4.5.0a, Edition November 1, 2007.