



Avaya Solution & Interoperability Test Lab

Application Notes for Symmetrics Contact Center Report & Analysis Suite with Avaya Call Management System – ECH Interface and Avaya Aura® Communication Manager – Issue 1.0

Abstract

These Application Notes describe the steps to configure for interoperability compliance testing of Symmetrics Contact Center Report & Analysis Suite in an environment which consists of Avaya Call Management System and Avaya Aura® Communication Manager. Symmetrics uses the External Call History Interface provided by Avaya Call Management System to gather historical data related to call center.

Symmetrics offers reporting and analysis software applications and professional services. Symmetrics helps customers achieve their performance goals by providing reporting, analysis and information delivery software and services that turn contact center data into usable information, ensuring they can make mission critical decisions in a timely manner.

Readers should pay attention to Section 2, in particular the scope of testing as outlined in Section 2.1 as well as the observations noted in Section 2.2, to ensure that their own use cases are adequately covered by this scope and results.

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 steps to configure for interoperability compliance testing of Symmetrics Contact Center Report & Analysis Suite with Avaya Call Management System (CMS) and Avaya Aura® Communication Manager.

Symmetrics offers reporting and analysis software applications and professional services. Symmetrics helps customers achieve their performance goals by providing reporting, analysis and information delivery software and services that turn contact center data into usable information, ensuring they can make mission critical decisions in a timely manner.

The External Call History Interface (ECHI) adapter developed by Avaya Professional Services is installed on CMS. ECHI adapter puts the collected data into a particular folder; CMS connects to a FTP server and unloads the data. Symmetrics then connects to the FTP server and retrieves the data.

2. General Test Approach and Test Results

The interoperability compliance test focused on verifying the ability of Symmetrics to import contact center call data from CMS using the ECH Interface.

DevConnect Compliance Testing is conducted jointly by Avaya and DevConnect members. The jointly-defined test plan focuses on exercising APIs and/or standards-based interfaces pertinent to the interoperability of the tested products and their functionalities. DevConnect Compliance Testing is not intended to substitute full product performance or feature testing performed by DevConnect members, nor is it to be construed as an endorsement by Avaya of the suitability or completeness of a DevConnect member's solution.

2.1. Interoperability Compliance Testing

The feature test cases were performed manually. ACD calls were made to the measured skills and routed to agents to generate call center statistics for Symmetrics. The accuracy of data was verified on Symmetrics database by comparing with Informix database on CMS.

2.2. Test Results

All test cases were executed and passed.

2.3. Support

Technical support for the Symmetrics Contact Center Report & Analysis Suite solution can be obtained by contacting Symmetrics:

- Web: <http://www.symmetrics.com>
- Phone number: +1 (604) 688.0882 or +1 (604) 891 5559

3. Reference Configuration

Figure 1 illustrates the network topology used during compliance testing. The Avaya solution consists of a CMS, Communication Manager, Avaya G450 Media Gateway and Symmetrics Contact Center Report & Analysis Suite. The ECH Interface developed by Avaya Professional Services is installed on CMS.

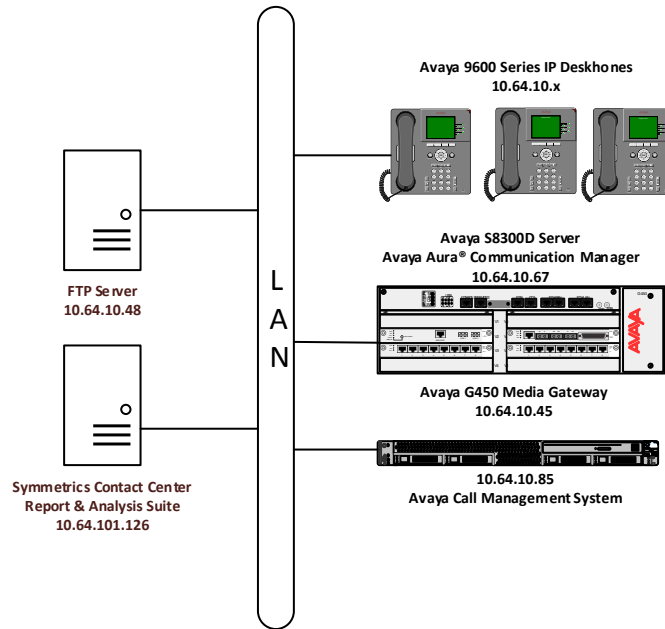


Figure 1: Test Configuration

4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya Aura® Communication Manager running on Avaya S8300D Server	R6.3 SP112
Avaya Call Management System running on Sun Sparc Enterprise T5120 server	R17 SP3
Symmetrics Contact Center Report & Analysis Suite <ul style="list-style-type: none"> • Microsoft Windows Server 2008 • Microsoft SQL Server 2008 	3.0

5. Configure Avaya Aura® Communication Manager

This section describes the steps for configuring Communication Manager for the Symmetrics Contact Center Report & Analysis Suite solution. The procedures include the following areas:

- Administer adjunct CMS release
- Configure IP node names for CMS
- Configure processor interface channel
- Configure measured Skill
- Configure Vector
- Configure measured VDN
- Configure Agents

The Communication Manager configuration was performed using the System Access Terminal (SAT). **Administer Adjunct CMS Release**

Enter the **display system-parameters features** command and navigate to **Page 12**.

- Verify the **CMS (appl mis)** field, under the **REPORTING ADJUNCT RELEASE** section, is set to **R16.1/R16.x/R17.0**.

```
change system-parameters features                                     Page 12 of 20
                        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
Block Hang-up by Logged-in Auto-Answer Agents? n

CALL MANAGEMENT SYSTEM
REPORTING ADJUNCT RELEASE (determines protocol used by appl link)
                        CMS (appl mis): R16.1/R16.x/R17.0
                        AAPC/IQ (appl ccr): 5.1/5.2

                        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
```

5.2. Configure IP Node Name for CMS

Enter the **change node-names ip** command, to add an entry for CMS that will be used for connectivity.

- Enter a desired name in **Name** field for CMS, e.g. **CMS**.
- Enter CMS server's IP address in **IP Address** field, e.g. **10.64.10.85**.

```
change node-names ip                                     Page 1 of 2
                                                    IP NODE NAMES
Name          IP Address
8730TR1      10.64.10.74
AuraSBC-Inside 10.64.10.112
AuraSM       10.64.21.31
CMS        10.64.10.85
```

5.3. Configure Processor Interface Channel

Assign a new processor interface channel by entering the **change communication-interface processor-channels** command. Add an entry with the following values:

- Enable – **y**
- Appl – **mis**
- Mode – **s** for a server mode.
- Interface Link – Link number for data module Ethernet port.
- Interface Chan – TCP channel number for CMS. During the test, channel **5001** is utilized.
- Destination Node – **CMS**; Enter the node name created in previous section.
- Destination Port – **0**
- Session Local – Corresponding channel number in Proc Chan field. During the test, local session **1** is utilized.
- Session Remote – Corresponding channel number in Proc Chan field. During the test, remote session **1** is utilized.

The **Interface Chan** field contains the CMS's TCP channel number, which is defined as a part of the 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   Chan Enable  Appl.  Gtwy  Mode  Interface  Destination  Session  Mach
                To   Mode  Link/Chan  Node      Port  Local/Remote ID
1:    y    mis    s    pv4  5001  CMS          0        1    1
2:    n
```

5.4. Configure Measured Skill

Enter the **add hunt-group *n*** command; where *n* is an unused hunt group number to be measured by CMS. On **Page 1**:

- Enter a descriptive name in **Group Name**
- Enter a valid extension in **Group Extension**
- Set **ACD**, **Queue** and **Vector** fields to **y**

```
add hunt-group 1                                     Page 1 of 4
                                                    HUNT GROUP

      Group Number: 1                                ACD? y
      Group Name: Skill 1                            Queue? y
      Group Extension: 11001                          Vector? y
      Group Type: ucd-mia
      TN: 1
      COR: 1
      Security Code:                                MM Early Answer? n
      ISDN/SIP Caller Display:                      Local Agent Preference? n

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

- Set **Skill** to **y**.
- Set **Measured** to **both**.

Repeat this section for all skill groups that will be monitored by CMS.

```
add 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
```

5.5. Configure Vector

Enter the **change vector *n*** command; where *n* is an available vector number. On **Page 1**:

- Enter a descriptive name in **Name** field.
- Program the vector to deliver calls to the hunt/skill group number.

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

Number: 1                               Name: Call Queue
Multimedia? n      Attendant Vectoring? n      Meet-me Conf? n      Lock? n
Basic? y      EAS? y      G3V4 Enhanced? y      ANI/II-Digits? y      ASAI Routing? y
Prompting? y      LAI? y      G3V4 Adv Route? y      CINFO? y      BSR? y      Holidays? y
Variables? y      3.0 Enhanced? y
01 wait-time      2 secs hearing ringback
02 queue-to      skill 1      pri m
```

5.6. Configure Measured VDN

Enter the **add vdn *n*** command; where *n* is an unused VDN number. On **Page 1**:

- Enter a descriptive name in **Name** field.
- Enter a vector number configured in previous step for **Destination: Vector Number** field.
- Set **Measured** field to **both**.

```
add vdn 10001                                     Page 1 of 3
                                           VECTOR DIRECTORY NUMBER

Extension: 10001
Name*: VDN 1 - Incoming Vector
Destination: Vector Number      1
Attendant Vectoring? n
Meet-me Conferencing? n
Allow VDN Override? n
COR: 1
TN*: 1
Measured: both
Acceptable Service Level (sec): 20

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

5.7. Configure Agents

Enter the **add agent-loginID *n*** command; where *n* is a valid extension in the provisioned dial plan. On **Page 1**:

- In **Name** field, type in a desired agent's name.
- In **Password** and **Password (enter again)** type in a desired password.

```
add agent-loginID 2501                                     Page 1 of 2
                                     AGENT LOGINID
Login ID: 2501                                           AAS? n
Name: IP Agent 1                                         AUDIX? n
TN: 1           Check skill TNs to match agent TN? n
COR: 1
Coverage Path: 1                                         LWC Reception: spe
Security Code:                                           LWC Log External Calls? n
                                                         AUDIX Name for Messaging:
LoginID for ISDN/SIP Display? n
                                                         Password: 123456
                                                         Password (enter again): 123456
                                                         Auto Answer: none
                                                         MIA Across Skills: system
                                                         ACW Agent Considered Idle: system
                                                         Aux Work Reason Code Type: system
                                                         Logout Reason Code Type: system
                                                         Maximum time agent in ACW before logout (sec): none
                                                         Forced Agent Logout Time:
WARNING: Agent must log in again before changes take effect
```

```
add agent-loginID 2501                                     Page 2 of 2
                                     AGENT LOGINID
Direct Agent Skill:                                       Service Objective? n
Call Handling Preference: skill-level                     Local Call Preference? n
SN  RL SL          SN  RL SL
1:  1      1      16:
```

6. Configure Avaya Call Management System

This section covers the configuration of CMS. Configuration for ECH Interface is performed by Avaya Professional Services and is not covered in this document. **Configure ACD for Communication Manager**

Telnet or SSH into CMS, using proper credentials.

- Type in **cmssvc** command to view the **Avaya Call Management System Service Menu**.
- Select **4** for **Turn Avaya CMS on or off**.


```
BDL093562F# cmssvc
```

```
Avaya(TM) Call Management System Services Menu
```

```
Select a command from the list below.
```

- 1) `auth_display` Display feature authorizations
- 2) `auth_set` Authorize capabilities/capacities
- 3) `run_ids` Turn Informix Database on or off
- 4) `run_cms` Turn Avaya CMS on or off**
- 5) `setup` Set up the initial configuration
- 6) `swinfo` Display switch information
- 7) `swsetup` Change switch information
- 8) `patch_inst` Install a single CMS patch from CD
- 9) `patch_rmv` Backout an installed CMS patch
- 10) `load_all` Install all CMS patches found on CD
- 11) `back_all` Backout all installed CMS patches from machine

```
Enter choice (1-11) or q to quit: 4
```

```
Select one of the following
```

- 1) Turn on CMS
- 2) Turn off CMS but Leave IDS running**
- 3) Turn off both CMS and IDS

```
Enter choice (1-3): 2
```

- Wait until CMS is shut down; **CMS is now off** message will be displayed when CMS is shutdown.

```
Notifying users of impending shutdown...
```

```
. . . . .
```

```
Proceeding with cms shutdown.
```

```
*** Turning off CMS, Please wait ***
```

```
. . . . .
```

```
*** Cleaning up, Please wait ***
```

```
*** CMS is now off ***
```

- Type in `cmsadm` command and select **1** for `acd_create`. At each prompt type in information as follows:
 - **Enter switch name:** Type in a descriptive name.
 - **Select the model of switch for this ACD:** Select **6**.
 - For next three prompts, type **y**.
 - **Enter the local port assigned to switch:** Type **1**.
 - **Enter the remote port assigned to switch:** Type **1**.
 - **Select the transport to the switch:** Select **1**.
 - **Enter switch host name or IP Address:** Type in Communication Manager's IP Address.
 - **Enter switch TCP port number:** Set it to default.
 - For rest of the prompts leave the values at default or enter desired values.

BDL093562F# cmsadm

Avaya(TM) Call Management System Administration Menu

Select a command from the list below.

- 1) acd_create Define a new ACD
- 2) acd_remove Remove all administration and data for an ACD
- 3) backup Filesystem backup
- 4) pkg_install Install a feature package
- 5) pkg_remove Remove a feature package
- 6) run_pkg Turn a feature package on or off
- 7) run_ids Turn Informix Database on or off
- 8) run_cms Turn Avaya CMS on or off
- 9) passwd_age Set password aging options
- 10) dbaccess Change Informix DB access permissions

Enter choice (1-10) or q to quit: 1

Information for ACD 3

Enter switch name (up to 20 characters): S8300_TR1

Select the model of switch for this ACD

- 1) Communication Mgr 2
- 2) Communication Mgr 3.0
- 3) Communication Mgr 3.1
- 4) Communication Mgr 4/5
- 5) Communication Mgr 5.2
- 6) Communication Mgr 6.x

Enter choice (1-6): 6

Is Vectoring enabled on the switch? (y/n): y

Is Expert Agent Selection enabled on the switch? (y/n): y

Does the Central Office have disconnect supervision? (y/n): (default: y) y

Enter the local port assigned to switch (1-64): 1

Enter the remote port assigned to switch (1-64): 1

```
Select the transport to the switch
  1) TCP/IP
Enter choice (1-1): 1

Enter switch host name or IP Address: 10.64.10.67

Enter switch TCP port number (5001-5999): (default: 5001)

Number of splits/skills (0-8000): (default: 350)

Total split/skill members, summed over all splits/skills (0-1250): (default: 1250)

Number of shifts (1-4): (default: 1)

Enter the start time for shift 1 (hh:mmXM): (default: 8:00 AM)

Enter the stop time for shift 1 (hh:mmXM): (default: 5:00 PM)

Number of agents logged into all splits/skills during shift 1 (0-1250): (default:
1250)

Number of trunk groups (0-2000): (default: 350)

Number of trunks (0-12000): (default: 1000)

Number of unmeasured facilities (0-6000): (default: 500)

Number of call work codes (1-649): (default: 649)

Enter number of vectors (0-999): (default: 350)

Enter number of VDNs (0-20000): (default: 2000)

Updating database.

Computing space requirements and dbSPACE availability.

ACD S8300_TR1 (3) created successfully.
```

- Type in **cmssvc** command and select **4** from the service menu.
 - Select **1** to **Turn on CMS**.

```
BDL093562F# cmssvc
```

```
Avaya(TM) Call Management System Services Menu
```

```
Select a command from the list below.
```

- 1) auth_display Display feature authorizations
- 2) auth_set Authorize capabilities/capacities
- 3) run_ids Turn Informix Database on or off
- 4) run_cms Turn Avaya CMS on or off
- 5) setup Set up the initial configuration
- 6) swinfo Display switch information
- 7) swsetup Change switch information
- 8) patch_inst Install a single CMS patch from CD
- 9) patch_rmv Backout an installed CMS patch
- 10) load_all Install all CMS patches found on CD
- 11) back_all Backout all installed CMS patches from machine

```
Enter choice (1-11) or q to quit: 4
```

```
Select one of the following
```

- 1) Turn on CMS
- 2) Turn off CMS but Leave IDS running
- 3) Turn off both CMS and IDS

```
Enter choice (1-3): 1
```

```
Please wait for initialization
```

```
. .
```

```
*** CMS is now up ***
```

7. Configure Symmetrics Contact Center Report & Analysis Suite

This section describes the steps for configuring Symmetrics Contact Center Report & Analysis Suite. Symmetrics data connector processes ECHI files with batch processing. Each batch monitors for new data, processes and loads nVision Data Mart. Configuration in this section is performed on the server running Symmetrics Contact Center Report & Analysis Suite.

7.1. Data Connector Configuration:

Configuration updates will need to be applied to `%NVISION_HOME%\config\acd_config.xml`.

The following table outlines the key elements for ECHI within this file.

Attribute	Description	Values
ftp_type	ftp type	ftp or sftp or ftps
ftp_server	ftp server name or ip address	10.64.10.48
ftp_port	ftp port number	23
ftp_location	ftp directory	/cms/datamart
ftp_user	ftp user	Datamart
ftp_pwd	ftp password	Datamart
file_separator	ftp source file separator	,
file_wildcard	ftp source file wildcard	chr.*</

7.2. Initial ECHI Batch Configuration

To perform the initial batch configuration, follow the steps below:

- Open the file `%NVISION_HOME%\batch\hist_init.bat`.
- Update the first line “SET NVISION_HOME” to point to the home folder of the nVision Data Mart. i.e. `x:\nvision\`.
- Open Command prompt, and change directory to, `%NVISION_HOME%\batch\hist`.

Continuing from above, run the “`hist_init.bat`” command using parameter value of `%NVISION_HOME%\config\acd_config.xml`.

7.3. Recurring Batch ECHI Configuration

To perform the recurring batch configuration, follow the steps below:

- Open the file `%NVISION_HOME%\batch\hist_batch.bat`.
- Update the first line “SET NVISION_HOME” to point to the home folder of the nVision Data Mart. i.e. `x:\nvision\`.
- Open Command Prompt, and change directory to, `%NVISION_HOME%\batch\hist`.
- Continuing from above, run the “`hist_batch.bat`” command using parameter value of `%NVISION_HOME%\config\acd_config.xml`.

Example of acd_config.xml used during compliance test is shown below:

```
<cfg>
<call>
<echi_cdr>
<echi_version>text_extended_v14</echi_version>
<ftp_type>sftp</ftp_type>
<ftp_type>ftp</ftp_type>
<ftp_server>10.10.10.86</ftp_server>
<ftp_port>23</ftp_port>
<ftp_location>/cms/datamart</ftp_location>
<ftp_user>Datamart</ftp_user>
<ftp_pwd>password</ftp_pwd>
<file_separator>,</file_separator>
<file_wildcard>chr.*</file_wildcard>
<working_dir>C:\apps\nvision_avaya\trunk\avaya_cms_etl\kettle42rc\plugins\steps\Ruby\symmetrics\avaya_cms_echi\files\to_process</working_dir>
<archive_dir>C:\apps\nvision_avaya\trunk\avaya_cms_etl\archive</archive_dir>
<bad_dir>C:\apps\avaya_cms_etl\archive\bad_file</bad_dir>
<is_active>1</is_active>
</echi_cdr>
</call>
```

8. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Communication Manager, CMS and Symmetrics Contact Center Report & Analysis Suite.

8.1. Verify from 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 5.3**. 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

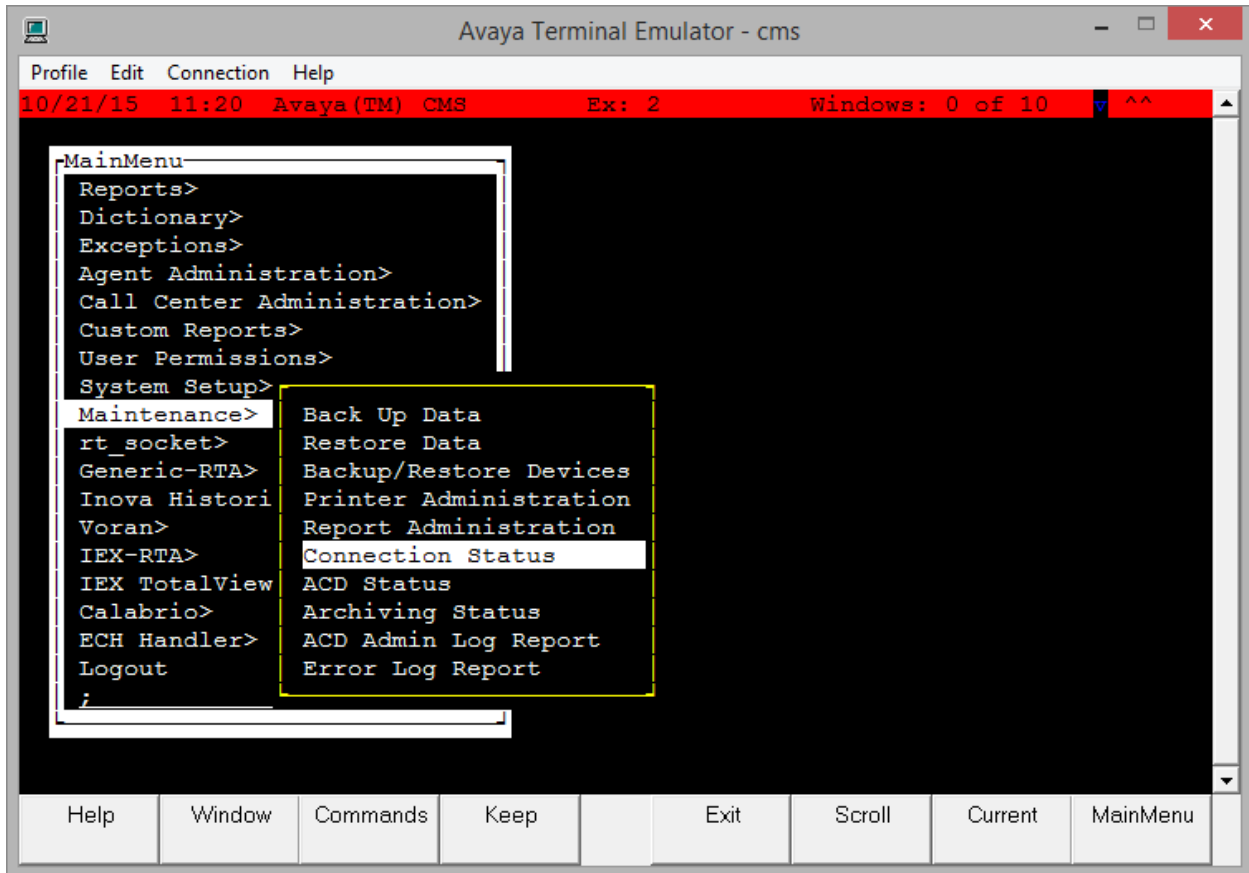
      Channel Number: 1
      Session Layer Status: In Service
      Socket Status: TCP connected
      Link Number: pv4
      Link Type: processor ethernet
      Message Buffer Number: 0

      Last Failure: Far end sent disconnect
                  At: 10/19/14 09:32
```

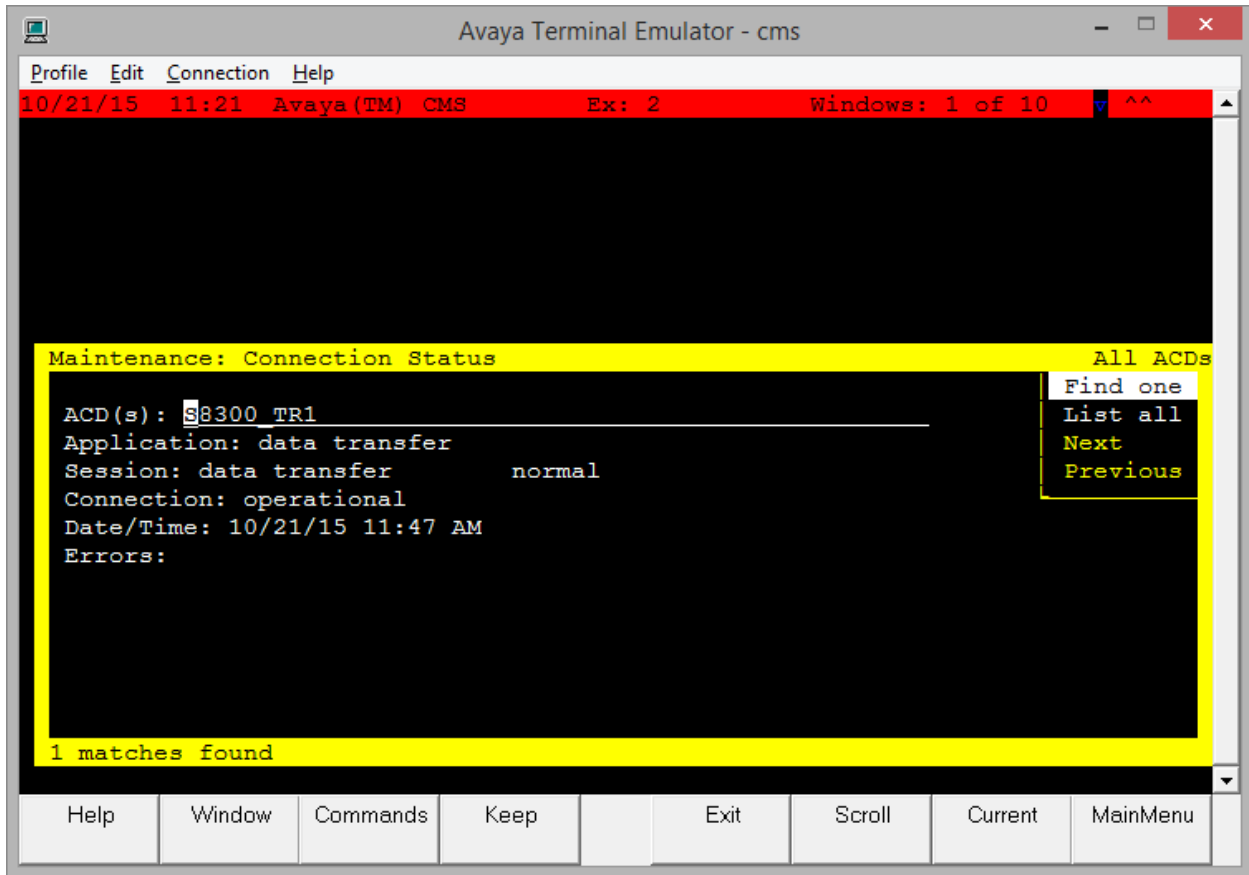
8.2. Verify from Call Management System

Connect to CMS using Avaya Terminal Emulator.

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



Type in the name of switch configured in **Section 6.1**, and select **Find one**. Verify that **Connection: is operational**.



8.3. Verify Symmetrics Contact Center & Analysis Suite

Place a few ACD calls and verify that the data associated to those calls was successfully fetched by Symmetrics Data Connector and available in the Symmetrics database.

9. Conclusion

These Application Notes describe the configuration steps required for Symmetrics Contact Center Report & Analysis Suite to successfully interoperate with Communication Manager using the ECH Interface of Call Management System. All feature test cases were completed successfully.

10. Additional References

This section references the documentation relevant to these Application Notes.

- [1] *Administering Avaya Aura® Communication Manager*, August 2015, Document Number 03-300509, Release 6.3.
- [2] *Avaya Call Management System Administration*, July 2015, Release 17.

Additional Avaya product documentation is available at <http://support.avaya.com>.

Additional Symmetrics product documentation may be found at <http://www.symmetrics.com>

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