AVAYA

Avaya Solution & Interoperability Test Lab

Application Notes for NetLert N-Focus Plus with Avaya Call Management System – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for NetLert N-Focus Plus to interoperate with Avaya Call Management System via the standard Open Database Connectivity Application Programming Interface. Information in these Application Notes has been obtained through compliance testing and additional technical discussions. Testing was conducted via the Developer*Connection* Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

NetLert N-Focus Plus is a web based analysis and reporting application. N-Focus Plus utilizes the contact center data from Avaya Call Management System (CMS) for trunk, Vector Directory Number (VDN), split/skill, and agent, and provides the information to contact center organizations for effective management. The integration with Avaya CMS is achieved through the standard Open Database Connectivity (ODBC) Application Programming Interface (API).

The ODBC uses a client-server model, with N-Focus Plus being the "client", and Avaya CMS being the "server". The Java Database Connectivity (JDBC) Extensions are utilized by N-Focus to interface to the ODBC-accessible tables in Avaya CMS. The needed JDBC Extension license is provided by N-Focus Plus.
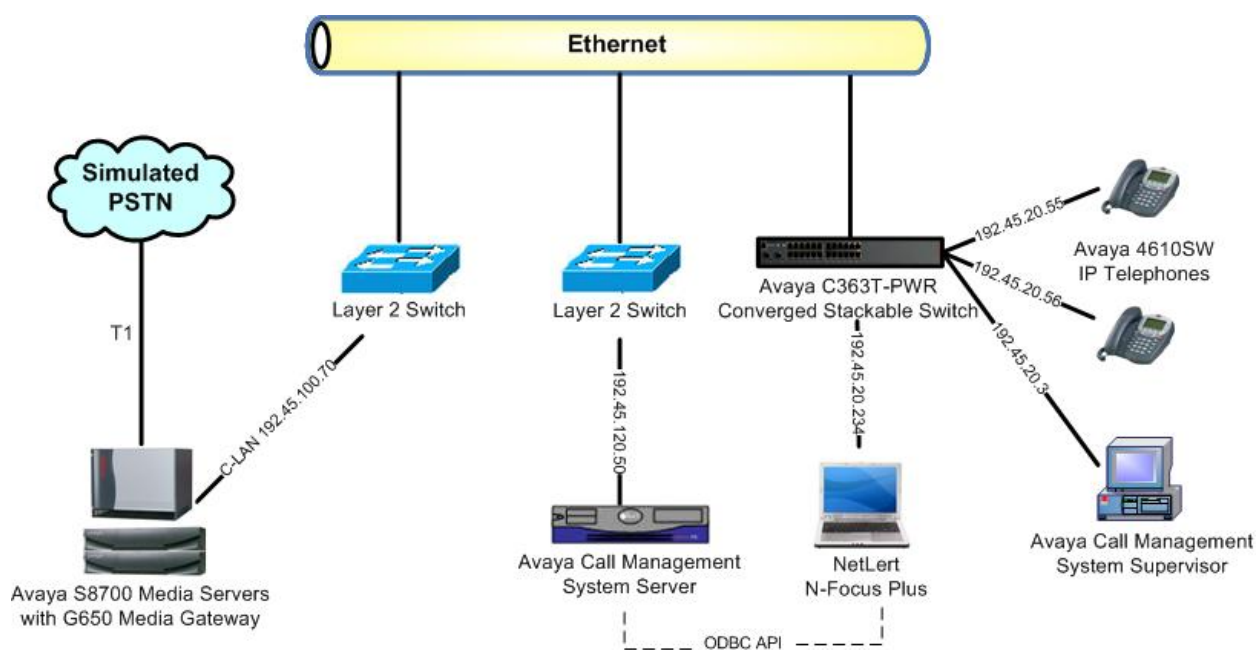

Figure 1: NetLert N-Focus Plus with Avaya Call Management System

On Avaya Communication Manager, relevant trunk/VDN/split/skill/agent devices are configured to be "measured" by Avaya CMS. When a call travels through a "measured" device on Avaya Communication Manager, the call measurement data are sent to the Avaya CMS. The Avaya CMS server creates corresponding records in the relevant database tables, allowing applications such as N-Focus Plus to retrieve the historical data via the ODBC interface. In the compliance test configuration shown in **Figure 1**, an Avaya Call Management System (CMS) Supervisor was utilized for report verification. The reports provided by N-Focus Plus were compared to the reports generated from the Avaya CMS Supervisor.

At the start of the application, N-Focus Plus obtains the dictionary names of administered switch, trunk, split/skill, VDN, and agent from Avaya CMS, and subsequently provides these values to customers for configuring customized reports. At the regularly scheduled interval, N-Focus Plus queries the Avaya CMS server to obtain historical data from the following ODBC-accessible tables:

- **htkgrp:** Trunk group data for each intra-hour interval.
- **hvdn:** VDN data for each intra-hour interval.
- **hsplit:** Split/Skill data for each intra-hour interval.
- **hagent:** Agent data for each intra-hour interval.

The intra-hour interval is an administrable parameter on Avaya CMS, which can contain the value of 15 minutes, 30 minutes, or 60 minutes.

2. Equipment and Software Validated

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

Equipment	Software
Avaya S8700 Media Servers	Avaya Communication Manager 3.1.2, load 632.1
Avaya G650 Media Gateway • TN799DP C-LAN Circuit Pack	HW01 FW017
Avaya Call Management System Server • ODBC Server Driver	r13.1ca.i 4.2
Avaya C363T-PWR Converged Stackable Switch	4.3.12
Avaya 4610SW IP Telephones	2.30
NetLert N-Focus Plus running on Gateway M325x PC Notebook • ODBC Client Driver	1.2 Windows XP Professional 4.2

3. Configure Avaya Communication Manager

The detailed administration of contact center devices and connectivity between Avaya Communication Manager and Avaya CMS are not the focus of these Application Notes and will not be described. For administration of contact center devices and connectivity to Avaya CMS, refer to the appropriate documentation listed in **Section 10**.

This section provides the procedures for how to enable trunk, VDN, split/skill, and agent measurement data to be sent to Avaya CMS. The procedures include the following areas:

- Administer measured trunk
- Administer measured VDN
- Administer measured split/skill and agent

3.1. Administer Measured Trunk

Use the "change trunk n" command, where "n" is the number of the trunk group to be measured by Avaya CMS. Navigate to **Page 2**, and set the **Measured** field to "external" to enable measurement data on the trunk group to be sent to Avaya CMS. Repeat this step for all trunk groups that will be measured by Avaya CMS.

```
change trunk-group 33                                            Page   2 of  20
TRUNK FEATURES
         ACA Assignment? n               Measured: external  Wideband Support? n
                                       Internal Alert? n       Maintenance Tests? y
                                     Data Restriction? n     NCA-TSC Trunk Member:
                                         Send Name: y       Send Calling Number: y
            Used for DCS? n
  Suppress # Outpulsing? n     Format: public
 Outgoing Channel ID Encoding: preferred      UUI IE Treatment: service-provider


                                                   Replace Restricted Numbers? n
                                                  Replace Unavailable Numbers? n
                                                        Send Connected Number: y
Network Call Redirection: none                      Hold/Unhold Notifications? n
           Send UUI IE? y                    Modify Tandem Calling Number? n
             Send UCID? n
 Send Codeset 6/7 LAI IE? y

                          Network (Japan) Needs Connect Before Disconnect? N
```

3.2. 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" to enable measurement data on the VDN to be sent to Avaya CMS. Repeat this step for all VDNs that will be measured by Avaya CMS.

```
change vdn 35510                                                Page   1 of   2
                           VECTOR DIRECTORY NUMBER

                             Extension: 35510
                                  Name: N-Focus VDN 35510
                         Vector Number: 510

                 Meet-me Conferencing? n
                    Allow VDN Override? n
                                   COR: 1
                                    TN: 1
                              Measured: external
           Acceptable Service Level (sec): 20

          VDN of Origin Annc. Extension:
                             1st Skill:
                             2nd Skill:
                             3rd Skill:
```

Repeat the "change vdn n" command to measure the desired number of VDNs. For the compliance testing, two VDNs were configured to be measured, as shown below.

```
list vdn 24597 count 2

                      VECTOR DIRECTORY NUMBERS

                                                    Evnt
                           VDN          Vec    Orig Noti    Skills
Name (22 characters)   Ext  Ovr COR TN  Num  Meas Annc  Adj 1st  2nd  3rd

N-Focus VDN 24597     24597  n   1   1   510  ext
N-Focus VDN 24598     24598  n   1   1   520  ext
```

3.3. Administer Measured Split/Skill and Agent

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

```
change hunt-group 510                                            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: external
     Supervisor Extension:

      Controlling Adjunct: none

 Timed ACW Interval (sec):
   Multiple Call Handling: none
                                       Redirect on No Answer (rings):
                                                 Redirect to VDN:
                 Forced Entry of Stroke Counts or Call Work Codes? N
```

Repeat the "change hunt-group n" command to measure the desired number of split/skill group and associated agents. For the compliance testing, two split/skill groups were configured to be measured, as shown below.

```
list hunt-group 510 count 2

                              HUNT GROUPS
Grp  Grp
No.  Name/           Grp      ACD/             No. Cov Notif/  Dom   Message
     Ext             Type     MEAS Vec MCH  Que Mem Path Ctg Adj Ctrl  Center

510  NFocus Skill 510
     34510           ucd-mia y/E  SK  none y   0          n            n
520  NFocus Skill 520
     34520           ucd-mia y/E  SK  none y   0          n            n
```

In the compliance testing, two logical agents, shown below, were used as available agents for the above split/skill groups.

```
list agent-loginID 35511 count 2

                            AGENT LOGINID

Login   Name/          Dir  AAS/       Ag
ID      Extension      Agt  AUD    COR Pr SO Skil/Lv Skil/Lv Skil/Lv Skil/Lv

35511   NFocus Ag 35511               1 lvl    510/01  520/02    /        /
        24511                                     /       /      /        /
35512   Nfocus Ag 35512               1 lvl    510/01  520/02    /        /
        24512                                     /       /      /        /
```

4. Configure Avaya Call Management System

The configuration of the Avaya CMS Supervisor and the connectivity between Avaya CMS and Avaya Communication Manager are assumed to be in place and will not be described. In addition, these Application Notes assume a user name of "cmssite1" has been created with report access permissions, and the intra-hour interval already administered.

This section provides the additional configuration as required for N-Focus Plus, which includes the following areas:

- Administer ACD dictionary names
- Administer trunk dictionary names
- Administer VDN dictionary names
- Administer splits/skills dictionary names
- Administer agent dictionary names

4.1. Administer ACD Dictionary Names

Use a terminal emulator to connect to the Avaya CMS server, and log in with the proper credentials. Enter "cms" at the command prompt. The **MainMenu** screen is displayed. Select **Dictionary > ACDs**, as shown below.

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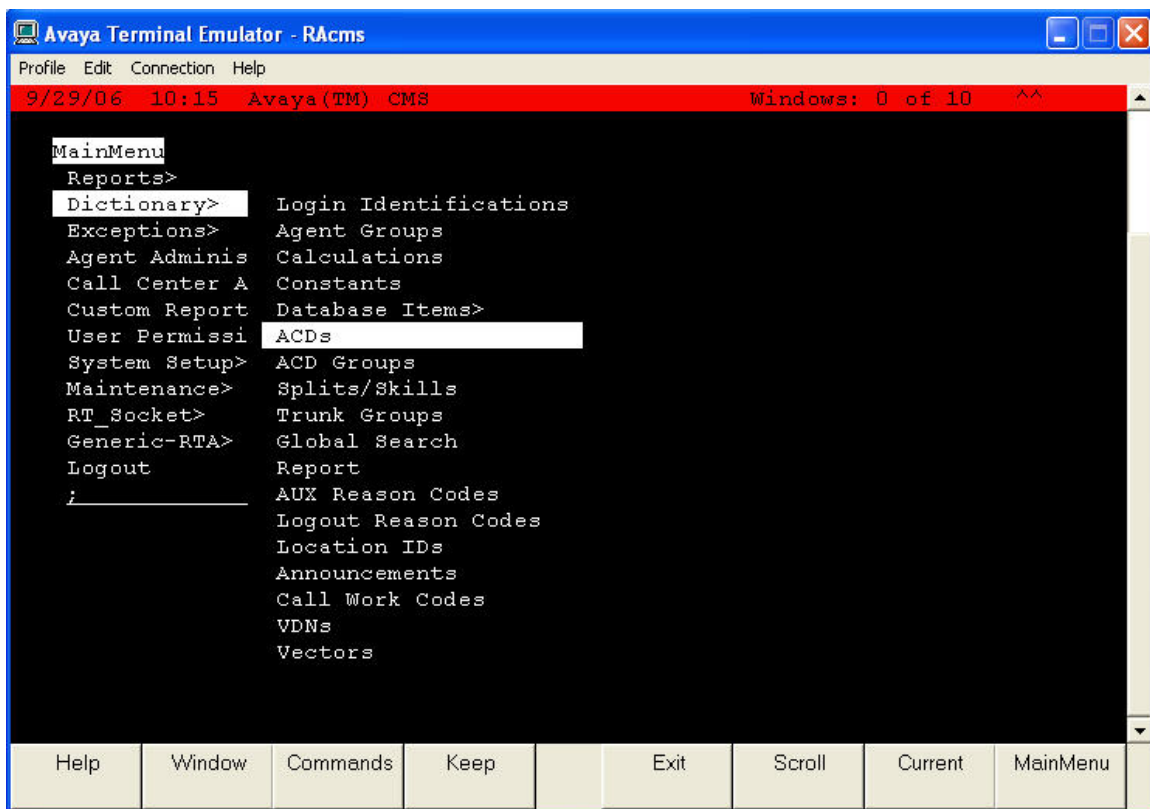
The **Dictionary: ACDs** dialog box is displayed. Enter a descriptive name for **ACD name**, and a desired description for Avaya Communication Manager. For the **ACD number** field, enter an available ACD number, in this case "2". Tab over to **Add** and press **Enter**.
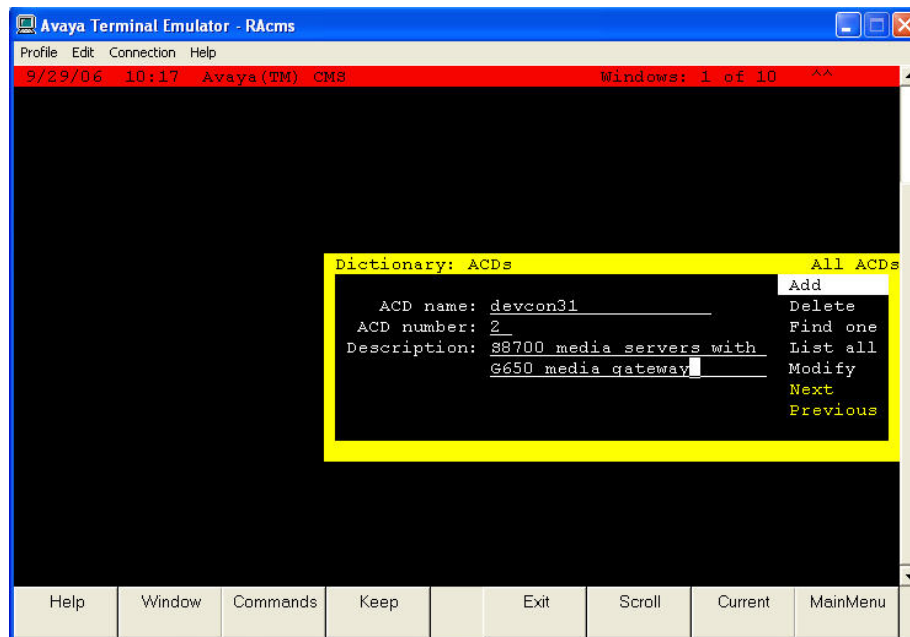
4.2. Administer Trunk Dictionary Names

From the **MainMenu** screen shown in **Section 4.1**, select **Dictionary > Trunk Groups**. The **Dictionary: Trunk Groups** dialog box is displayed. Enter a descriptive name for **Trunk group name**, and a desired description. For the **Trunk group number** field, enter the same trunk group number from **Section 3.1**. Tab over to **Add** and press **Enter**.
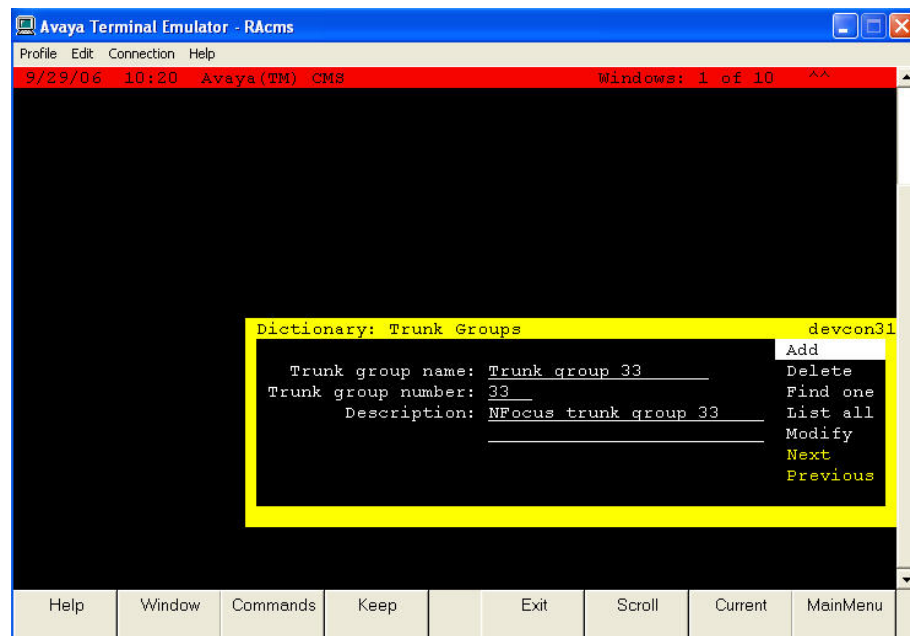
4.3. Administer VDN Dictionary Names

From the **MainMenu** screen shown in **Section 4.1**, select **Dictionary > VDNs**. The **Dictionary: VDNs** dialog box is displayed. Enter a descriptive name for **VDN name**, and a desired description. For the **VDN** field, enter the same VDN extension from **Section 3.2**. Tab over to **Add** and press **Enter**.
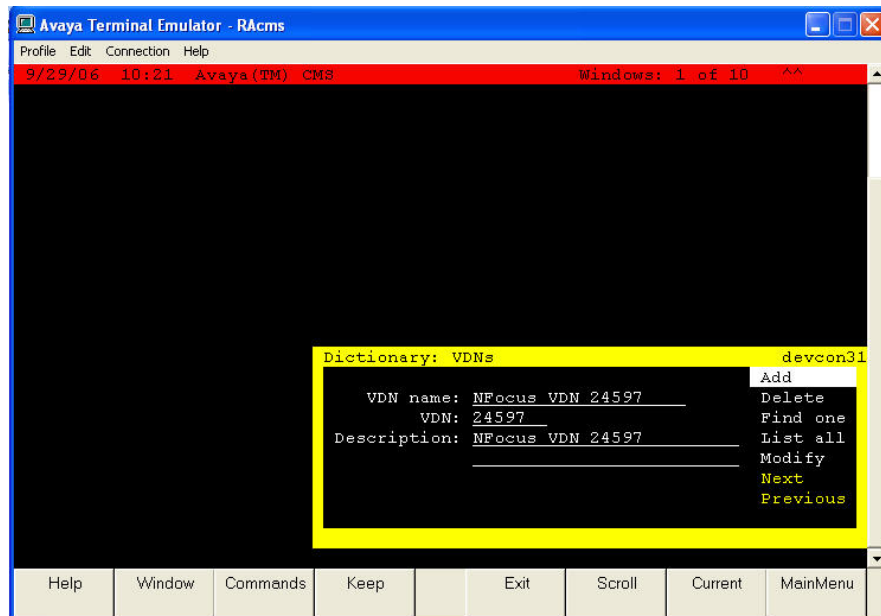
Repeat this procedure to create dictionary names for all measured VDNs created in **Section 3.2**. The screen below displays the two VDN dictionary names used for the compliance testing.
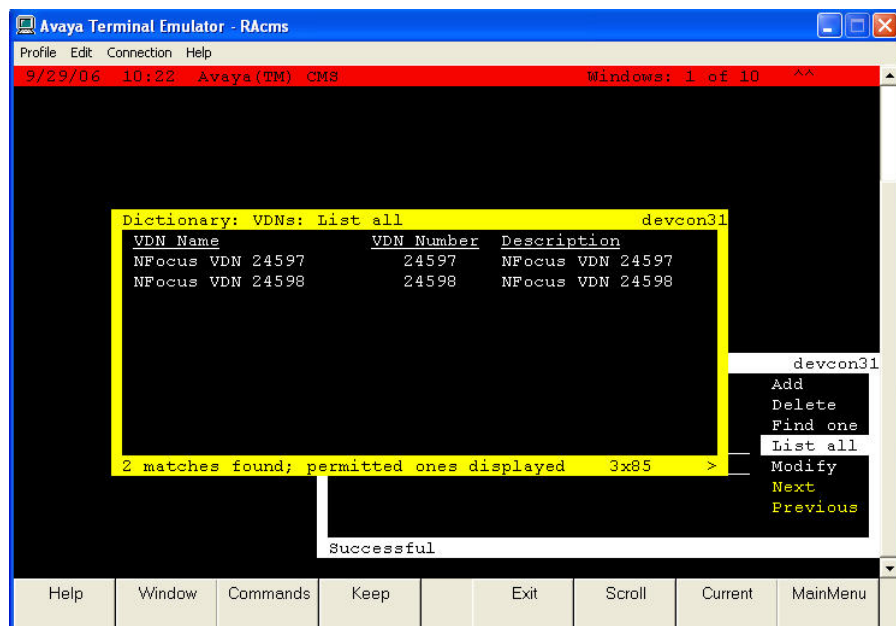
4.4. Administer Split/Skill Dictionary Names

From the **MainMenu** screen shown in **Section 4.1**, select **Dictionary > Splits/Skills**. The **Dictionary: Splits/Skills** dialog box is displayed. Enter a descriptive name for **Split/Skill name**, and a desired description. For the **Split/Skill number** field, enter the same split/skill group number from **Section 3.3**. Tab over to **Add** and press **Enter**.
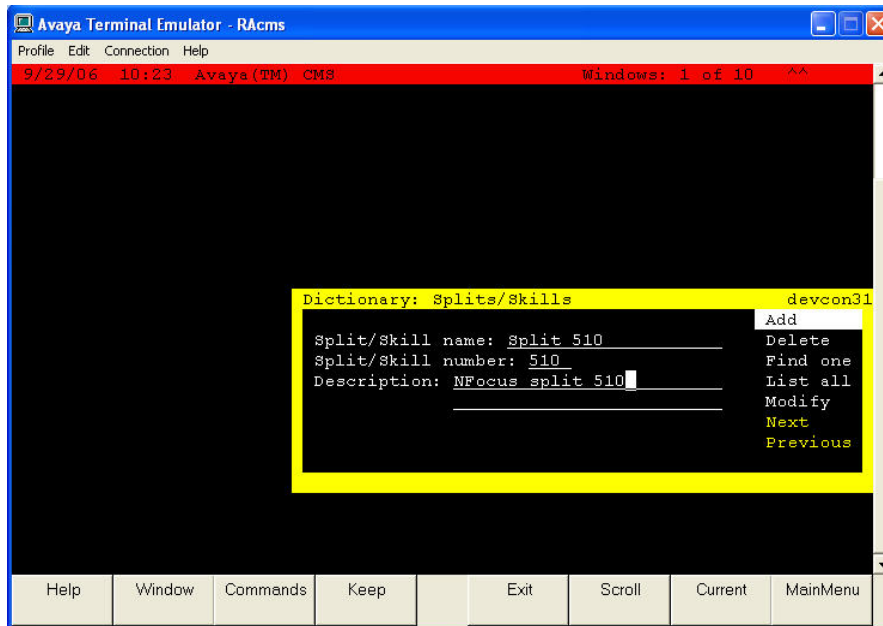
Repeat this procedure to create dictionary names for all measured splits/skills groups created in **Section 3.3**. The screen below displays the two split/skill group dictionary names used for the compliance testing.
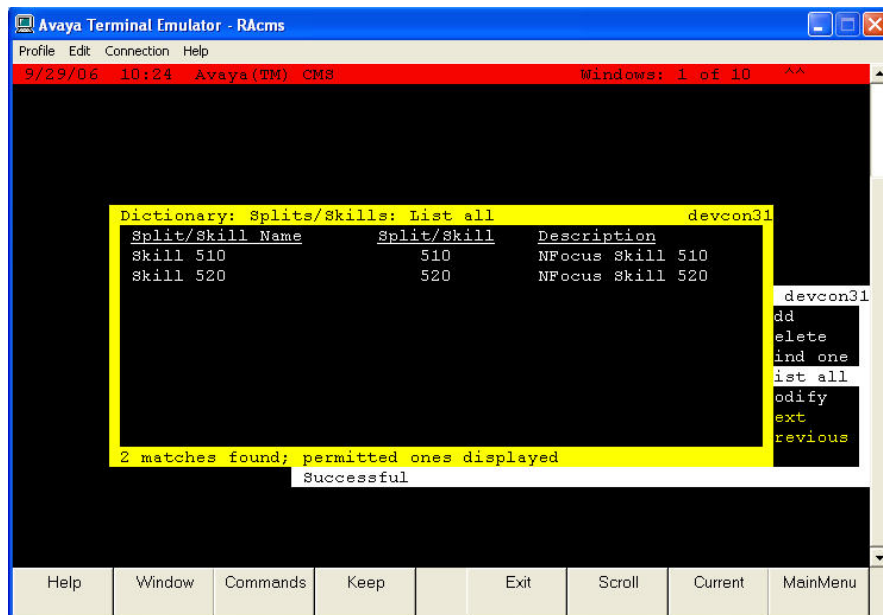
4.5. Administer Agent Dictionary Names

From the **MainMenu** screen shown in **Section 4.1**, select **Dictionary > Login Identifications**. The **Dictionary: Login Identification** dialog box is displayed. Enter a descriptive name for **Agent Name**. For the **Login ID** field, enter the same logical agent extension from **Section 3.3**. Tab over to **Add** and press **Enter**.
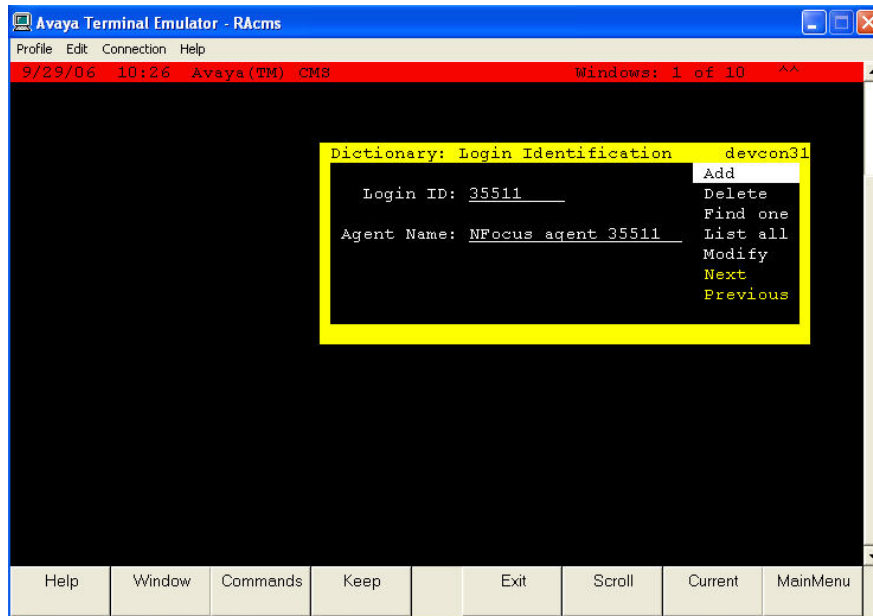
Repeat this procedure to create dictionary names for all logical agents created in **Section 3.3**. The screen below displays the two logical agent dictionary names used for the compliance testing.
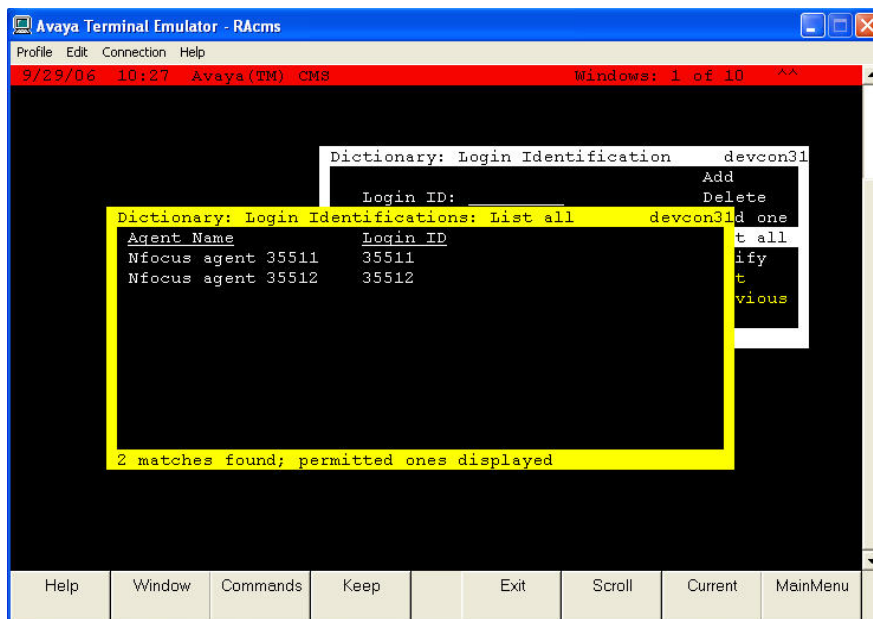
5. Configure NetLert N-Focus Plus

This section provides the procedures for configuring NetLert N-Focus Plus. The procedures fall into the following areas:

- Start N-Focus Tomcat service
- Administer PBX
- Administer database connection
- Administer reports

5.1. Start N-Focus Tomcat Service
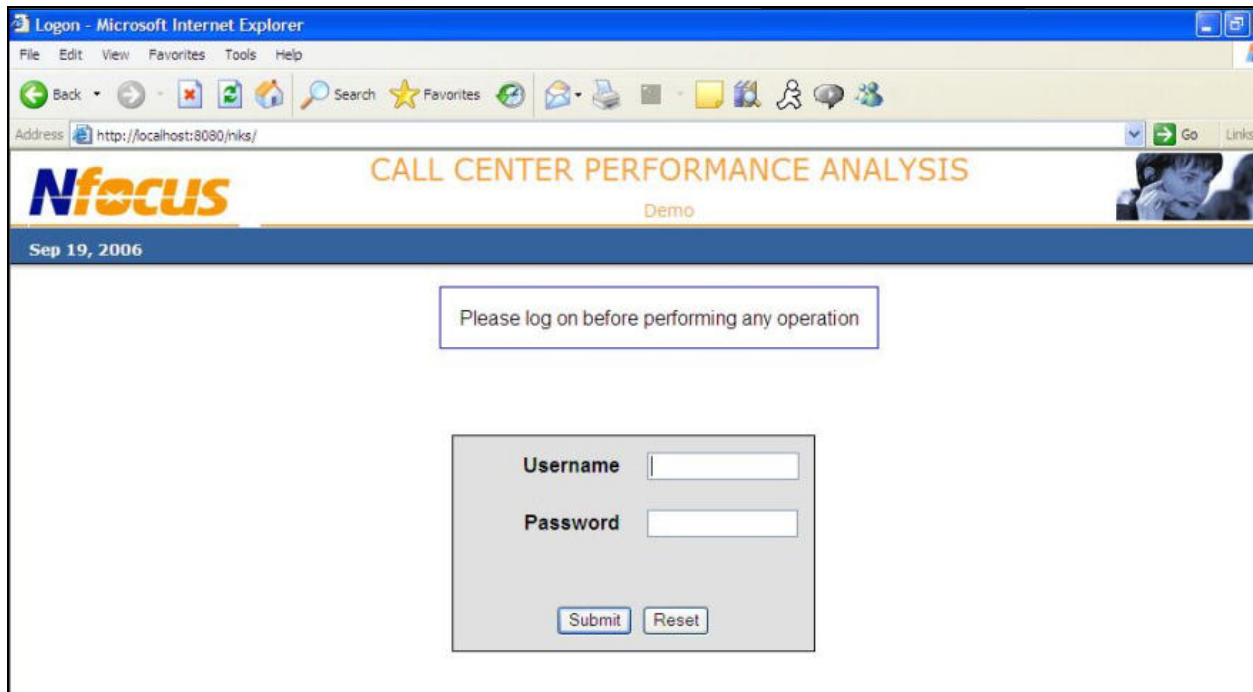
From the N-Focus Plus server, start the N-Focus Tomcat service by selecting **Start > Settings > Control Panel > Administrative Tools > Services**. In the **Services** screen shown below, right click on the **N-Focus Tomcat** service, and select "Start" from the drop down list (not shown below).
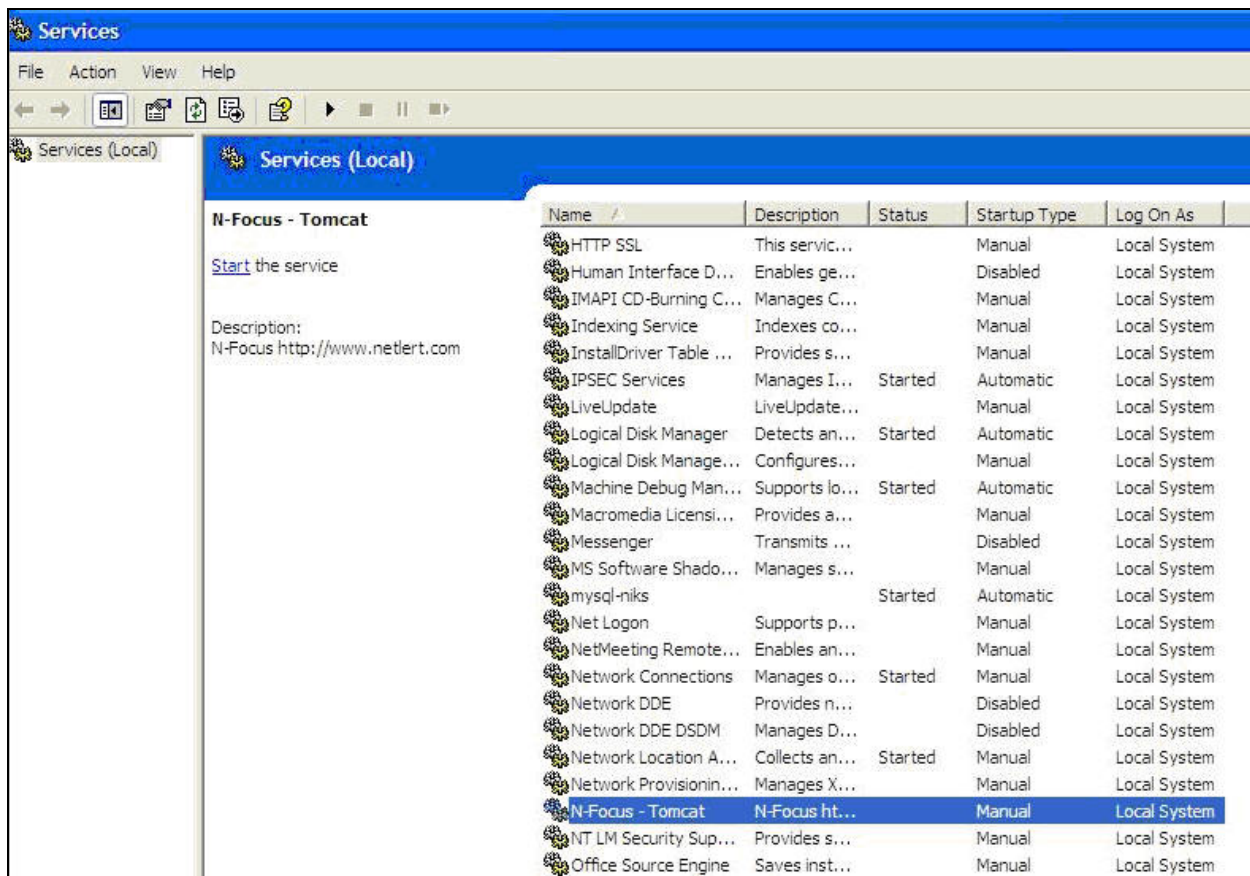
5.2. Administer PBX
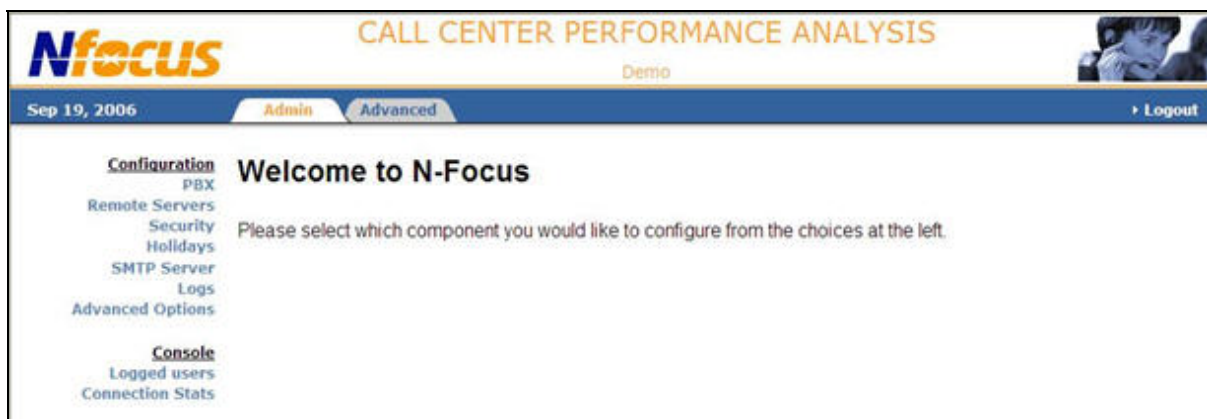
From the N-Focus Plus server, start the administrative web interface by using the URL "http://localhost:8080" in an Internet browser window. Note that the administrative web interface can also be accessed from other machines, by replacing the string "localhost" in the URL with the IP address of the N-Focus Plus server. The web pages will load slowly upon initial access for compilation reasons, and will load quickly on subsequent access.

Log in using the administrative user name and password, and click **Submit**.

The **Welcome to N-Focus** screen is displayed next, as shown below. Select **PBX** from the left pane.

The **PBX List** screen is displayed, as shown below. Click on **Add a PBX**.

The **PBX** screen is displayed next, as shown below. Enter the following values for the specified fields, and click on **Create**.

- **Active:** Retain the check.
- **Name:** A descriptive name to denote the Avaya CMS server.
- **Tab name:** A desired tab name to be shown on the report screens, in this case "NJ".
- **Description:** A desired description.
- **Version:** The software version of Avaya CMS, in this case "13".

5.3. Administer Database Connection

The **PBX List** screen is displayed again, and updated with the newly added PBX. Click on **DB Connection** in the right pane to configure connectivity to Avaya CMS.

The **Database Connection to CMS(r) Server** screen is displayed next, as shown below with the initial default values.

Retain the default values for the **Driver class** and **Max. number of connections** fields. In the **Database URL** field, replace the string "CmsServerIpAddressHere" with the IP address of the Avaya CMS server, in this case "192.45.120.50". In the **login** and **Password** fields, enter the "cmssite1" login and corresponding password already created on Avaya CMS for report access. Click on **Submit** to save the configuration changes.

After saving the configuration changes, the N-Focus server will automatically connect with Avaya CMS, and issue queries to obtain dictionary table information such as administered switch, trunk, VDN, split/skill, and agent data.

5.4. Administer Reports

The **PBX List** screen is displayed again. Click on **Reports** to configure the reports.

The **Reports for PBX Avaya CMS** screen is displayed. In the **ACD** drop down list, select the ACD name from **Section 4.1**, in this case "devcon31". Check the desired historical reports. For the compliance testing, all reports were checked. Click **Submit**.

6. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing focused on verifying NetLert N-Focus Plus parsing and displaying of trunk, VDN, split/skill, and agent data from Avaya CMS.

The serviceability testing focused on verifying the ability of NetLert N-Focus Plus to recover from adverse conditions, such as disconnecting the Ethernet cables to N-Focus Plus and to Avaya CMS.

6.1. General Test Approach

The feature test cases were performed manually. Incoming calls were made to the measured trunk, VDN, split/skill, and agent to enable measurement data to be sent to Avaya CMS for generation of database records. Manual call controls and work mode changes from the agent telephones were exercised as necessary to populate specific fields in the database records.

The serviceability test cases were performed manually by disconnecting and reconnecting the LAN cable to NetLert N-Focus Plus and to Avaya CMS.

The verification of all tests included checking of proper display of data at the N-Focus Plus server, and of comparing the displayed data with the historical reports from the Avaya CMS Supervisor.

6.2. Test Results

All test cases were executed and passed.

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7. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Avaya Call Management System and NetLert N-Focus Plus.

7.1. Verify Avaya Call Management System

Follow the procedures in **Section 4.1** to display the **MainMenu**. Verify the status of the connection to Avaya Communication Manager by selecting **Maintenance > Connection Status**, as shown below.
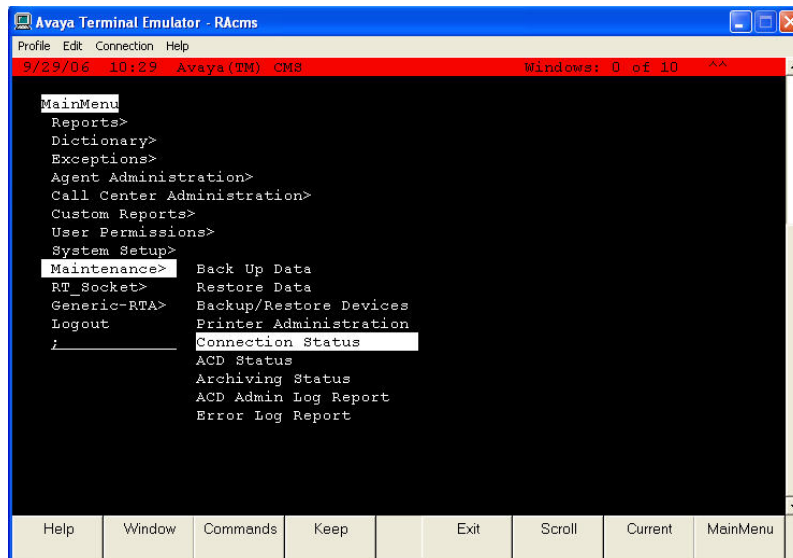
In the **Maintenance: Connection Status** dialog box, enter the corresponding **ACD(s)** number from **Section 4.2**. For the compliance testing, the corresponding switch connection is ACD system "2". Tab over to **Find one** and press **Enter**.
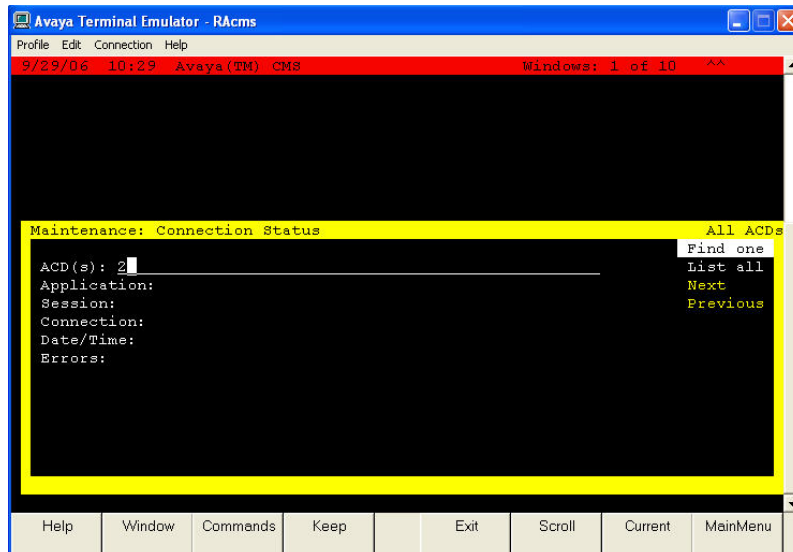
The **Maintenance: Connection Status** dialog box is updated with status information. Verify that the **Session** status is "data transfer" and "normal", and that the **Connection** status is "operational", as shown below.
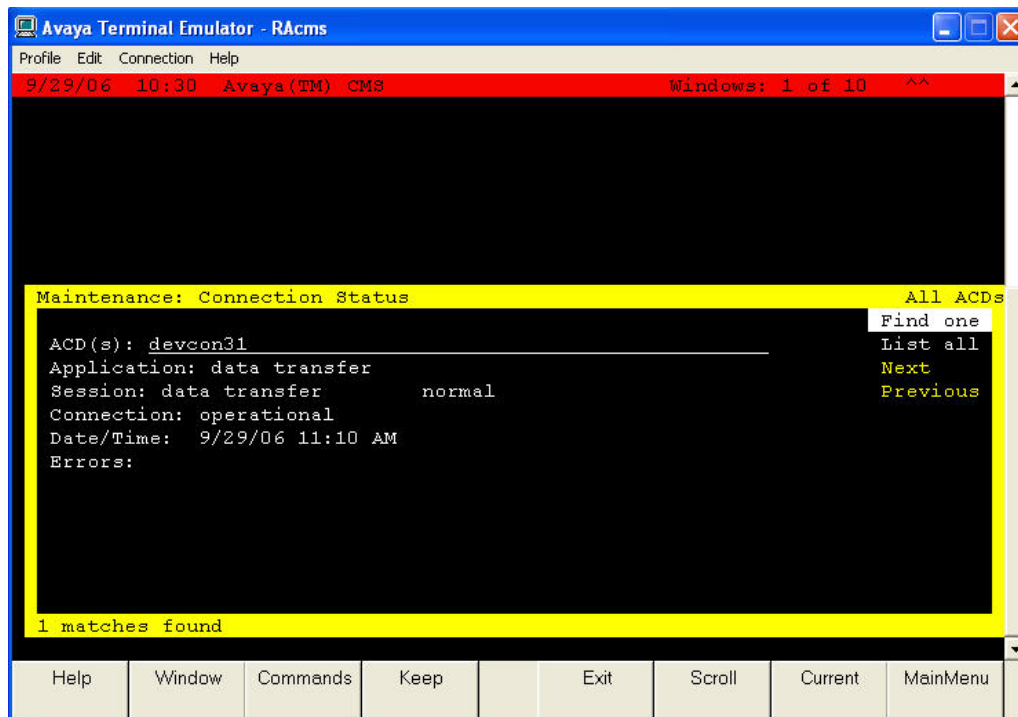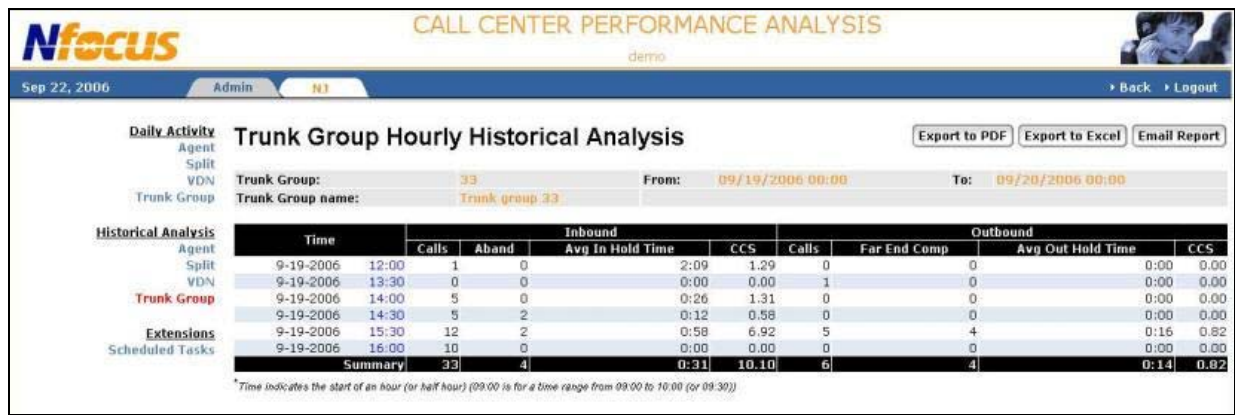
7.2. Verify NetLert N-Focus Plus

Prior to verifying N-Focus Plus, make the necessary calls to the measured devices on Avaya Communication Manager, to enable measurement data to be sent and populated on Avaya CMS.

7.2.1. Verify Trunk Data

Follow the procedure in **Section 5.2** to bring up the administrative web interface, and log in with administrative credentials. Select the tab corresponding to the tab name created in **Section 5.2**, in this case "NJ". Select **Historical Analysis > Trunk Group** from the left pane, verify that the **Trunk Group Hourly Historical Analysis** report displays the trunk group measurement data, as shown below.

7.2.2. Verify VDN Data

Select **Historical Analysis > VDN** from the left pane, verify that the **VDN Historical Analysis** report displays the VDN measurement data, as shown below.

7.2.3. Verify Split/Skill Data

Select **Historical Analysis > Split** from the left pane, verify that the **Split Historical Analysis** report displays the split/skill measurement data, as shown below.

7.2.4. Verify Agent Data

Select **Historical Analysis > Agent** from the left pane, verify that the **Agent Historical Analysis** report displays the agent measurement data, as shown below.

8. Support

Technical support on NetLert can be obtained through the following:

- **Phone:** 1-866-NETLERT
- **Email:** tech@netlert.com

9. Conclusion

These Application Notes describe the configuration steps required for NetLert N-Focus Plus 1.2 to interoperate with Avaya Call Management System R13.1 via the standard Open Database Connectivity Application Programming interface. All feature and serviceability test cases were completed successfully.

10. Additional References

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

- *Administrator Guide for Avaya Communication Manager*, Document 03-300509, Issue 2.1, May 2006, available at http://support.avaya.com

- *Avaya Call Management System Switch Connections, Administration, and Troubleshooting*, Document ID 07-300739, February 2006, available at http://support.avaya.com.

- *Avaya Call Management System Release 13 Software Installation, Maintenance, and Troubleshooting Guide*, Document ID 07-600954, May 2006, available at http://support.avaya.com.

- *NFocus Plus Install Guide,* available at upon email request to tech@netlert.com.

- *NFocus User Guide*, Issue 1.2, September 2006, available as part of the NFocus Plus software download.

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