



## Avaya Solution & Interoperability Test Lab

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# Application Notes for Inova LightLink Middleware with Avaya Aura® Communication Manager and Avaya Call Management System using Real-Time Socket Interface – Issue 1.0

### Abstract

These Application Notes describe the configuration steps required to integrate Inova LightLink Middleware with Avaya Call Management System using the Real-Time Socket interface to capture ACD call center data from Avaya Aura® Communication Manager. The Real-Time Socket (RT\_Socket) interface is used to obtain real-time data for splits/skills, Vector Directory Numbers (VDNs), and agents. This interface is provided by Avaya Professional Services.

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 configuration steps required to integrate Inova LightLink Middleware with Avaya Call Management System (CMS) using the Real-Time Socket interface to capture ACD call center data from Avaya Aura® Communication Manager. The Real-Time Socket (RT\_Socket) interface is used to obtain real-time data for splits/skills, Vector Directory Numbers (VDNs), and agents. This interface is provided by Avaya Professional Services.

LightLink is a platform that supports the integration, management, and delivery of real-time data. LightLink utilizes the real-time call center data from Avaya Aura® Communication Manager for splits/skills, VDNs, and agents, and provides the information to applications or contact center organizations for effective management.

The data streams of ACD call center real-time data are obtained by LightLink from CMS. A TCP client-server model is used for the connection, with CMS being the “client” and LightLink being the “server”. LightLinks’ Data Source Manager runs a TCP “listener” process to accept the data connection from the RT\_Socket interface of CMS. CMS can send data to LightLink every 15 seconds (configurable).

Avaya Professional Service installs and configures the RT\_Socket interface on CMS, and provides the TCP port number associated with each RT\_Socket session to Inova for configuring LightLink. LightLink parses the raw data streams received and makes the data available on various output devices. The real-time data can be monitored by customers via customized viewing models.

## 2. General Test Approach and Test Results

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.

The feature test cases were performed manually. Incoming calls were made to the monitored ACD/Skill and VDN groups to enable data streams to be sent to LightLink. Manual call controls and work mode changes from the Agent telephones were exercised as necessary to populate specific fields in the data streams.

The serviceability test cases were performed manually by stopping and restarting the RT\_Socket interface, and by disconnecting and reconnecting network connection to the LightLink server.

The verification of all tests included checking of proper display of real-time data at the LightLink server, and comparing the displayed data with the real-time reports from the CMS server.

## 2.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing. The feature testing focused on verifying LightLink parsing and displaying of ACD/Skill, VDN, and Agent data from CMS.

The serviceability testing focused on verifying the ability of LightLink to recover from adverse conditions, such as restarting the RT\_Socket interface.

## 2.2. Test Results

The test objectives listed in **Section 2.1** were verified and all test cases were executed and passed.

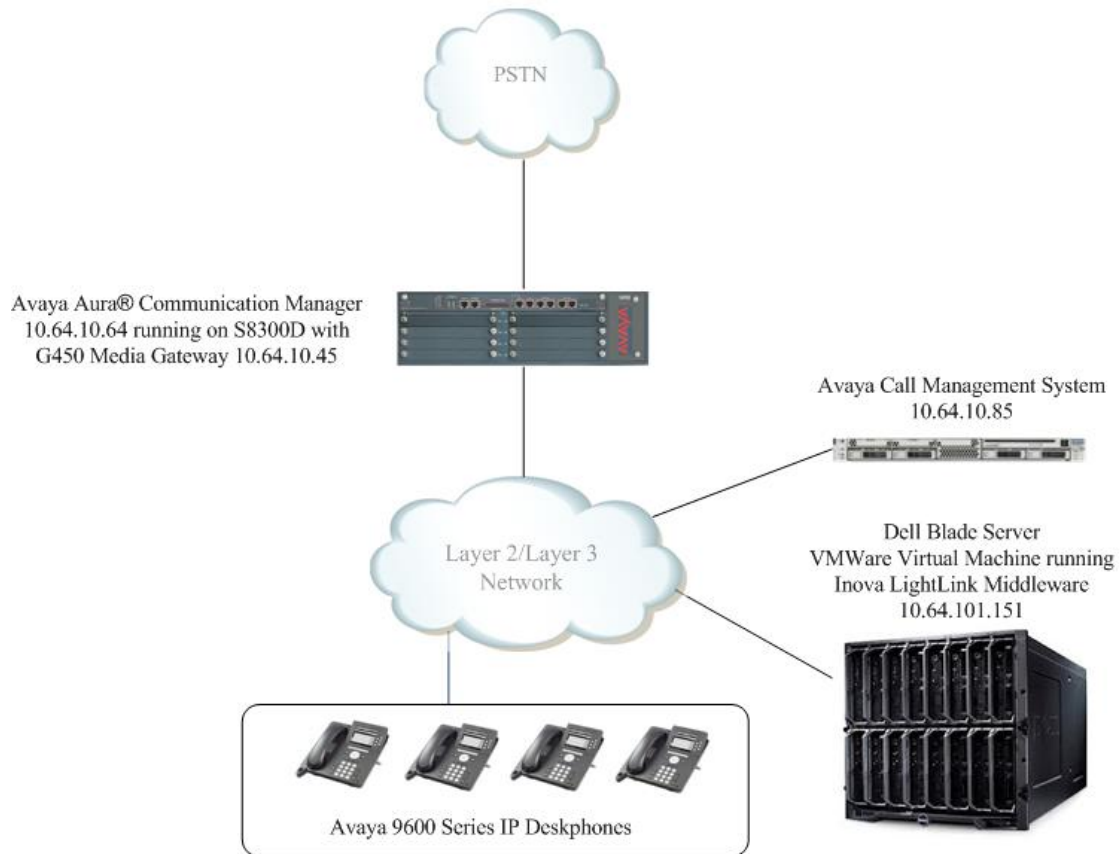
## 2.3. Support

Contact Inova Solutions for technical support via the following means:

- **Web:** <http://www.inovasolutions.com>
- **Phone:** 1-800-637-1077
- **Email:** [info@inovasolutions.com](mailto:info@inovasolutions.com)

### 3. Reference Configuration

**Figure 1** illustrates the configuration used for compliance testing. The network consisted of Communication Manager running on an S8300D card that was installed in the G450 Media gateway, Avaya Call Management System and Inova LightLink Middleware.



**Figure 1: Network Configuration**

## 4. Equipment and Software Validated

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

Equipment/Software	Release/Version
<i>Avaya PBX Products</i>	
Avaya S8300D Server running Avaya Aura® Communication Manager	6.3 SP5
Avaya G450 Media Gateway MGP MM710 T1 Module MM711 Analog Module MM712 DCP Media Module MP80 VoIP-DSP	HW 2 FW 31.20.0 HW 5 FW 22 HW 23 FW 73 HW 7 FW 14 HW 6 FW 67
<i>Avaya Call Management System</i>	
SUN SPARC Enterprise T5120 running Avaya Call Management System	R17.3
<i>Inova LightLink</i>	
Windows Server 2008 R2 Enterprise SP1 VMware Virtual Machine running Inova LightLink Middleware	v5.11

## 5. Configure Avaya Aura® Communication Manager

The administration of contact center objects and connectivity between Communication Manager and CMS are not the focus of these Application Notes and are not described here. For the details, refer to the appropriate documentation listed in **Section 10**.

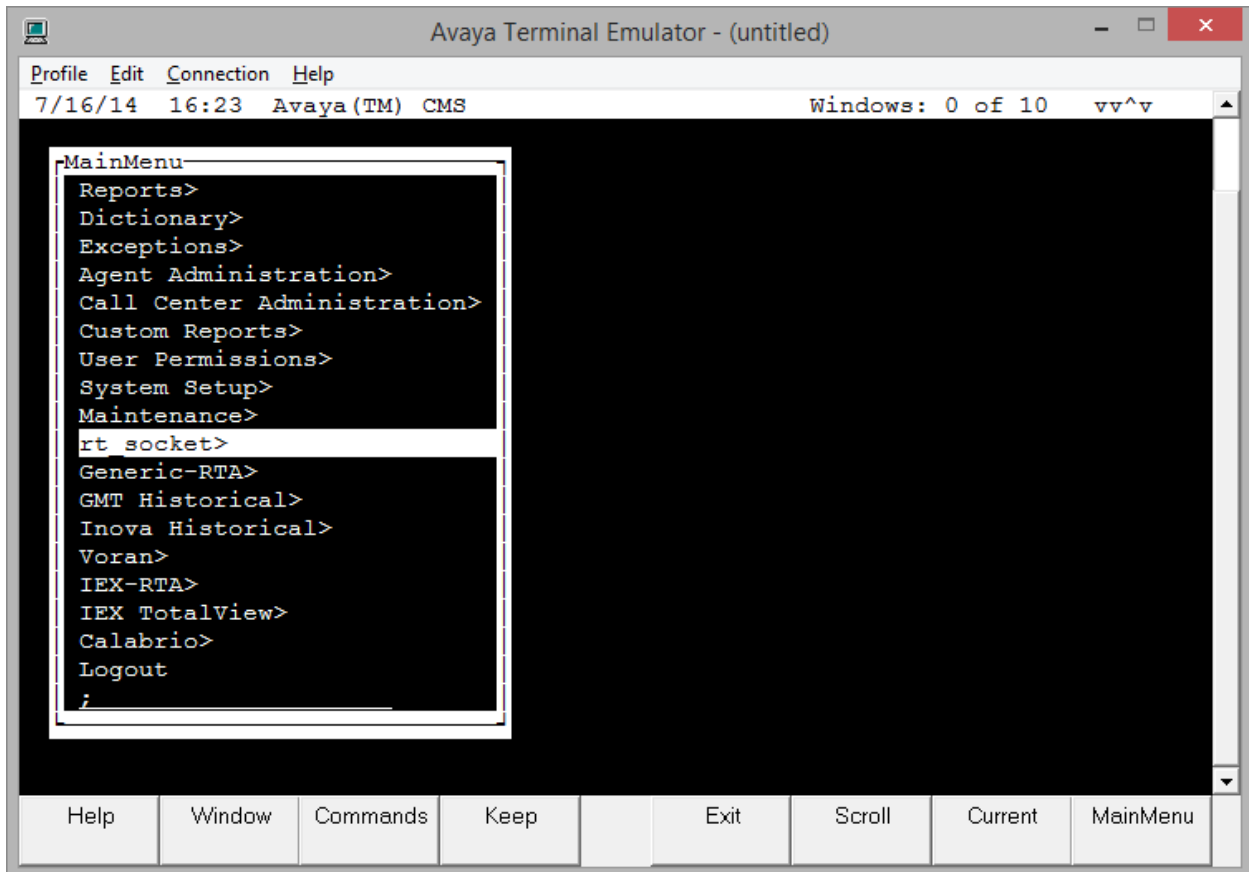
In order for the data of a skill or a VDN to be collected and forwarded to CMS, the “measured” field on the corresponding skill and VDN forms must be set to “external” or “both”. For administration of the “measured” field for a skill and a VDN, refer to the appropriate documentation listed in **Section 10**.

## 6. Configure Avaya Call Management System

Configuration of the RT\_Socket interface is performed by Avaya Professional Services and is outside the scope of these Application Notes. After the interfaces are configured, the user can follow the procedures below to enable the interface.

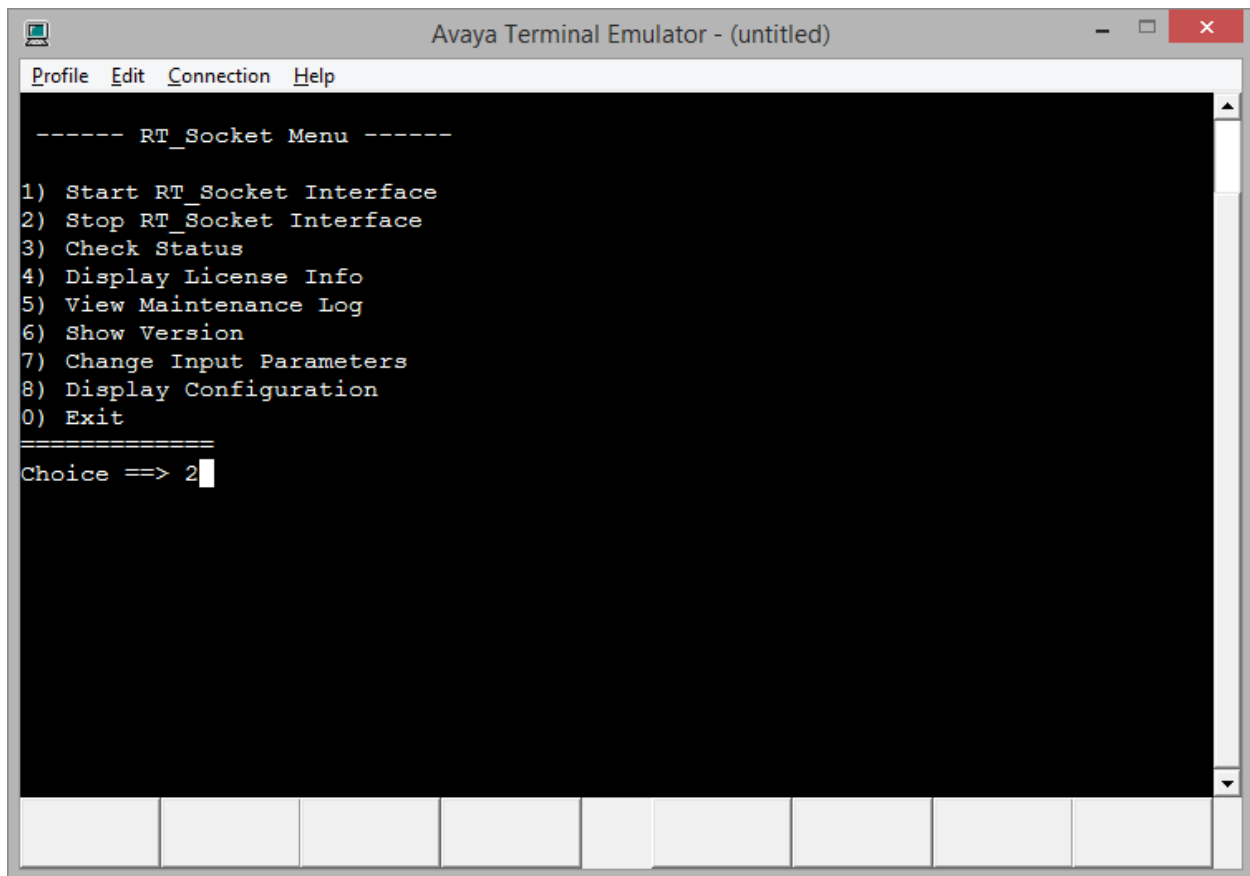
### 6.1. Enable RT\_Socket Interface

Use a terminal emulator to connect to CMS, and log in with the proper credentials. The **MainMenu** is displayed. Select **rt\_socket** from the screen below.



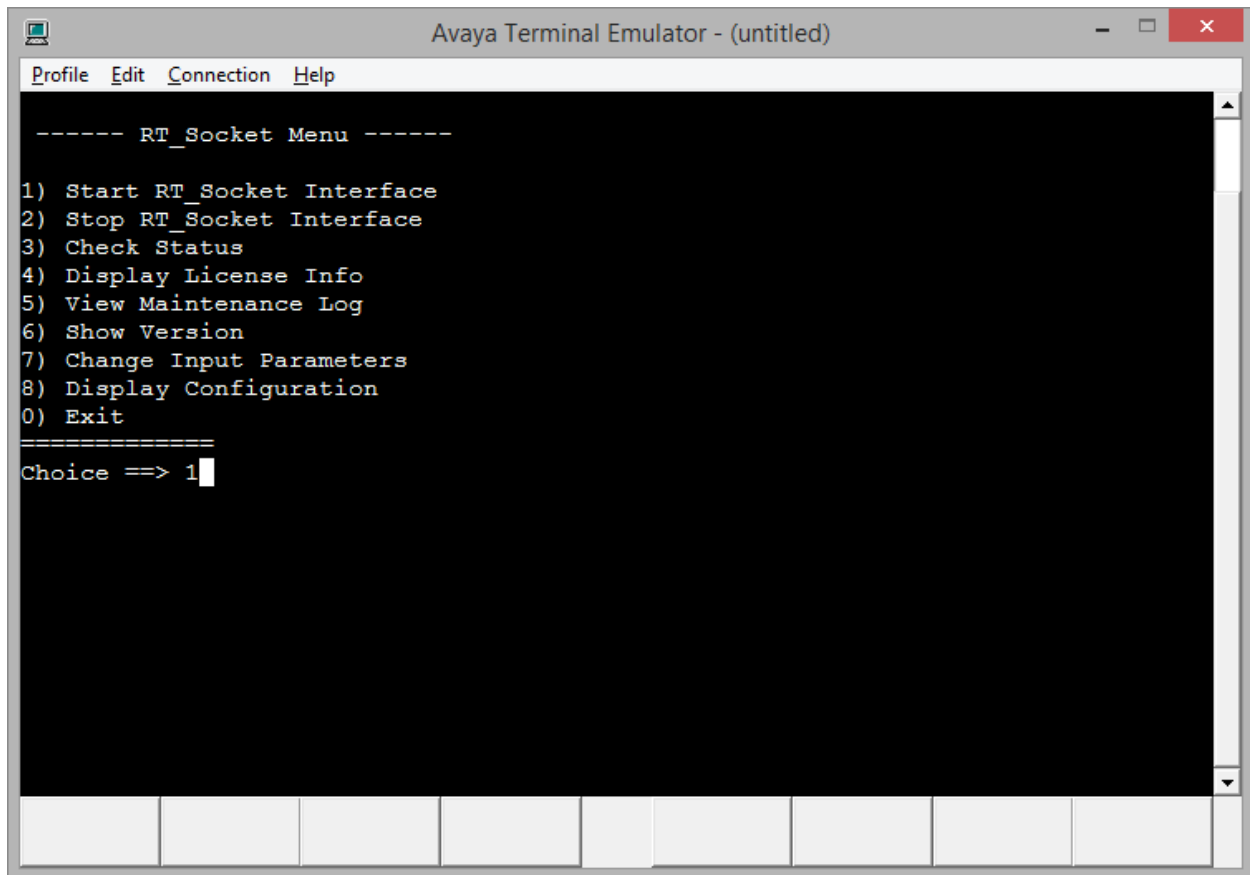
The screenshot shows a terminal window titled "Avaya Terminal Emulator - (untitled)". The window has a menu bar with "Profile", "Edit", "Connection", and "Help". Below the menu bar, the status bar shows "7/16/14 16:23 Avaya(TM) CMS" and "Windows: 0 of 10 vv^v". The main area of the terminal displays a menu titled "MainMenu" with the following options: Reports>, Dictionary>, Exceptions>, Agent Administration>, Call Center Administration>, Custom Reports>, User Permissions>, System Setup>, Maintenance>, **rt\_socket>** (highlighted with a white box), Generic-RTA>, GMT Historical>, Inova Historical>, Voran>, IEX-RTA>, IEX TotalView>, Calabrio>, Logout, and ;. At the bottom of the terminal window, there is a toolbar with buttons for Help, Window, Commands, Keep, Exit, Scroll, Current, and MainMenu.

The RT\_Socket interface needs to be stopped and restarted. Enter “2” to stop the interface, followed by the **Enter** key.



```
Avaya Terminal Emulator - (untitled)
Profile Edit Connection Help
----- RT_Socket Menu -----
1) Start RT_Socket Interface
2) Stop RT_Socket Interface
3) Check Status
4) Display License Info
5) View Maintenance Log
6) Show Version
7) Change Input Parameters
8) Display Configuration
0) Exit
=====
Choice ==> 2
```

Enter “1” to restart the interface, followed by the **Enter** key.



The screenshot shows a terminal window titled "Avaya Terminal Emulator - (untitled)". The menu displayed is:

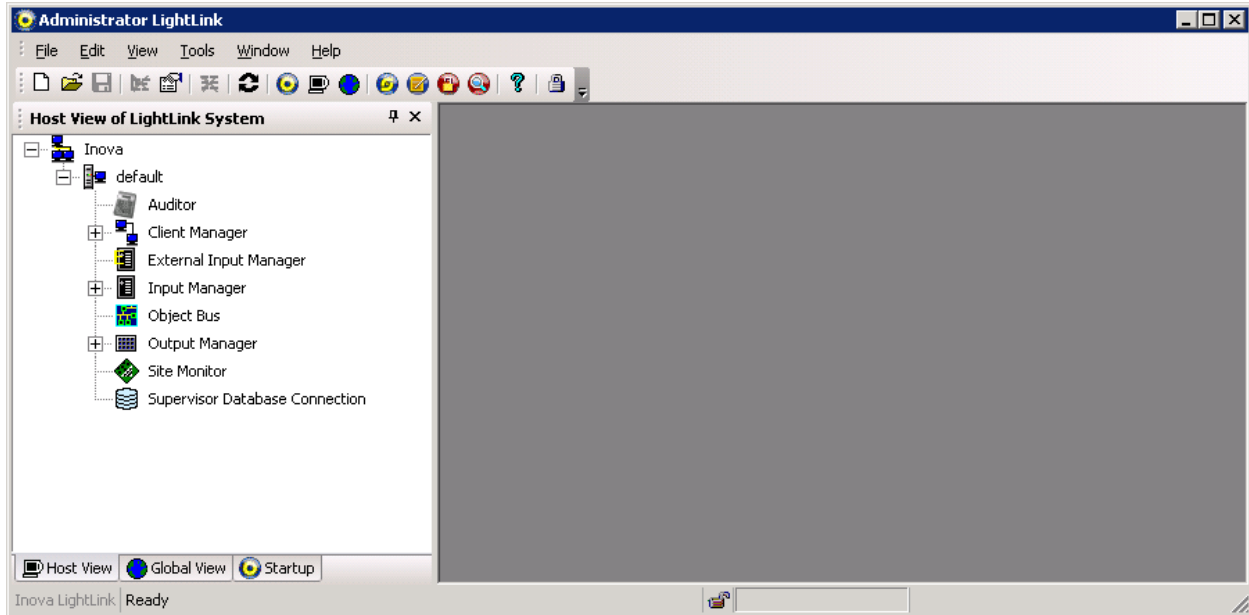
```
----- RT_Socket Menu -----  
1) Start RT_Socket Interface  
2) Stop RT_Socket Interface  
3) Check Status  
4) Display License Info  
5) View Maintenance Log  
6) Show Version  
7) Change Input Parameters  
8) Display Configuration  
0) Exit  
=====  
Choice ==> 1
```

Enter “0” to exit from this screen, followed by the **Enter** key.

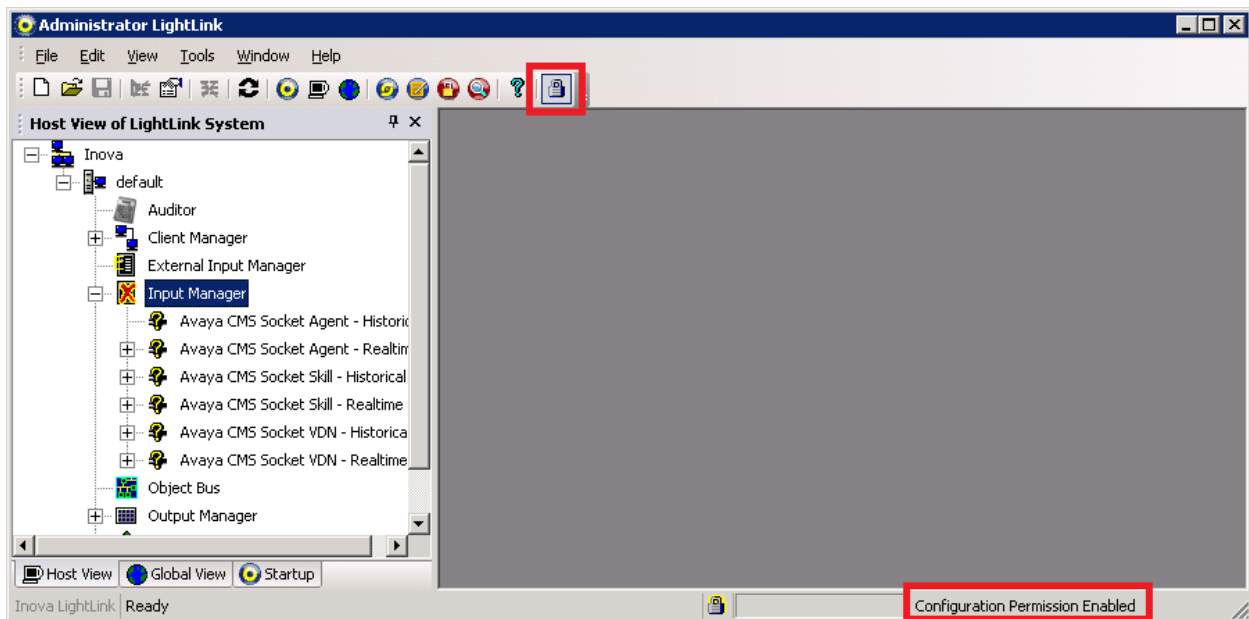


## 7. Configure Inova LightLink Middleware

Configuration for LightLink is performed via Administrator. To open Administrator, on the server running LightLink Middleware, navigate to **Start → All Programs → Inova Solutions → LightLink Middleware → Administrator**

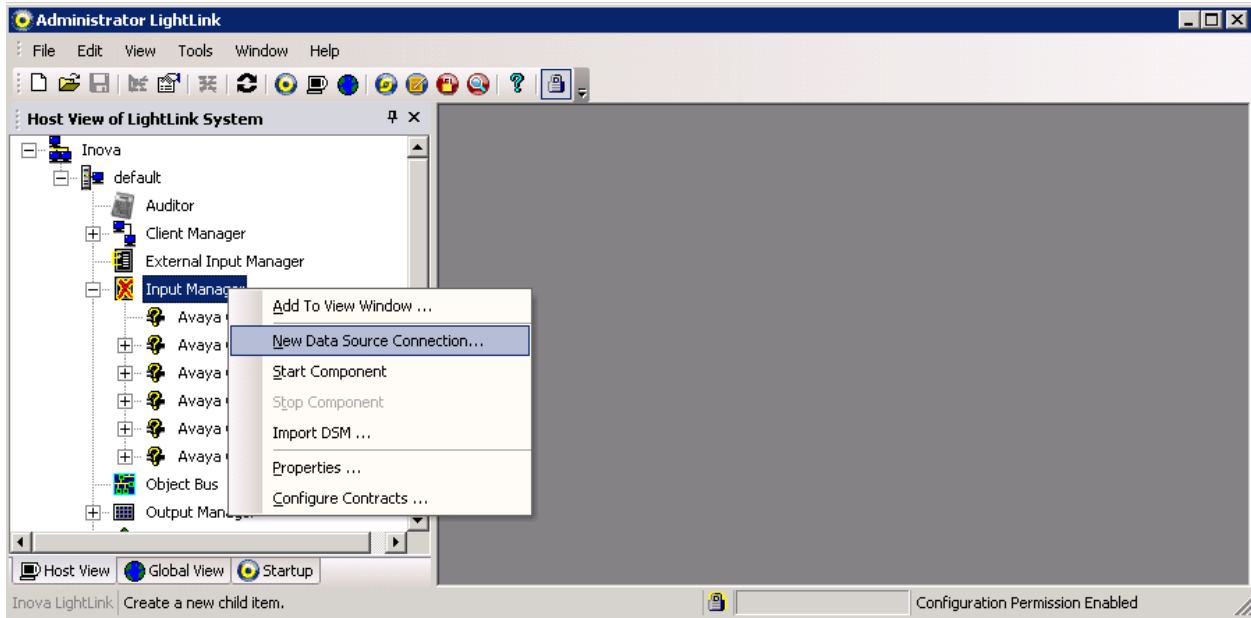


Secure configuration permissions in LightLink Administrator to enable administration. Click on the **lock** icon on the Administrator. Verify at the bottom of the window, “**Configuration Permission Enabled.**”

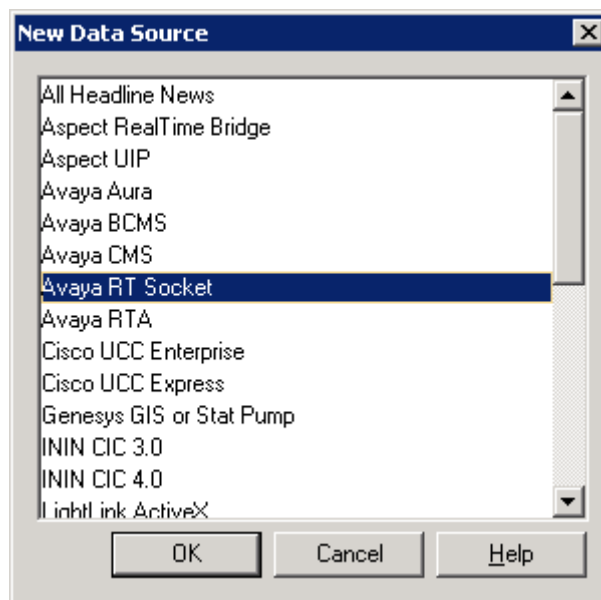


Configure one Data Source Manager (DSM) per Avaya socket connection to be used by LightLink.

Right-click the **Input Manager** and select **New Data Source Connection...**



A new window, **New Data Source** will open. Select the **Avaya RT Socket** connection for RT socket connection, and click **OK**.

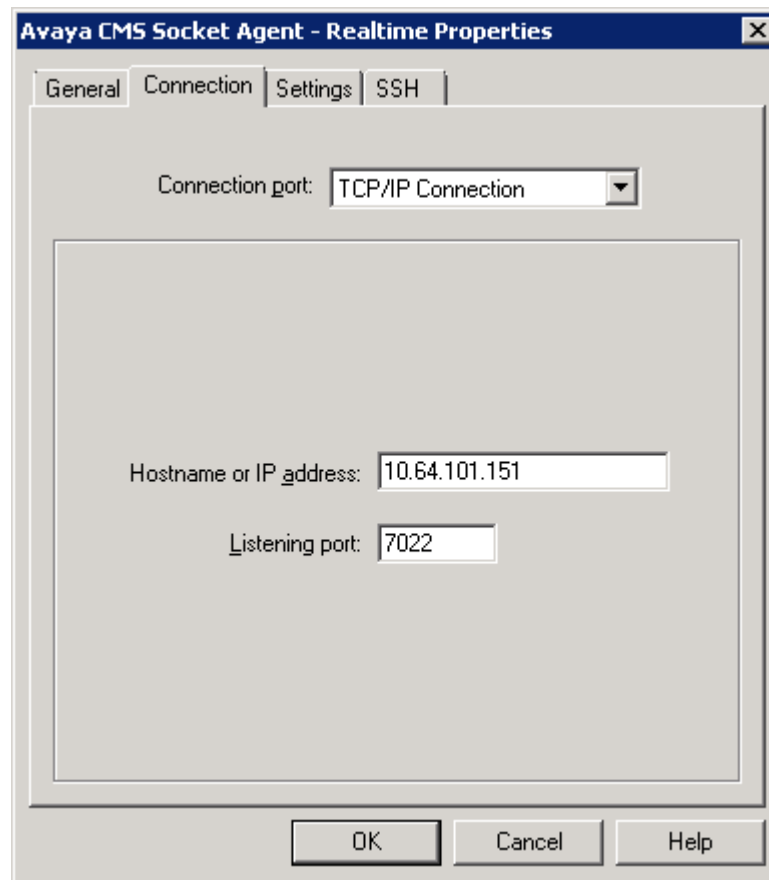


On the **General** tab, provide a descriptive name in **Name**.

The image shows a dialog box titled "Avaya CMS Socket Agent - Realtime Properties" with a close button (X) in the top right corner. The dialog has four tabs: "General", "Connection", "Settings", and "SSH". The "General" tab is selected. Inside the dialog, there are several input fields: a "Name" field containing "Avaya CMS Socket Agent - Realtime", a "Server ID" field containing "777", a "Preferred ID" field containing "11", and a "Remote" section with a "Host" dropdown menu set to "default". At the bottom of the dialog are three buttons: "OK", "Cancel", and "Help".

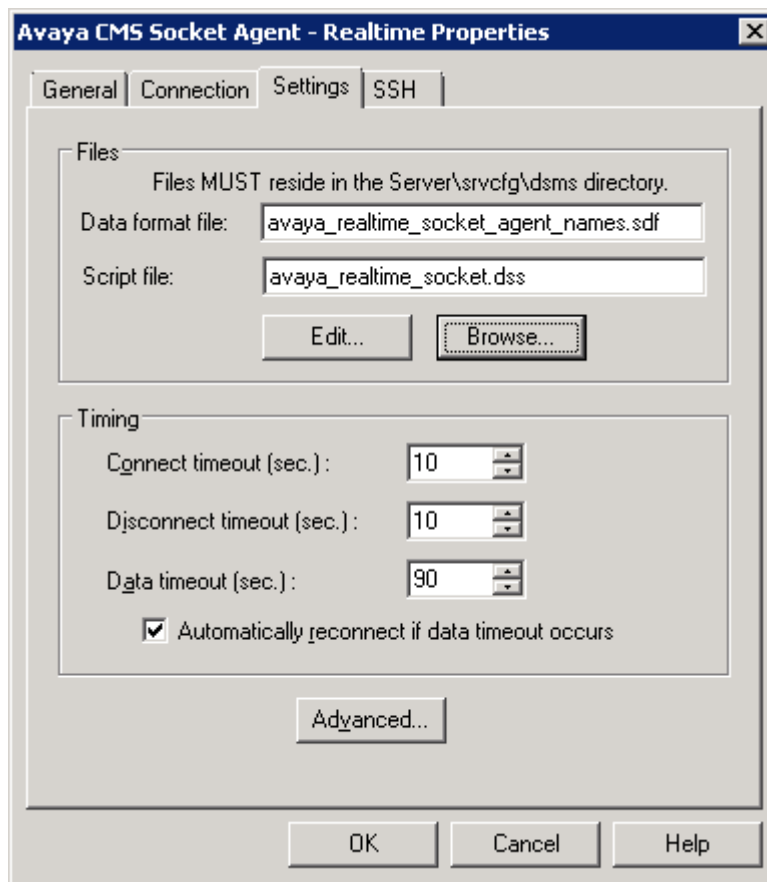
On the **Connection** tab:

- Select **TCP/IP Connection** for **Connection port**.
- Set **Hostname or IP address** to LightLink host machine's IP address or hostname, (localhost or local works as well).
- Set **Listening Port** to the port number for the given socket connection, as configured in CMS and provided by Avaya Professional Services.

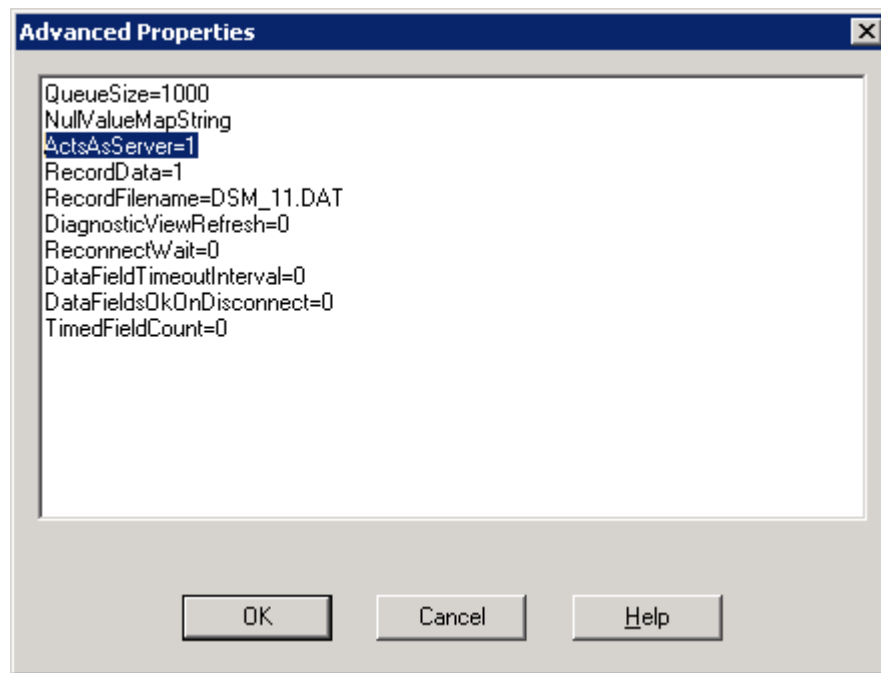


On the **Settings** tab, one will need to configure three things:

- For the **Data format file**, select the following:
  - RT Socket Skill: avaya\_realtime\_socket\_skill.sdf
  - RT Socket VDN: avaya\_realtime\_socket\_vdn.sdf
  - RT Socket Agent: avaya\_realtime\_socket\_agent\_names.sdf
- For the **Script file**, select the following: avaya\_realtime\_socket.dss



- Click the **Advanced...** button to open the **Advanced Properties** dialog and change the value of the **ActAsServer** parameter from **0** to **1** so that the DSM accepts connections from the CMS.



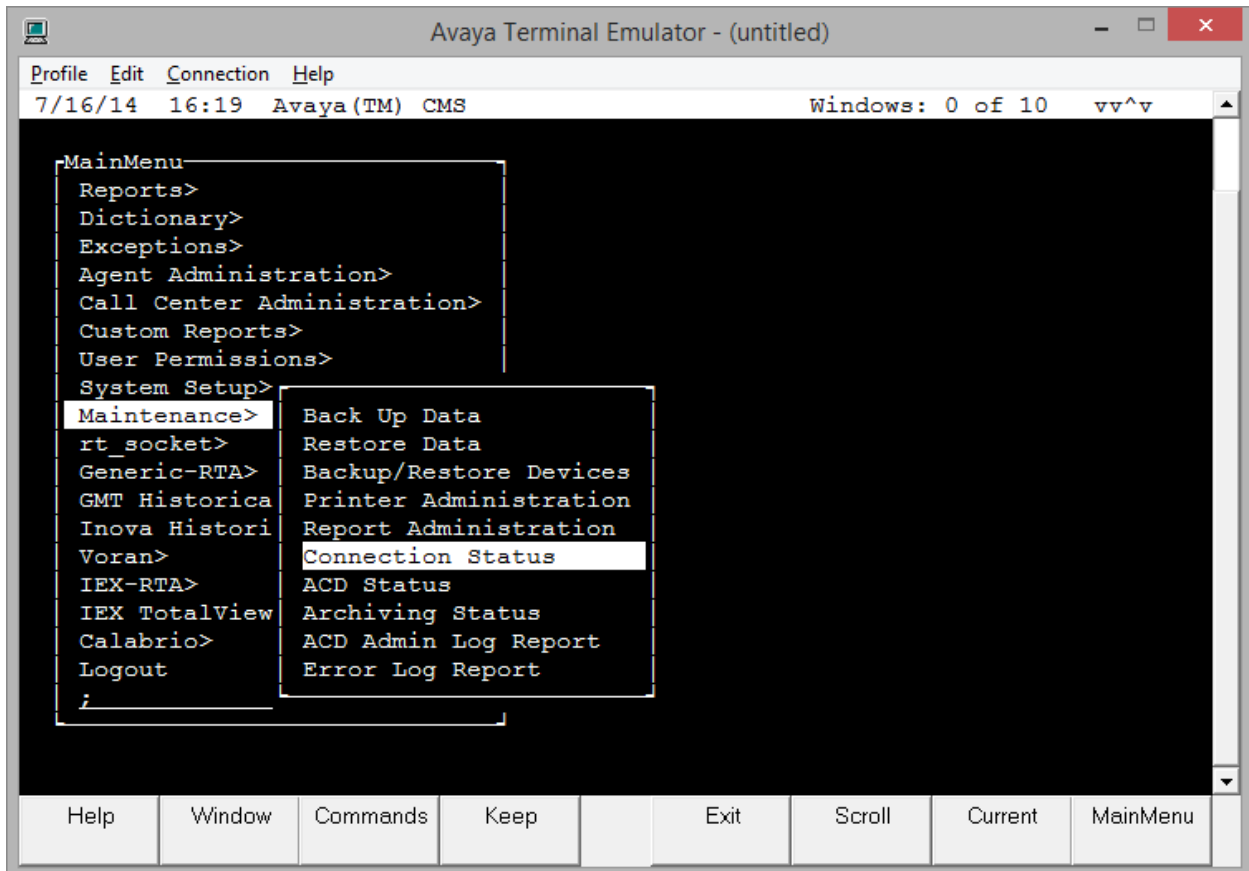
- Click **OK** on the **Advanced Properties** window to close it, and then click **OK** on the DSM Configuration dialog to start the DSM.

## 8. Verification Steps

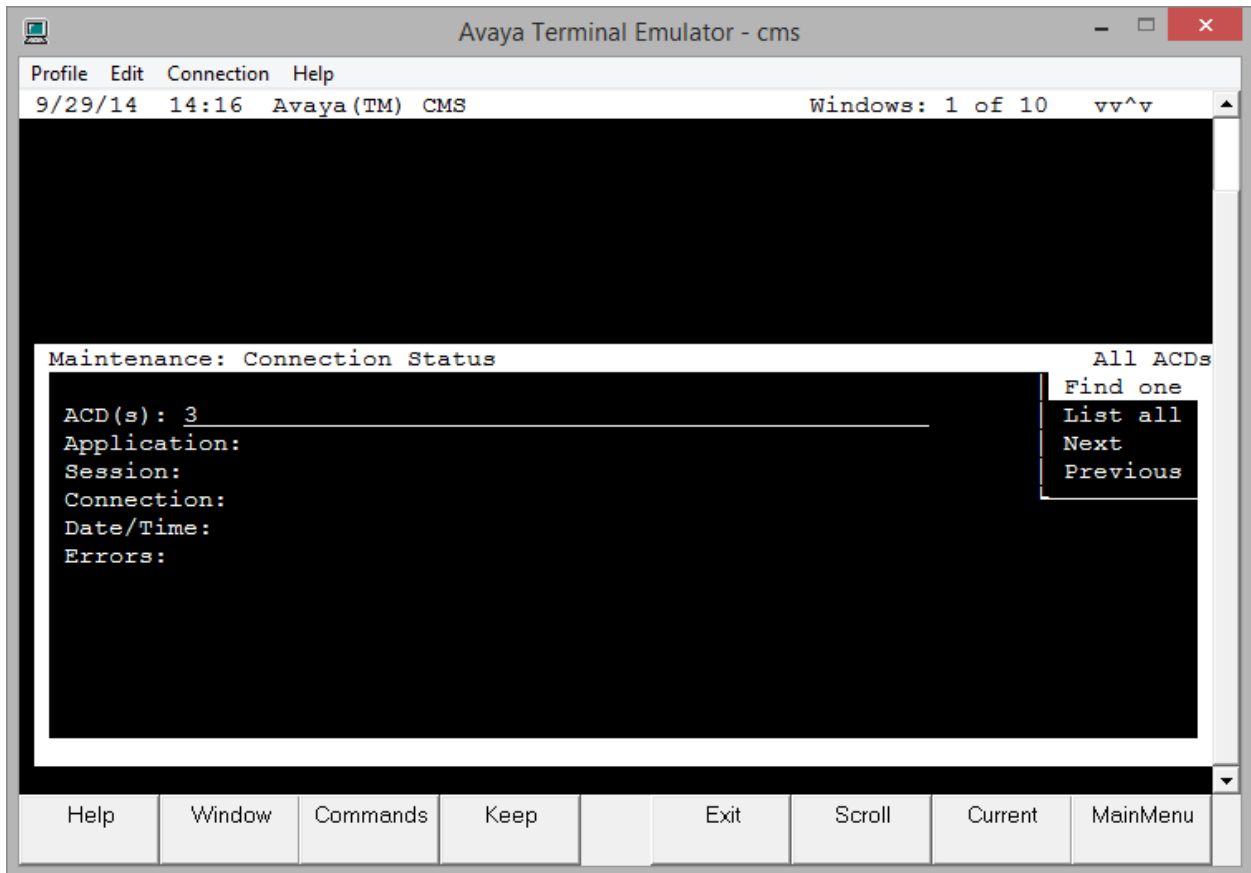
This section provides the tests that can be performed to verify proper configuration of Communication Manager, CMS, and LightLink.

### 8.1. Verify Avaya Call Management System

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

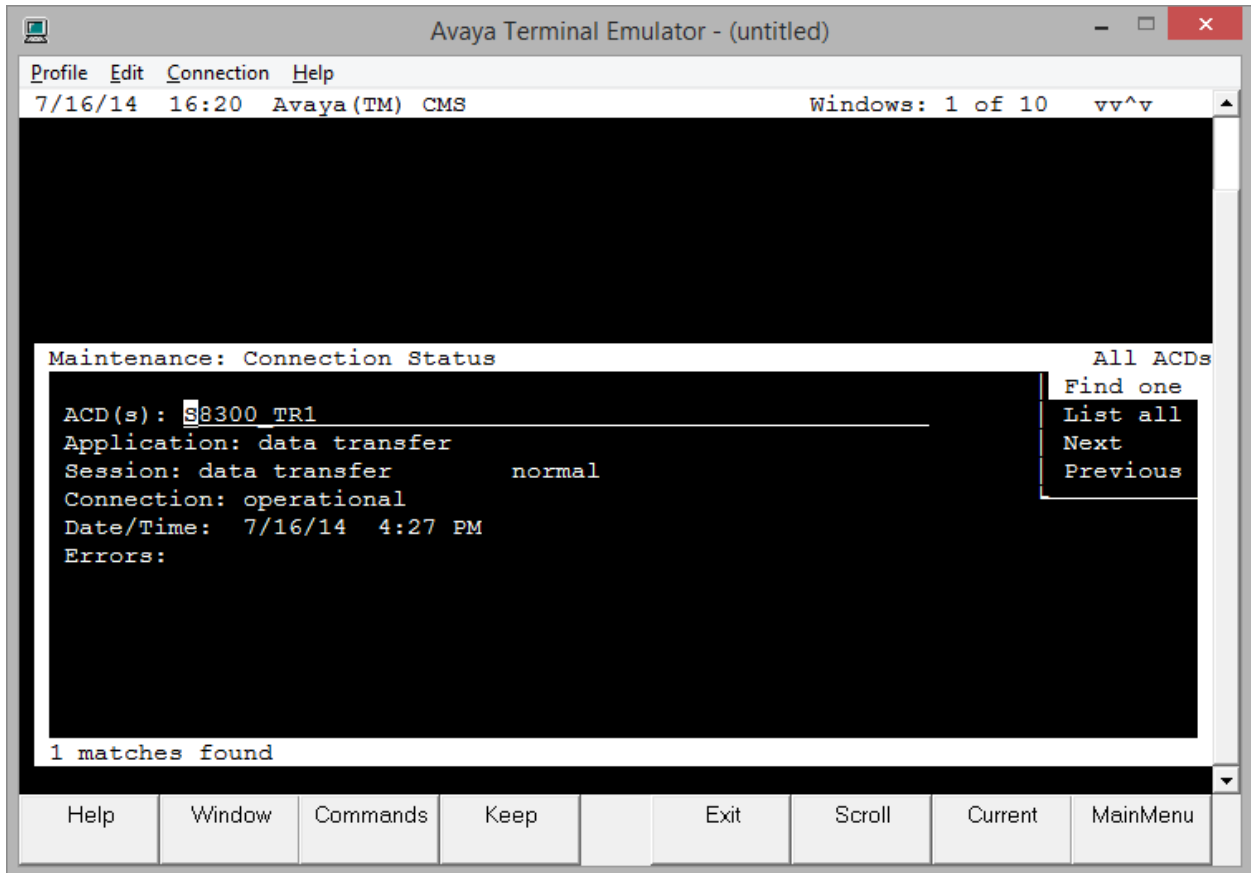


Enter the corresponding **ACD(s)** number, which is provided by Avaya Professional Services. For the compliance testing, the corresponding switch connection is ACD system “3”. Tab over to **Find one** and press **Enter**.

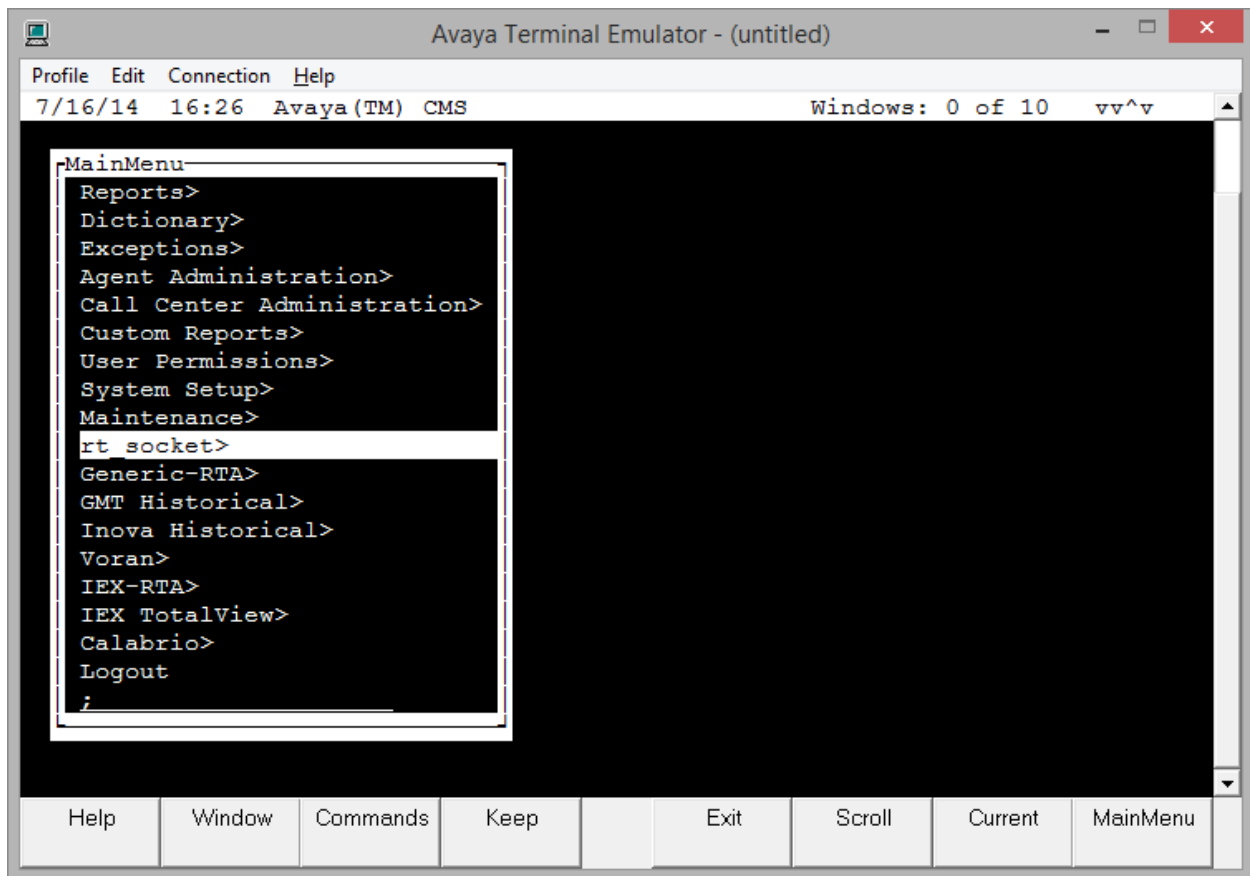




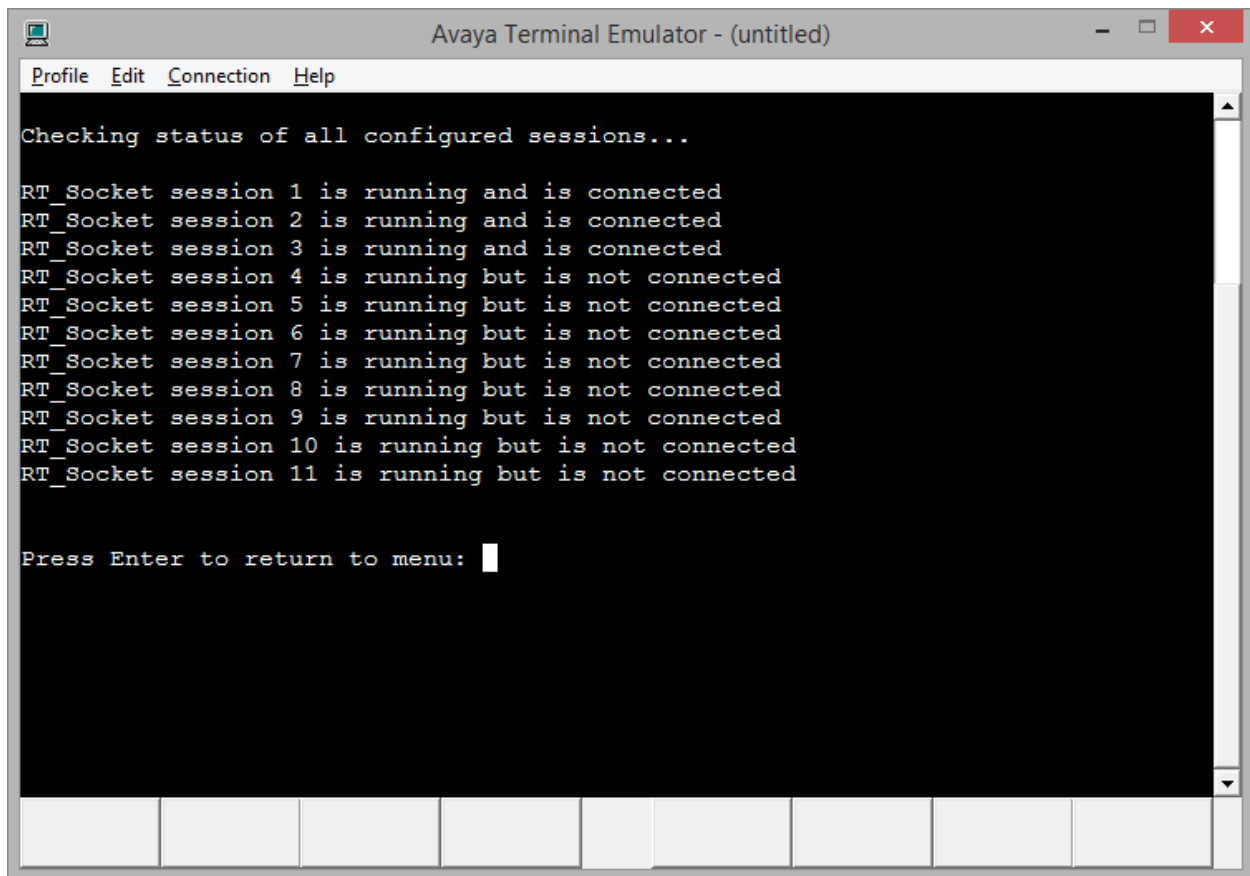
The switch connection status is displayed. Check the status in the **Session** and **Connection** fields as **data transfer normal** and **operational**, respectively.



From the **Main Menu**, verify the status of the connection to Communication Manager by selecting **rt\_socket**, as shown below.



From the rt\_socket menu, select 3; if the connection between CMS and LightLink is established the session station will be displayed as “...is running and is connected.”

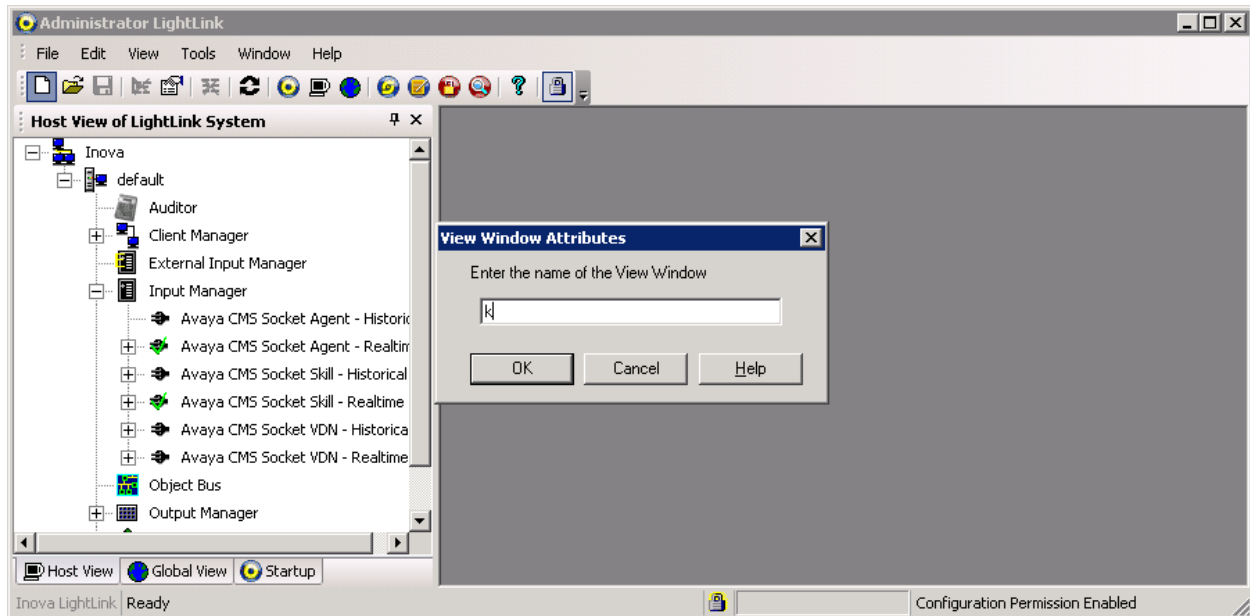


```
Avaya Terminal Emulator - (untitled)
Profile Edit Connection Help
Checking status of all configured sessions...
RT_Socket session 1 is running and is connected
RT_Socket session 2 is running and is connected
RT_Socket session 3 is running and is connected
RT_Socket session 4 is running but is not connected
RT_Socket session 5 is running but is not connected
RT_Socket session 6 is running but is not connected
RT_Socket session 7 is running but is not connected
RT_Socket session 8 is running but is not connected
RT_Socket session 9 is running but is not connected
RT_Socket session 10 is running but is not connected
RT_Socket session 11 is running but is not connected

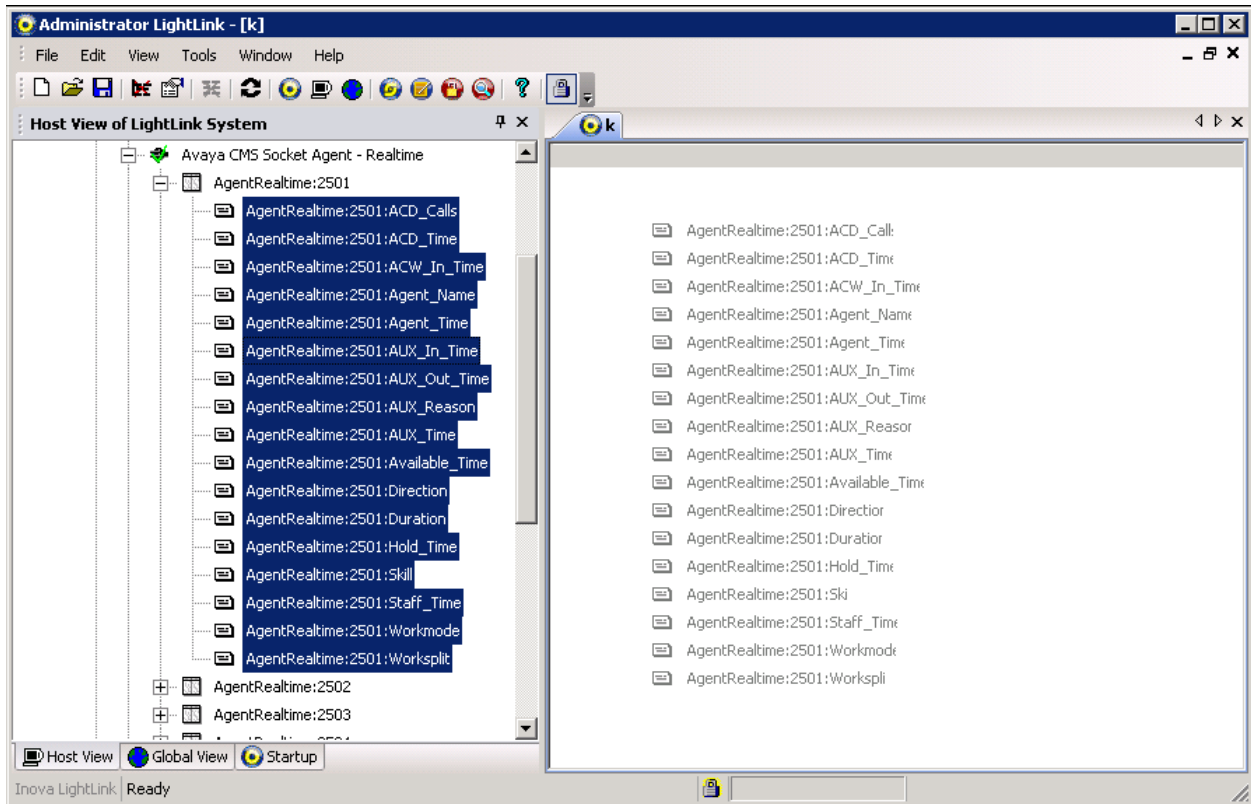
Press Enter to return to menu: █
```

## 8.2. Verify Inova LightLink Middleware

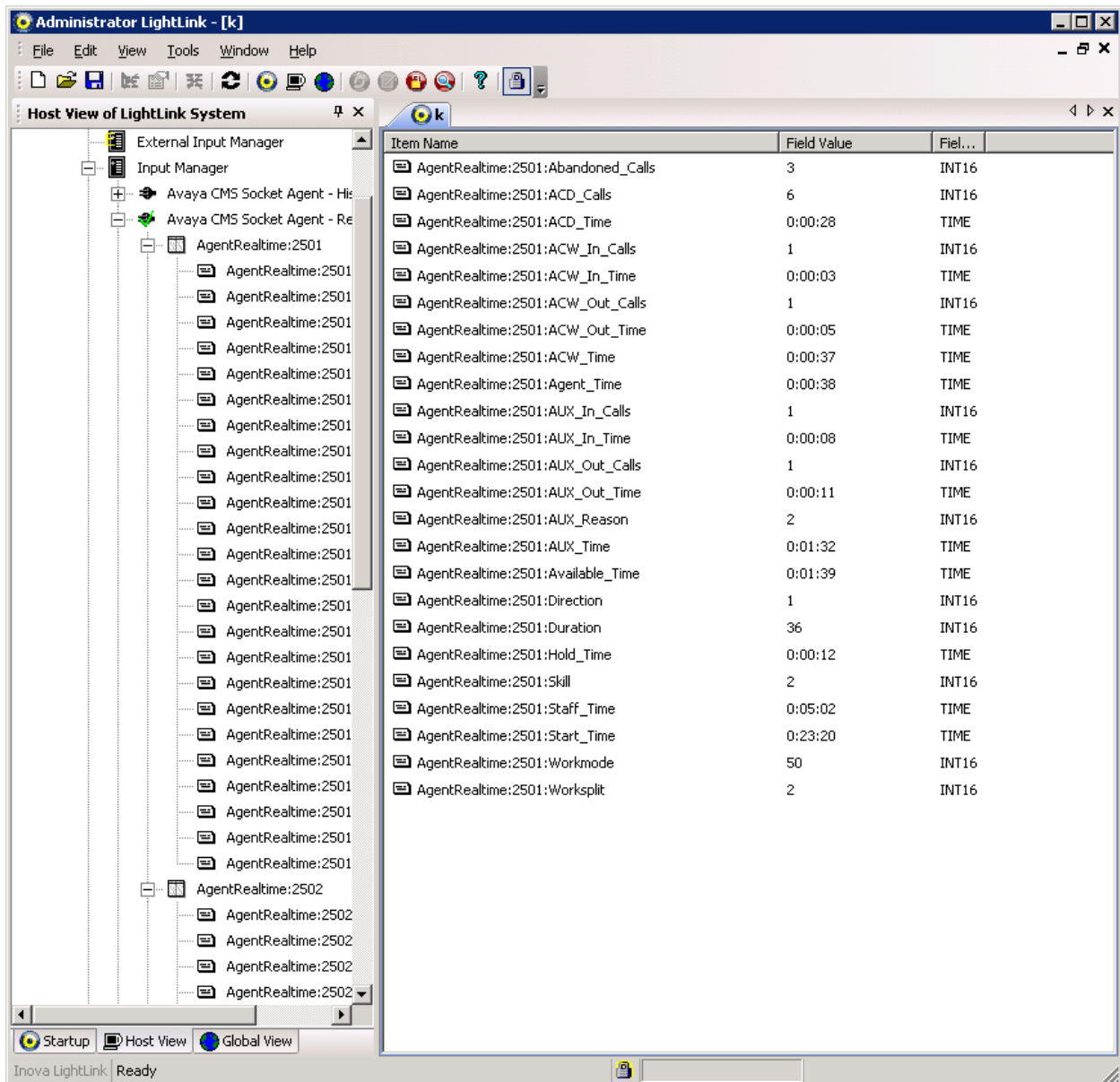
To verify, LightLink is receiving data from CMS, open **Administrator** and click **New** to add a new View Window. Provide a name and click **OK**.



Navigate to a report under **Input Manager** and collapse it to view all the fields. In this case, **Avaya CMS Socket Agent – Real-time** report for **Agent 2501**. Select all the fields and drag to the View Window.



If data from CMS is being received correctly, **Field Value** column will contain data specific to each field.



## 9. Conclusion

These Application Notes describe the configuration steps required for Inova LightLink Middleware to successfully interoperate with Avaya Aura® Communication Manager and Avaya Call Management System using the Real-Time Socket interface. All feature and serviceability test cases were completed successfully.

## 10. References

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

- [1] *Administering Avaya Aura® Communication Manager*, Release 6.3, Issue 10, June 2014, Document Number 03-300509, available at <http://support.avaya.com>.
- [2] *Avaya Call Management System Administration*, Release 17, June 2014, available at <http://support.avaya.com>.

Documentation related to Inova products can be obtained directly from Inova.

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