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Avaya Solution & Interoperability Test Lab

Application Notes for VXI China VisionWFM 3.0 with Avaya Call Management System Release 16 using Open Database Connectivity (ODBC) Interface – Issue 1.0

Abstract

These Application Notes describe the configuration steps required to integrate VXI China VisionWFM 3.0 with Avaya Call Management System Release 16 using the Open Database Connectivity (ODBC) interface to retrieve ACD call center data from Avaya Aura® Communication Manager. VisionWFM is a workforce management solution for the management of business operation such as improving quality and reduce operating costs. The ODBC interface is used to access the historical data on Avaya Call Management System for the purpose of forcasting and scheduling.

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.

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1. Introduction

These Application Notes describe the configuration steps required to integrate VXI China VisionWFM 3.0 with Avaya Call Management System (CMS) Release 16 using the Open Database Connectivity (ODBC) interface to retrieve ACD call center data from Avaya Aura® Communication Manager. VisionWFM is a workforce management solution for the management of business operation such as improving quality and reduce operating costs. The ODBC interface is used to access the historical data on Avaya Call Management System for the purpose of forcasting and scheduling.

2. General Test Approach and Test Results

The feature test cases were performed manually. Calls were made to the measured skills and routed to agents to generate call center statistics for VisionWFM. The accuracy and proper display of the data were verified.

2.1. Interoperability Compliance Testing

The interoperability compliance test focused on verifying the ability of VXI China VisionWFM to retrieve call center data from Avaya CMS using the ODBC interface and displaying split/skill data in VisionWFM reports.

2.2. Test Results

All test cases were executed and passed.

2.3. Support

For technical support on VisionWFM, contact VXI China as shown below.

- **Web:** http://www.vxichina.com/about/contact.asp
- **Toll-free hotline:** +86 800 820 2040 (China only)

3. Reference Configuration

Figure 1 illustrates the test configuration used to verify the solution. VXI China VisionWFM was installed on a Microsoft Windows 2003 Server with Service Pack 2, with the client PC using the Microsoft Internet Explorer 7.0 to access the VisionWFM Server. Calls were placed to the Vector Directory Numbers (VDNs) and were answered by the agent telephones connected to Avaya Aura® Communication Manager. The Avaya Call Management System was used to capture the splits/skills and agent information to generate the historical data used in this testing.
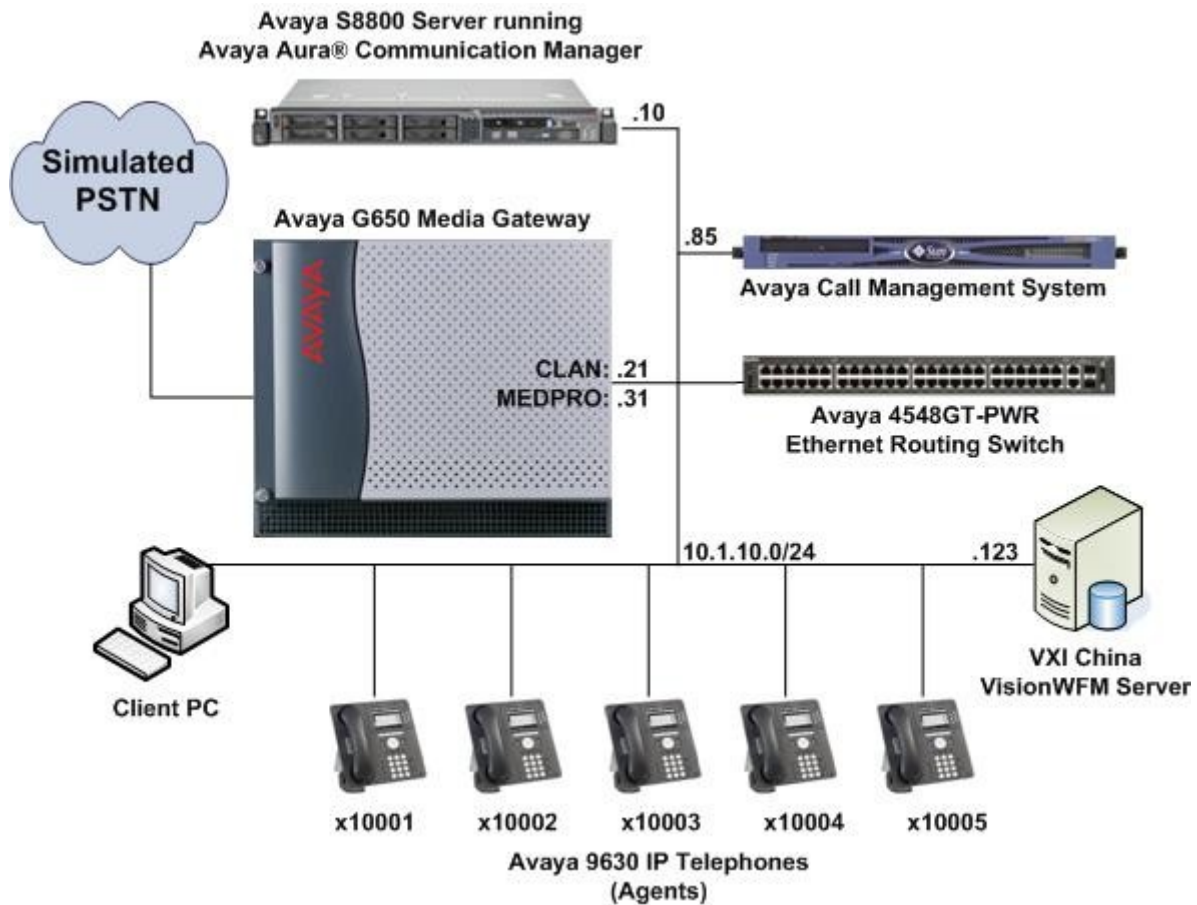

Figure 1: VXI China VisionWFM with Avaya Call Management System

4. Equipment and Software Validated

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

Equipment	Software
Avaya Call Management System	R16 (r16aa.m)
Avaya S8800 Server	Avaya Aura® Communication Manager 6.0 (Service Pack 00.0.345.0-18567)
Avaya G650 Media Gateway • TN2312BP IP Server Interface • TN799DP C-LAN Interface • TN2302AP IP Media Processor	- HW07, FW053 HW01, FW039 HW20, FW121
Avaya 9630 IP Telephones	3.1 Service Pack 1 (H.323)
Avaya 4548GT-PWR Ethernet Routing Switch	V5.4.0.008
Microsoft Windows Server 2003 Standard Edition	Service Pack 2
VXI China VisionWFM	3.0

5. Configure Avaya Aura® Communication Manager

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

- Verify Communication Manager software options
- Administer adjunct CMS release
- Administer IP node name for CMS
- Administer processor interface channel
- Administer measured Skilled Hunt Group

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

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5.1. Verify Communication Manager Software Options

Log into the System Access Terminal (SAT) to verify that the 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 **V16** on Page 1, as shown below.

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

    G3 Version: V16                                  Software Package: Enterprise
      Location: 2                                    System ID (SID): 1
      Platform: 28                                   Module ID (MID): 1

                                                                      USED
                                  Platform Maximum Ports: 65000 280
                                        Maximum Stations: 1000  166
                                Maximum XMOBILE Stations: 41000 0
                    Maximum Off-PBX Telephones - EC500: 1000  0
                    Maximum Off-PBX Telephones -   OPS: 1000  15
                    Maximum Off-PBX Telephones - PBFMC: 1000  0
                    Maximum Off-PBX Telephones - PVFMC: 1000  0
                    Maximum Off-PBX Telephones - SCCAN: 0     0
                        Maximum Survivable Processors: 10    1

          (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 6**.0**, as shown below.

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

                        Call Center Release: 6.0

                              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? y     Service Observing (Remote/By FAC)? y
                   Business Advocate? n           Service Observing (VDNs)? y
                   Call Work Codes? y                         Timed ACW? y
      DTMF Feedback Signals For VRU? y                 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)? y
                  Forced ACD Calls? n    Vectoring (ANI/II-Digits Routing)? y
              Least Occupied Agent? y     Vectoring (G3V4 Advanced Routing)? y
          Lookahead Interflow (LAI)? y                 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)? y
          (NOTE: You must logoff & login to effect the permission changes.)
```

5.2. Administer Adjunct CMS Release

Use the **change system-parameters features** command and navigate to **Page 12**. Set the **CMS (appl mis)** field to the software release of the Avaya CMS. In this case, **R15/R16** is used to correspond to Avaya CMS software release R16.

```
change system-parameters features                            Page  12 of  18
                      FEATURE-RELATED SYSTEM PARAMETERS

 AGENT AND CALL SELECTION
                         MIA Across Splits or Skills? n
                          ACW Agents Considered Idle? y
                          Call Selection Measurement: current-wait-time
    Service Level Supervisor Call Selection Override? n
                               Auto Reserve Agents: none


 CALL MANAGEMENT SYSTEM
                              REPORTING ADJUNCT RELEASE
                                     CMS (appl mis): R15/R16
                                     IQ  (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
```

5.3. Administer IP Node Name for CMS

Use the **change node-names ip** command, to add an entry for Avaya CMS. In this case, **cms1** and **10.1.10.85** are entered as **Name** and **IP Address** for the Avaya CMS server. The actual node names and IP addresses may vary. Submit these changes.

```
change node-names ip                                         Page   1 of   2
                              IP NODE NAMES
    Name              IP Address
Gateway001        10.1.10.1
cms1              10.1.10.85
default           0.0.0.0
msgserver         10.1.10.20
procr             10.1.10.10
```

5.4. 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:** "pv4" for processor ethernet running IP version 4 (IPv4).
- **Interface Chan:** TCP channel number for Avaya CMS. In this case "5001".
- **Destination Node:** Avaya CMS server node name from **Section 5.3**.
- **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. Refer to **Section 6.1** to verify the settings on Avaya CMS.

```
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 ID
  1:    y     mis           s    pv4 5001  cms1              0       1     1
```

5.5. Administer Measured Skilled Hunt Group

Use the **change hunt-group n** command, where **n** is the hunt group number to be measured by Avaya CMS. On Page 2, set the **Measured** field to **external** or **both** to enable real-time measurement data on the skilled hunt group and the associated agents to be sent to Avaya CMS. Repeat this step for all skilled hunt groups that will be measured by Avaya CMS.

```
change hunt-group 1                                            Page   2 of   4
                               HUNT GROUP

                   Skill? y      Expected Call Handling Time (sec): 180
                     AAS? n         Service Level Target (% in sec): 80 in 20
                 Measured: both
     Supervisor Extension:


       Controlling Adjunct: none


        VuStats Objective:
 Timed ACW Interval (sec):
   Multiple Call Handling: none
```
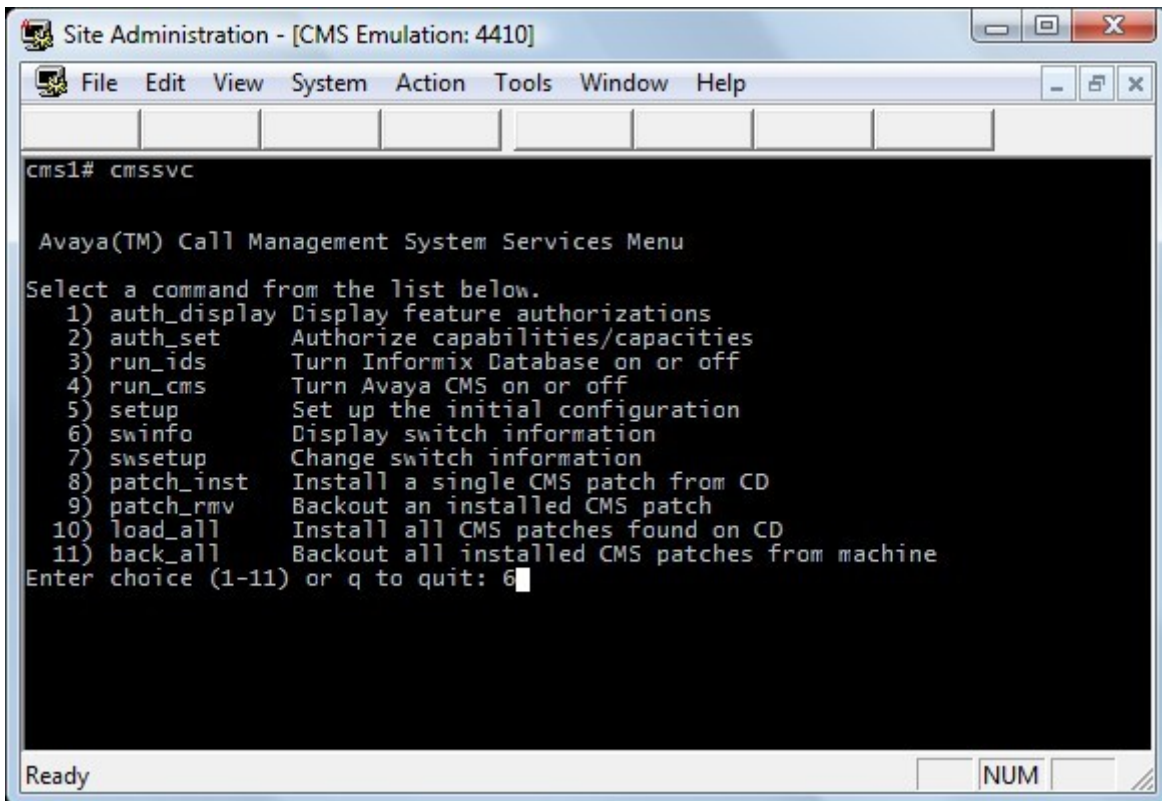
6. Configure Avaya Call Management System

The initial configuration of Avaya Call Management System to interface with Communication Manager is assumed to be in place and thus will not be described in these application notes. Refer to Reference [2] for further information.

6.1. Verify CMS Setup

Use a terminal emulator to connect to the Avaya CMS server, and log in with the proper credentials. Enter "cmssvc" at the command prompt to display the **Avaya Call Management System Services Menu** screen. Select "6" to display the switch information.

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Enter "1" to select the ACD defined. Verify that the **Local port**, **Remote port** and **Link** correspond to the configuration on Communication Manager in **Section 5.4**.
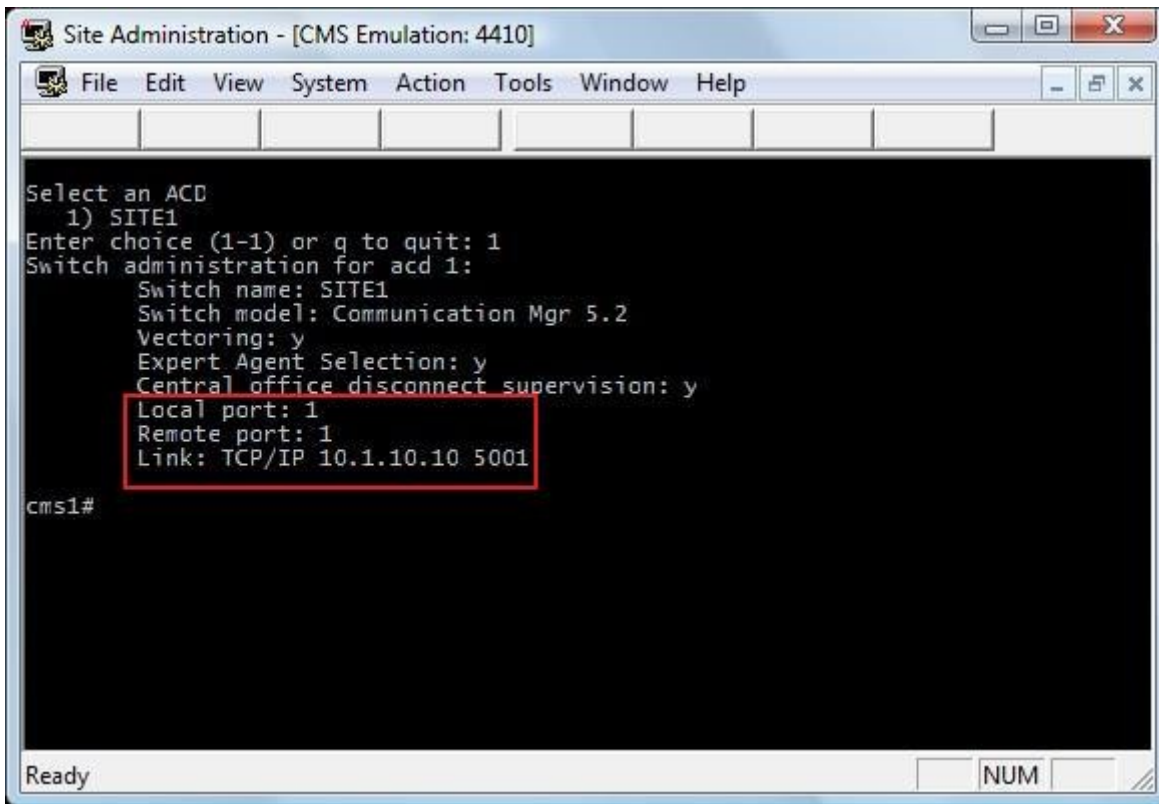
6.2. Configure ODBC Access

The IBM Informix database management system (DBMS) used by CMS supports IBM Informix ODBC and JDBC clients. CMS is now delivered with this ODBC and JDBC network connectivity enabled. No further configuration is required. ODBC and JDBC clients allow for direct access to the IBM Informix database that CMS uses and all of the CMS call center data.

7. Configure VXI China VisionWFM

This section provides the procedures for installing and configuring the IBM Informix ODBC Driver on the VisionWFM server. The procedures include the following areas:

- Install IBM Informix Client-SDK3.50
- Configure IBM Informix ODBC Driver
- Configure Linked Server

7.1. Install IBM Informix Client-SDK 3.50

The IBM Informix ODBC Driver is included with the IBM Informix Client-SDK 3.50 software shipped together with the Avaya CMS. The setup process to install **IBM Informix Client-SDK3.50** is by using the Install Shield Wizard as described in **Section 10** of Reference [3].

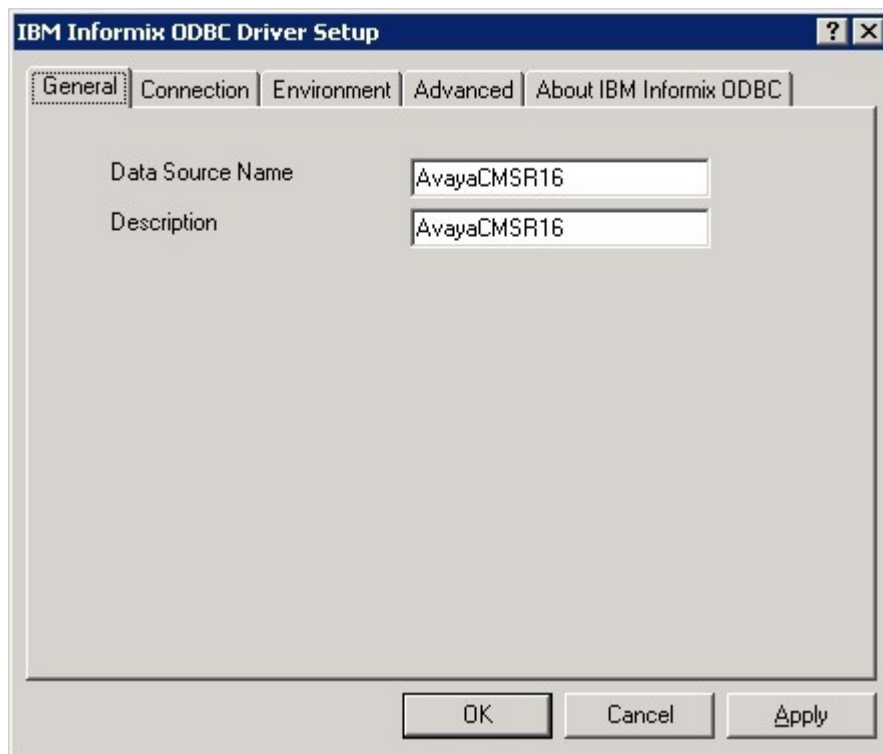## 7.2. Configure IBM Informix ODBC Driver

From **Control Panel > Administrative Tools**, double-click **Data Sources (ODBC)** (not shown).
Select the **System DSN** tab and click **Add**.
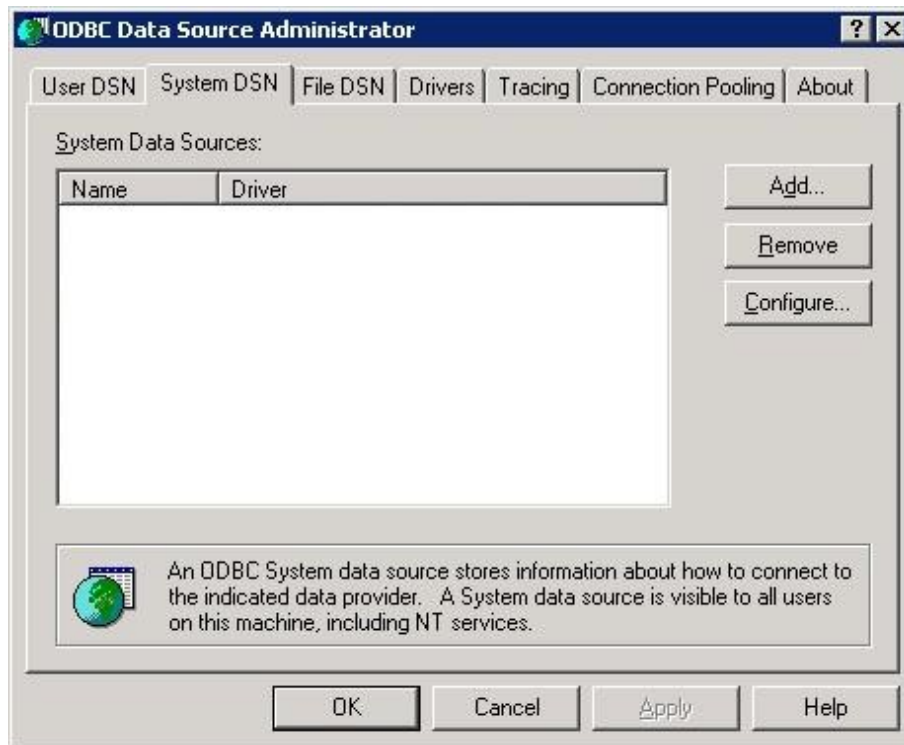
Select **IBM INFOMIX ODBC DRIVER** and click **Finish**.
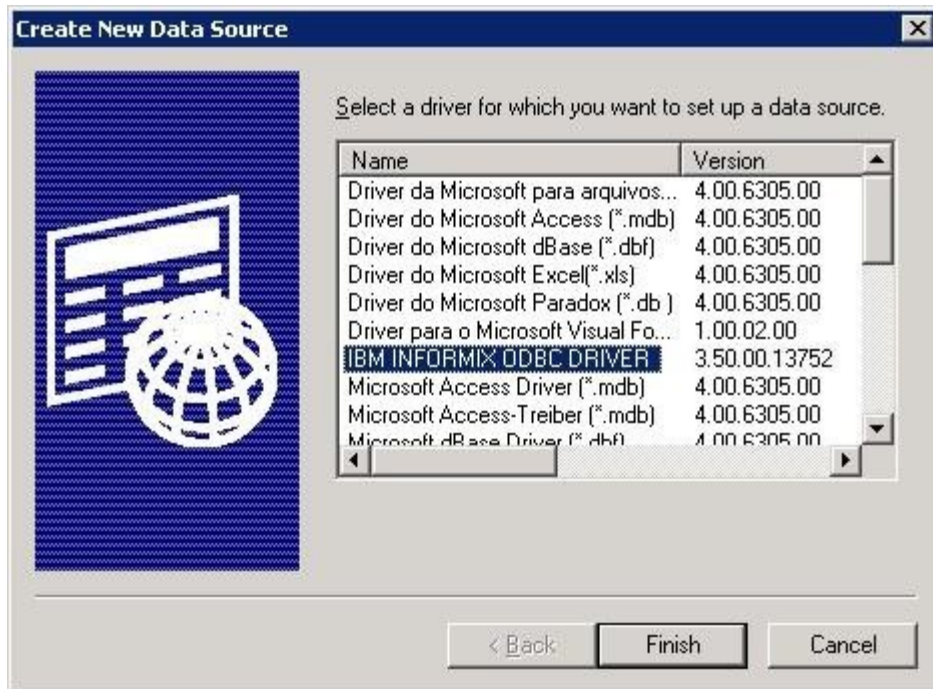
Specify the **Data Source Name** and **Description** as shown below. The Data Source Name will be used to configure the Linked Server in **Section 7.3**.

Select the **Connection** tab and configure the values as follows. Refer to Reference [3] for the detail explanation of each field.

- **Server Name:** "cms_net"
- **Host Name:** IP address of Avaya CMS, in this case is "10.1.10.85".
- **Service:** "50000"
- **Protocol:** "olsoctcp"
- **Database Name:** "cms"
- **User Id:** A valid user on CMS, in this case is "cms".
- **Password:** Password of the User Id used.

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Select the **Environment** tab and configure the values as shown below. Use the default values for all other fields.

- **Client Locale:** "en_US.CP1252"
- **Database Locale:** "en_US.UTF8"
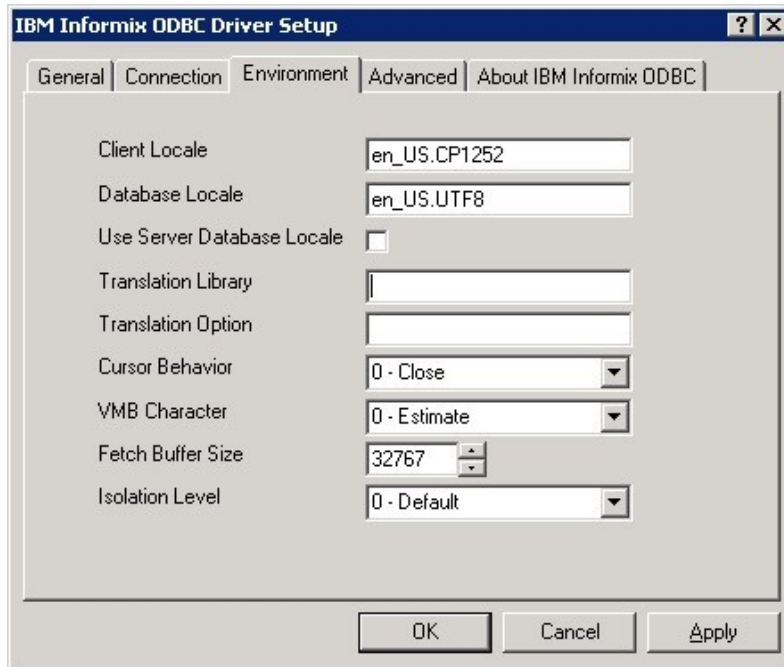
Select the **Advanced** tab and verify the following default values are used. Click **OK**.
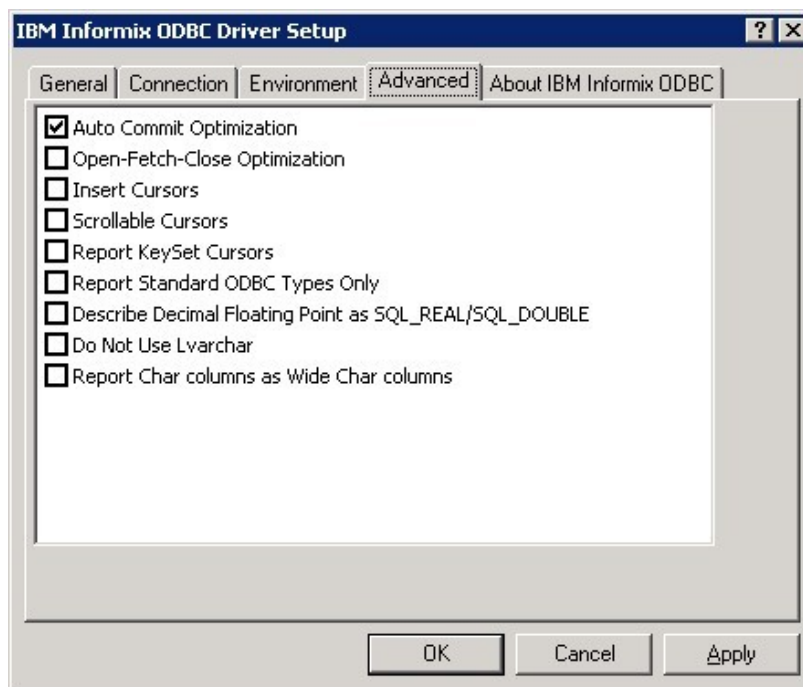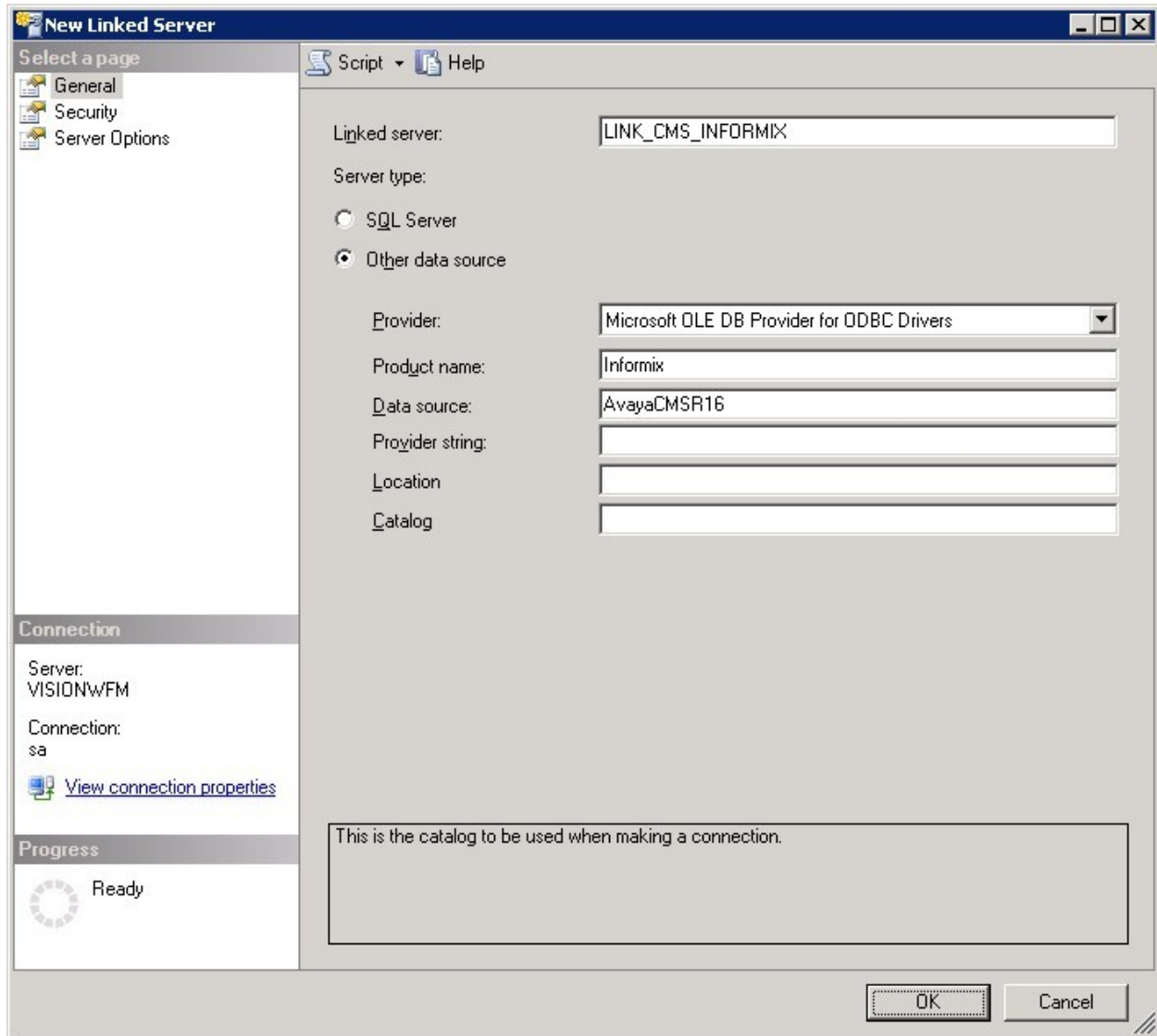
7.3. Configure Linked Server

VisionWFM uses the Microsoft SQL Server 2005 installed on the VisionWFM server for data storage. A Linked Server definition is created in SQL Server 2005 to allow VisionWFM to retrieve the call center data from the IBM Informix database residing on Avaya CMS.

Select **Start > All Programs > Microsoft SQL Server 2005 > SQL Server Management Studio** to launch the program (not shown) and log in using an account with administrative privileges. Expand **Server Objects**, right-click on **Linked Servers** and select **New Linked Server**.
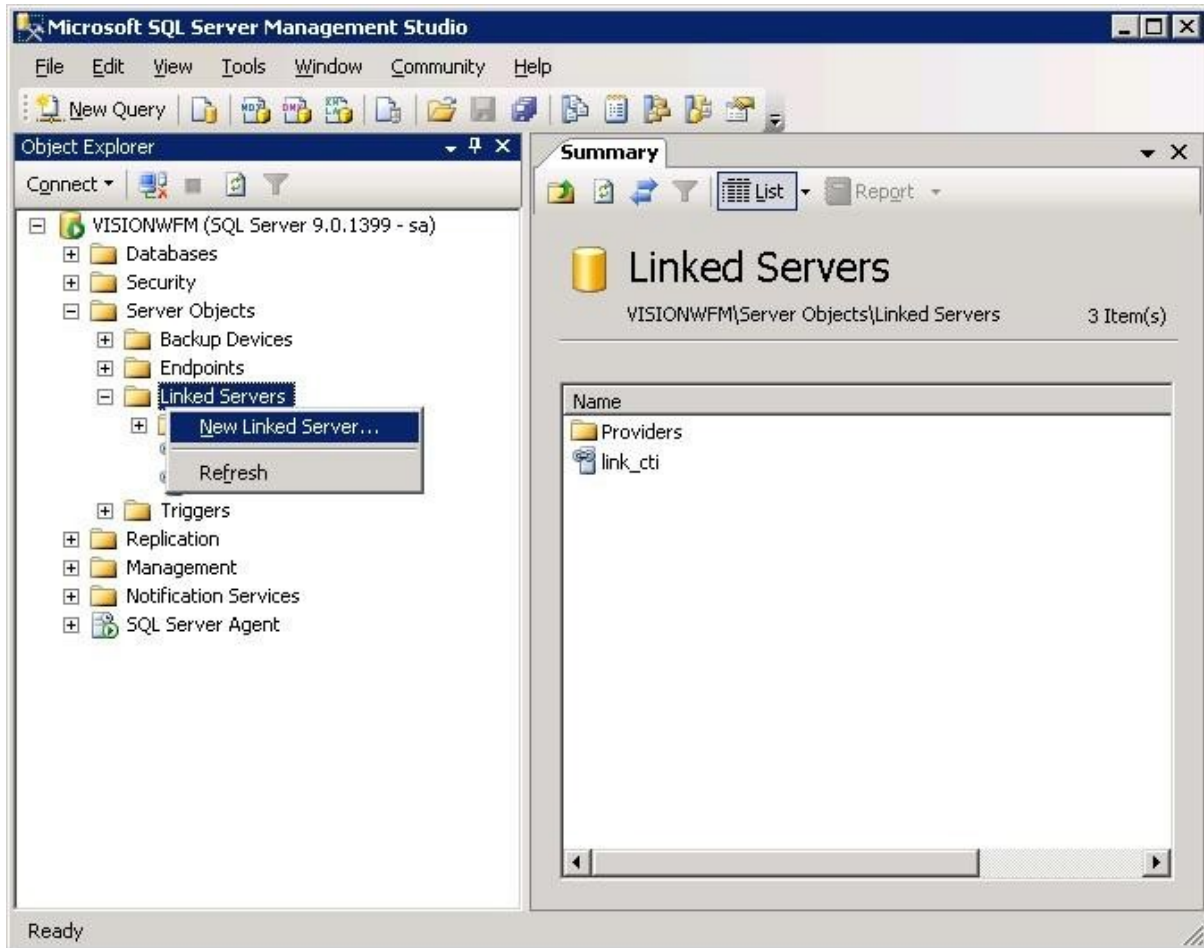
Select the **General** page and configure the values as follows.

- **Linked server:** "LINK_CMS_INFORMIX"
- **Server type:** "Other data source"
- **Provider:** "Microsoft OLE DB Provider for ODBC Drivers"
- **Product Name:** "Informix"
- **Data Source:** Enter the Data Source Name "AvayaCMSR16" created in **Section 7.2**.

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Select the **Security** page and configure the values as follows.

- **Remote login:**   A valid user on CMS, in this case is "cms".
- **With password:**   Password of the Remote login used.
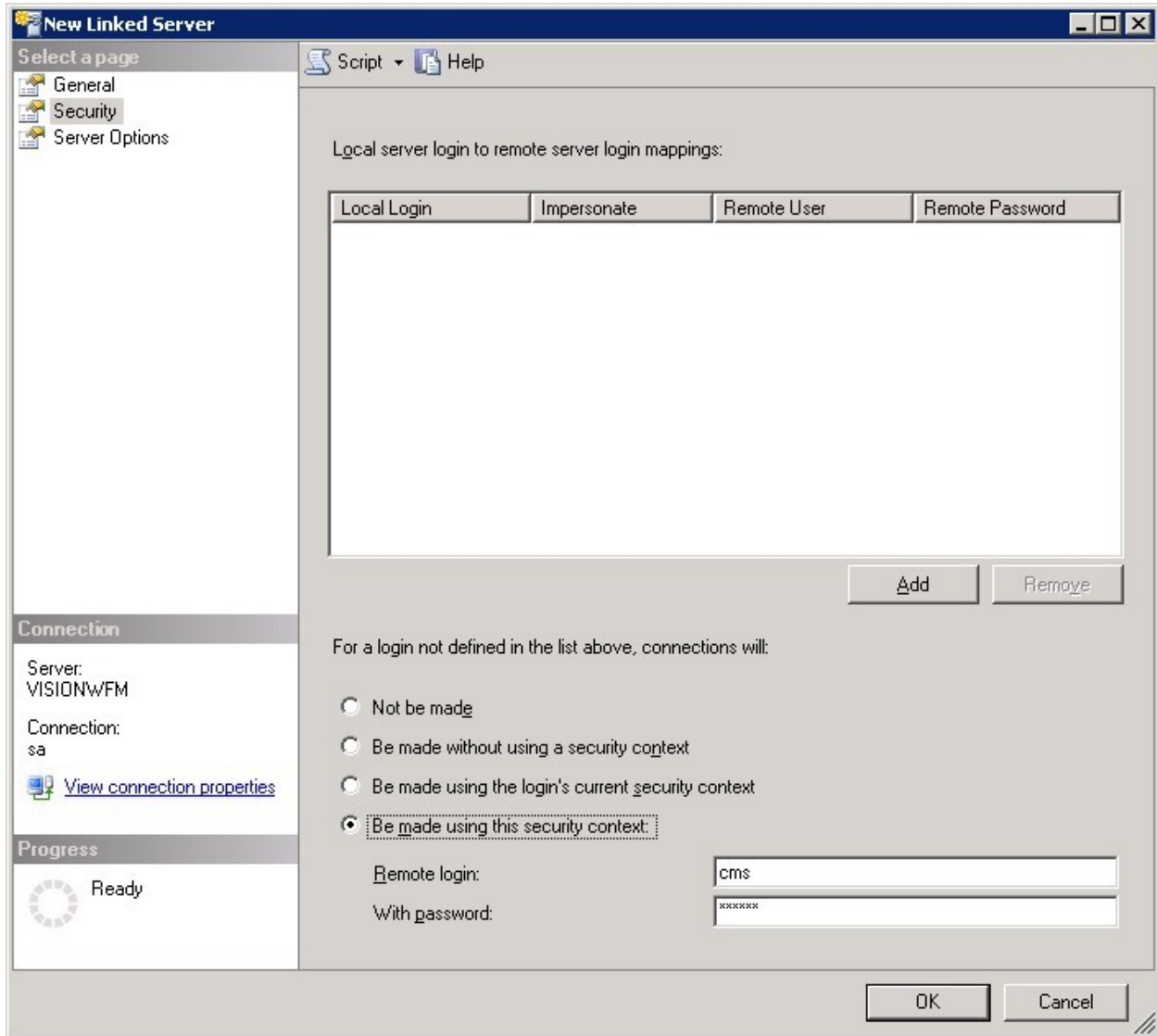
8. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Communication Manager, Avaya Call Management System and VXI China VisionWFM.

8.1 Verify 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 5.4**. 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: pv4
             Link Type: processor ethernet
 Message Buffer Number: 0

          Last Failure: None
                    At: 04/12/11 12:24
```

Verify the status of the processor ethernet link by using the **status link procr** command. Verify that the **Link Status** is **inservice** as shown below.

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


             Link Status: inservice
               Link Type: processor

     Service Port Location: eth0

                 V4 Parameters
                 Node Name: procr
        Source IP Address: 10.1.10.10/24

        Broadcast Address: 10.1.10.255

                  Enabled? yes
         Maintenance Busy? no
          Active Channels: 1
```
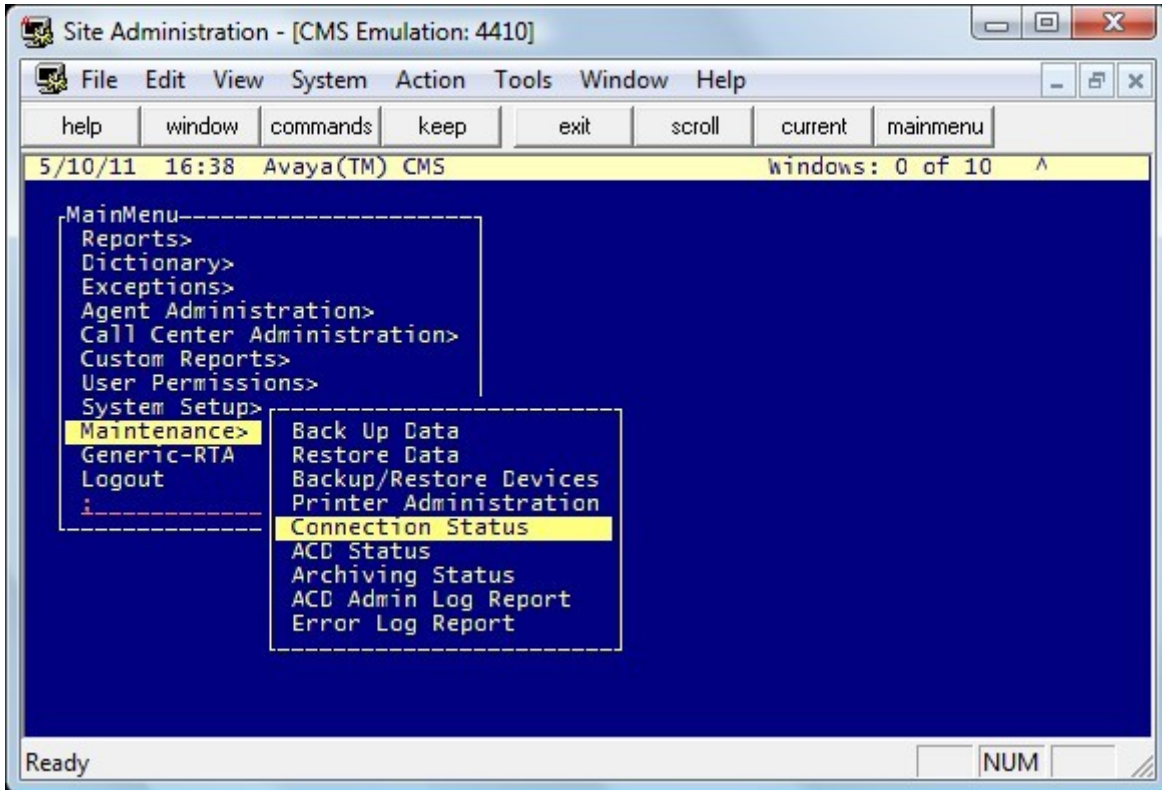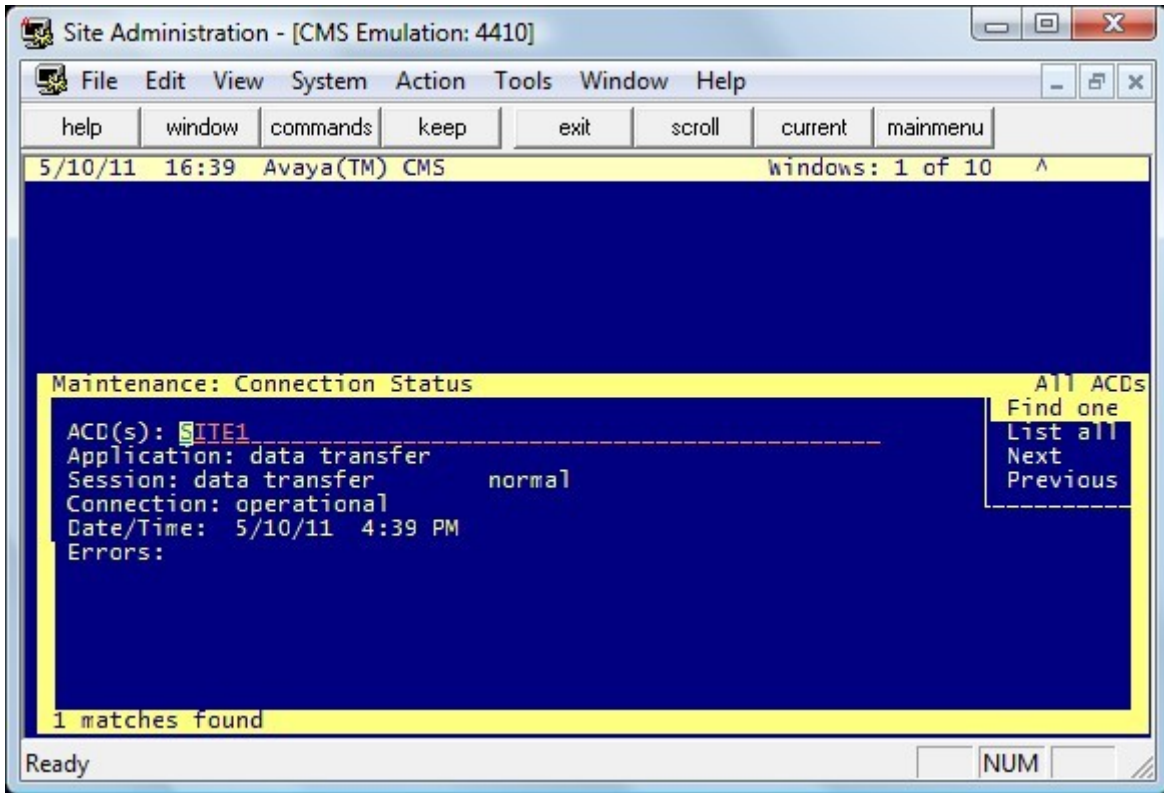
8.2 Verify Call Management System

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. Verify the status of the connection to Communication Manager by selecting **Maintenance → Connection Status**, as shown below.

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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.

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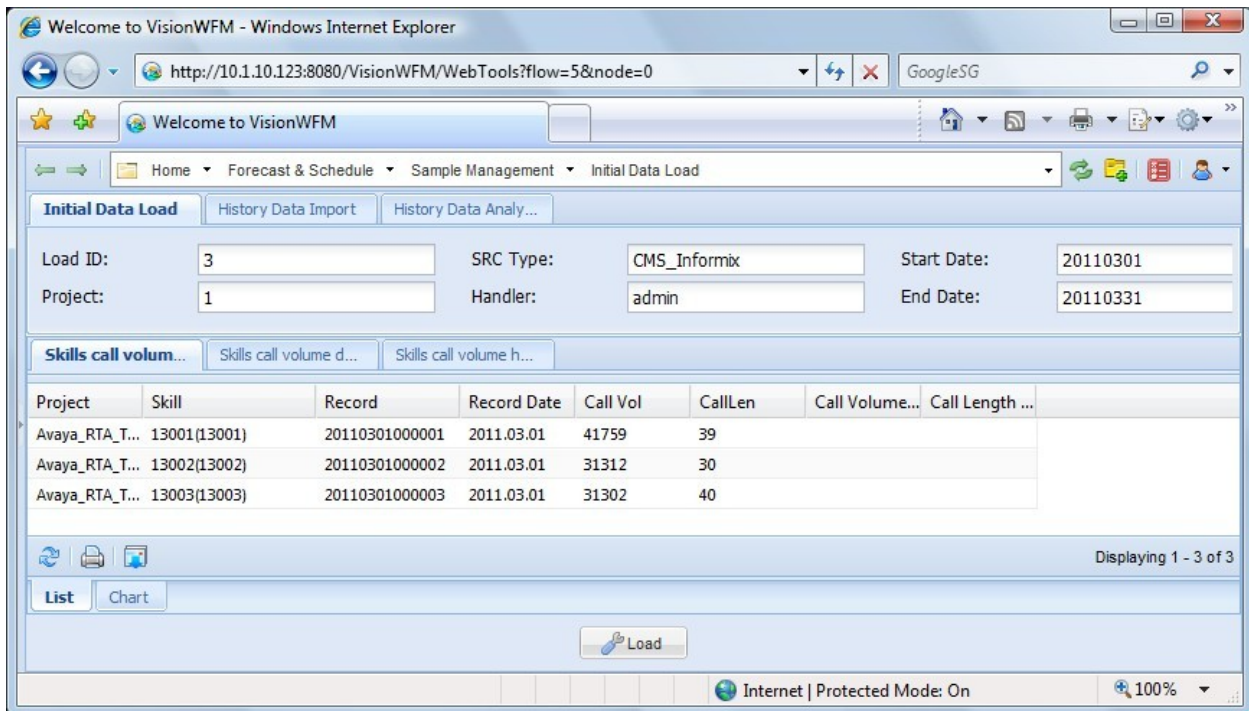
8.3 Verify VXI China VisionWFM

Using Internet Explorer, browse to http://<ip_addr>:8080/VisionWFM/, where ip_addr is the IP address of the VisionWFM server. Log in using an account with administrative privileges.
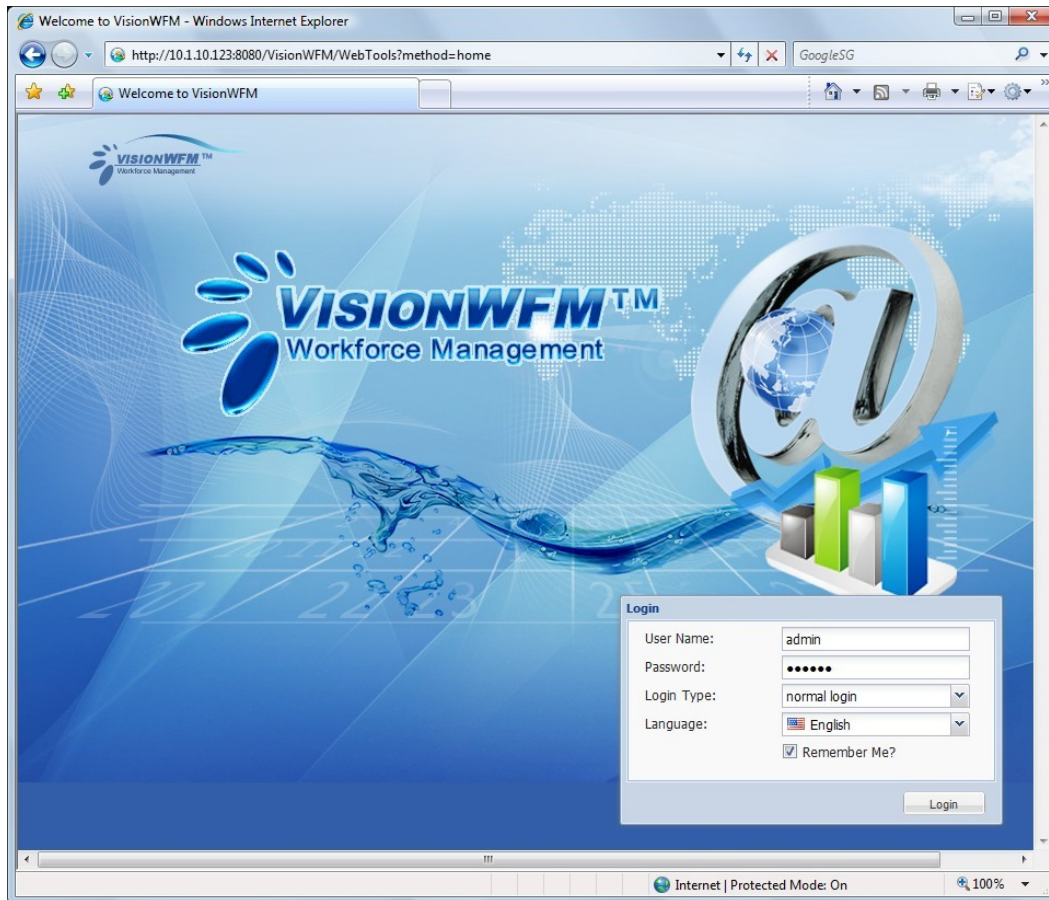
Select S**ample Management > Initial Data Load** from the left, then fill in the appropriate fields in the Initial Data Load section (e.g. Start/End Date for the month of March) and click **Start Flow**.
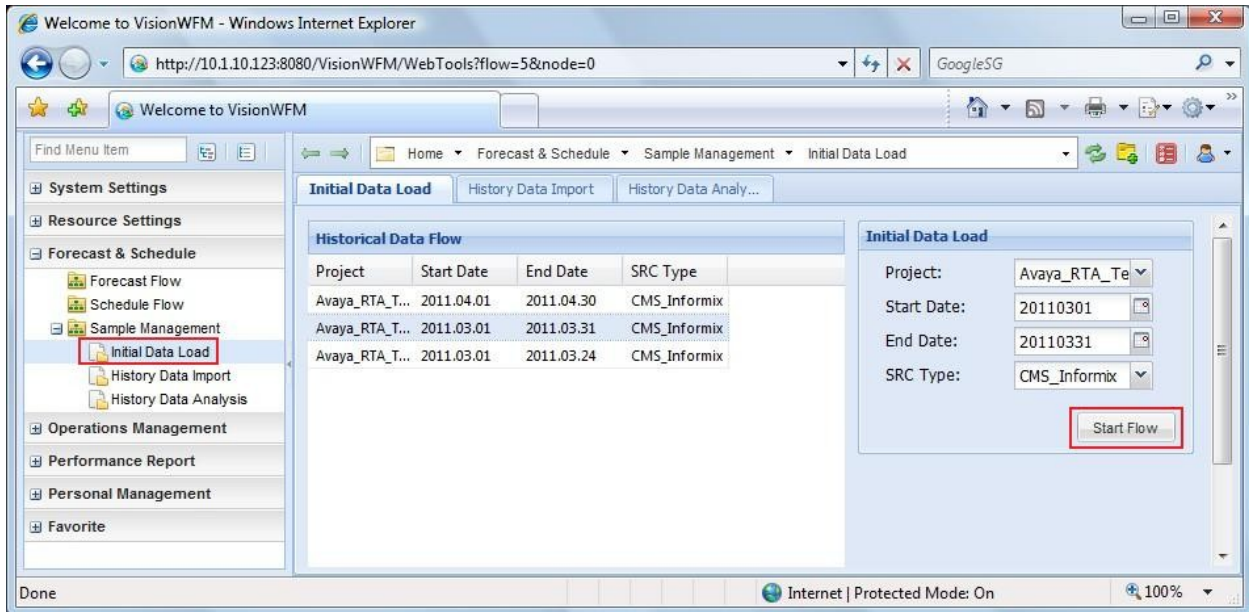
In the **Skills call volume monthly** tab, verify that the data (Call Volume, Average Talk Time) which was obtained from the Avaya CMS is accurate by running a similar historical report on CMS. To generate reports on Avaya CMS, refer to Reference [5].

9. Conclusion

These Application Notes describe the configuration steps required for VXI China VisionWFM 3.0 to successfully interoperate with Avaya Call Management System Release 16 using the ODBC interface. All feature and serviceability test cases were completed successfully.

10. Additional References

The following documents are available at http://support.avaya.com.

[1] *Administering Avaya Aura™ Communication Manager*, Release 6.0, Document No. 03-300509, August 2010.

[2] *Avaya Call Management System Release 16 Switch Connections, Administration, and Troubleshooting*, November 2009.

[3] *Avaya Call Management System Release 16 ODBC and JDBC*, November 2009.

[4] *Avaya Call Management System Release 16 Database Items and Calculations*, November 2009.

[5] *Avaya Call Management System Release 16 Administration*, November 2009.

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