



**Avaya Solution & Interoperability Test Lab**

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## **Application Notes for Inova LightLink with Avaya Communication Manager and Avaya Call Management System with Inova Historical Interface – Issue 1.0**

### **Abstract**

These Application Notes describe the configuration steps required to integrate Inova LightLink with Avaya Call Management System using the Inova Historical interface to capture ACD call center data from Avaya Communication Manager. The Inova Historical interface is used to obtain splits/skills, Vector Directory Numbers (VDNs), and agents data periodically. This interface is provided by the Avaya Communication Solutions and Integration (CSI) group within Avaya Global Services.

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.

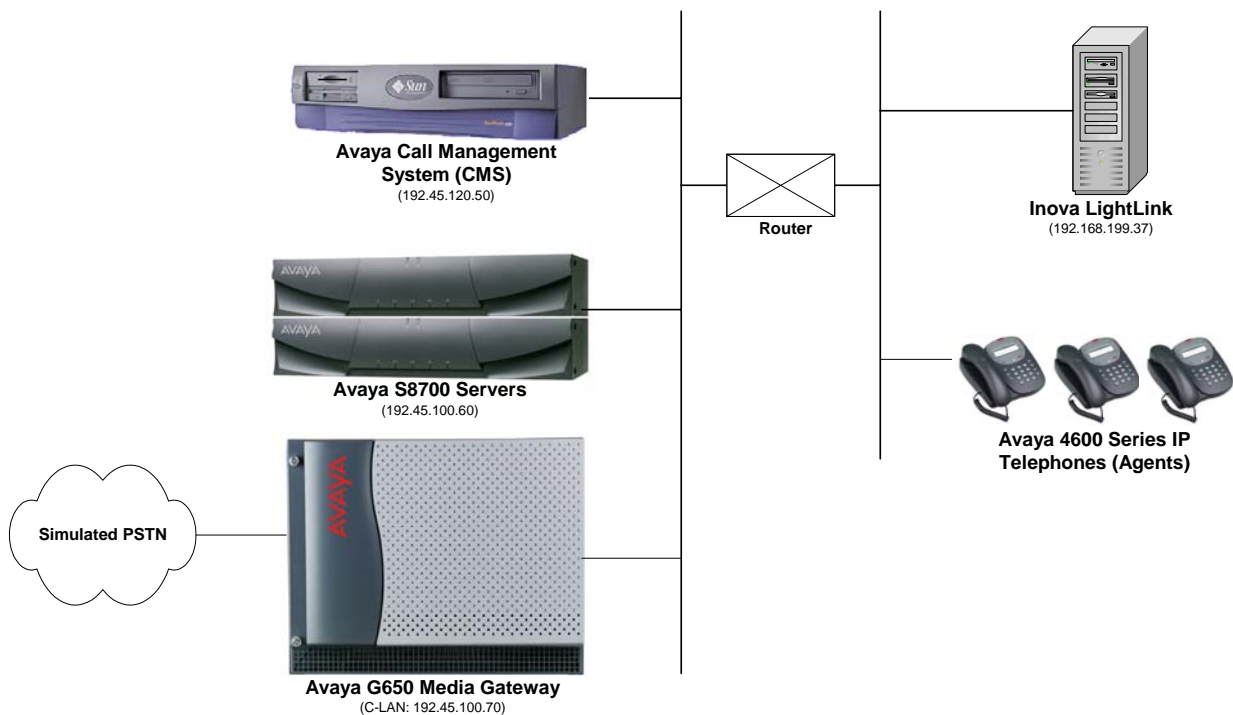
# 1. Introduction

These Application Notes describe the configuration steps required to integrate Inova LightLink with Avaya Call Management System using the Inova Historical interface to capture ACD call center data from Avaya Communication Manager. The Inova Historical interface is used to obtain splits/skills, Vector Directory Numbers (VDNs), and agents data periodically. This interface is provided by the Avaya Communication Solutions and Integration (CSI) group within Avaya Global Services.

Inova LightLink is a middleware platform that supports the integration, management, and delivery of real-time data. Inova LightLink utilizes the real-time call center data from Avaya 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 historical data are obtained by Inova LightLink from Avaya CMS. A TCP client-server model is used for the connection, with Avaya CMS being the “client” and Inova LightLink being the “server”. Inova LightLink runs a TCP “listener” process to accept the data connection from the Inova Historical interface of Avaya CMS. Avaya CMS can send data to Inova LightLink at 15, 30, or 60 minute intervals (configurable).

Avaya CSI installs and configures the Inova Historical interface on Avaya CMS, and provides the TCP port number associated with each historical interface session to Inova for configuring LightLink. LightLink parses the raw data streams received and makes the data available on various output devices. The historical data can be monitored by customers via customized viewing models.



## 2. Equipment and Software Validated

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

Equipment	Software
Avaya S8700 Servers	Avaya Communication Manager 4.0, load 730.5
Avaya G650 Media Gateway <ul style="list-style-type: none"><li>▪ TN799DP C-LAN Circuit Pack</li></ul>	HW01 FW024
Avaya Call Management System	r14aa.h
Avaya 4600 Series IP Telephones	2.8 (H.323)
Inova LightLink	5.6.264.0

## 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 Chan	Enable	Appl.	Gtwy To	Interface Mode	Link/Chan	Destination Node	Port	Session Local/Remote	Mach 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*: Inova 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 and Agent

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

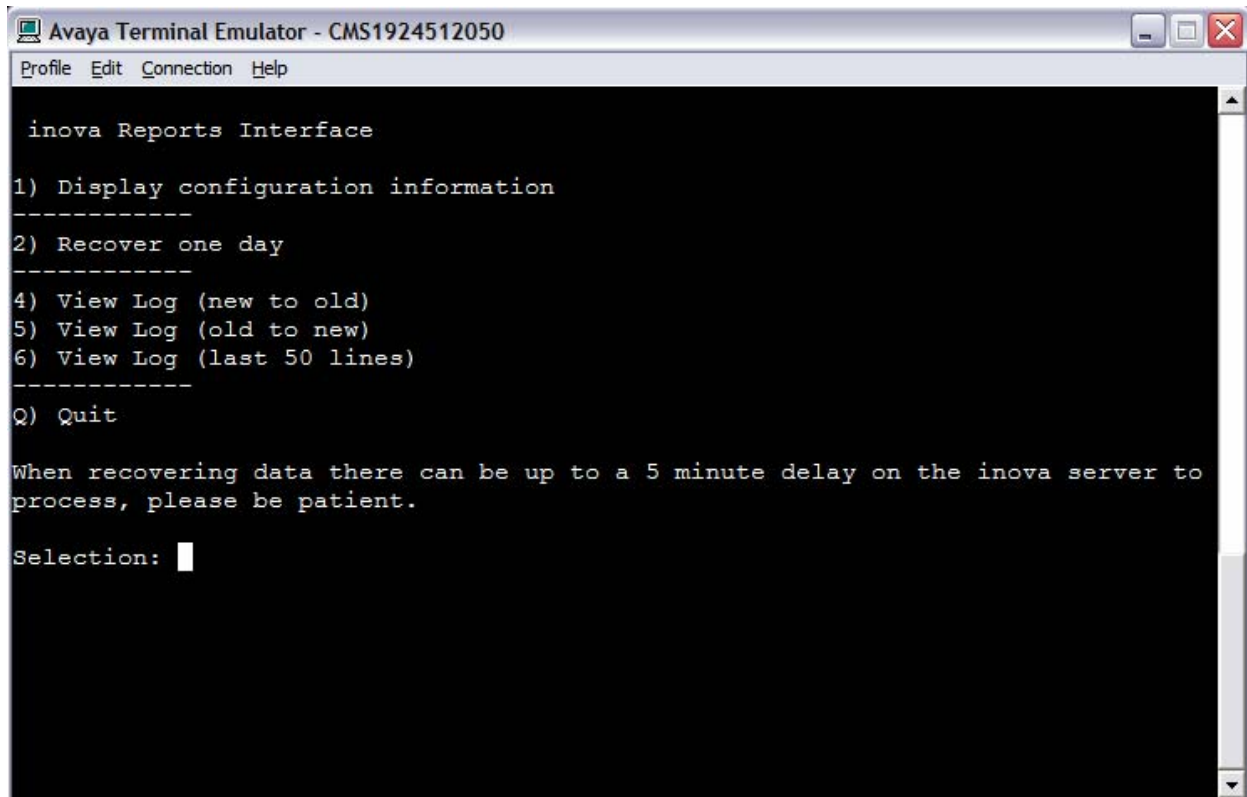
Configuration of the Inova Historical interface is performed by Avaya CSI and is outside the scope of these Application Notes. After the interfaces are configured, the user can follow the procedures below to enable the interface.

### 4.1. Verify Inova Historical Interface

The Inova Historical Interface is always enabled and monitoring splits/skills, VDNs, and agents on Avaya Communication Manager. To verify that ACD call center data is being monitored, use a terminal emulator to connect to Avaya CMS and log in with the proper credentials. The **Main Menu** is displayed as shown below. Select **Inova** from the **Main Menu**.

```
Avaya Terminal Emulator - CMS1924512050
Profile Edit Connection Help
3/31/08 17:31 Avaya (TM) CMS Windows: 0 of 10 ^^^
Main Menu
Reports>
Dictionary>
Exceptions>
Agent Administration>
Call Center Administration>
Custom Reports>
User Permissions>
System Setup>
Maintenance>
Generic-RTA>
RT Socket>
Inova>
Logout
;
```

After selecting the **Inova** option, the **Inova Reports Interface** menu appears as shown below.



```
Avaya Terminal Emulator - CMS1924512050
Profile Edit Connection Help

inova Reports Interface

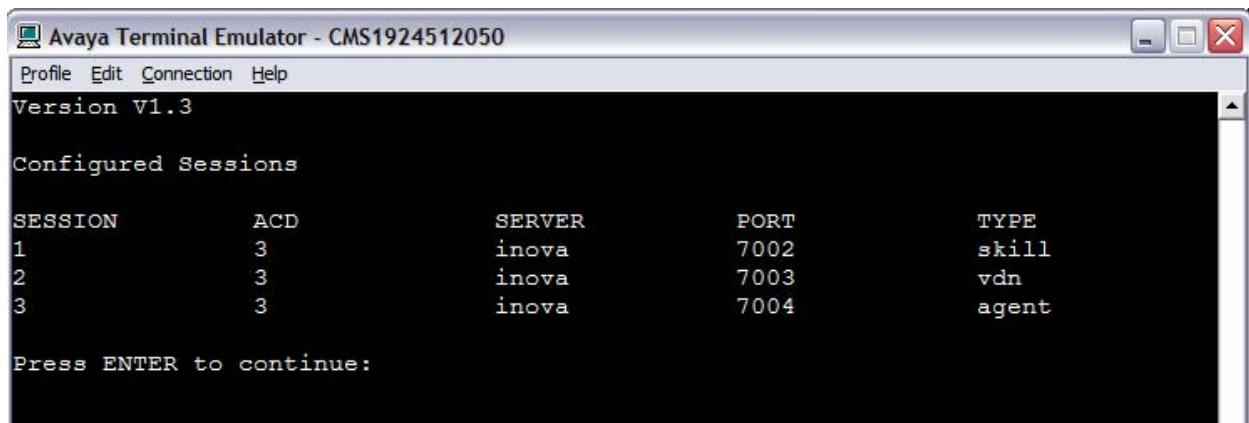
1) Display configuration information
-----
2) Recover one day
-----
4) View Log (new to old)
5) View Log (old to new)
6) View Log (last 50 lines)
-----
Q) Quit

When recovering data there can be up to a 5 minute delay on the inova server to
process, please be patient.

Selection: █
```

Enter “1” to display the configuration information, followed by the **Enter** key. The **Configured Sessions** screen appears. A description of the screenshot fields appear.

- **SESSION:** Each session defines a connection that Avaya CMS establishes with Inova LightLink.
- **ACD:** This column displays the ACD number associated with Avaya Communication Manager as configured on Avaya CMS.
- **SERVER:** Always displays “inova” as the name for Inova LightLink.
- **PORT:** Shows the TCP port that will be used to transfer data during each session.
- **TYPE:** This column defines what type of data will be transferred during each session.



The screenshot shows a terminal window titled "Avaya Terminal Emulator - CMS1924512050". The terminal displays the following text:

```
Profile Edit Connection Help
Version V1.3
Configured Sessions
SESSION      ACD      SERVER    PORT     TYPE
1            3        inova     7002    skill
2            3        inova     7003    vdn
3            3        inova     7004    agent
Press ENTER to continue:
```

## 5. Configure Inova LightLink

This section provides the procedures for configuring Inova LightLink. The procedures fall into the following areas:

- Administer Inova historical interface for Skill data
- Administer Inova historical interface for VDN data
- Administer Inova historical interface for Agent data

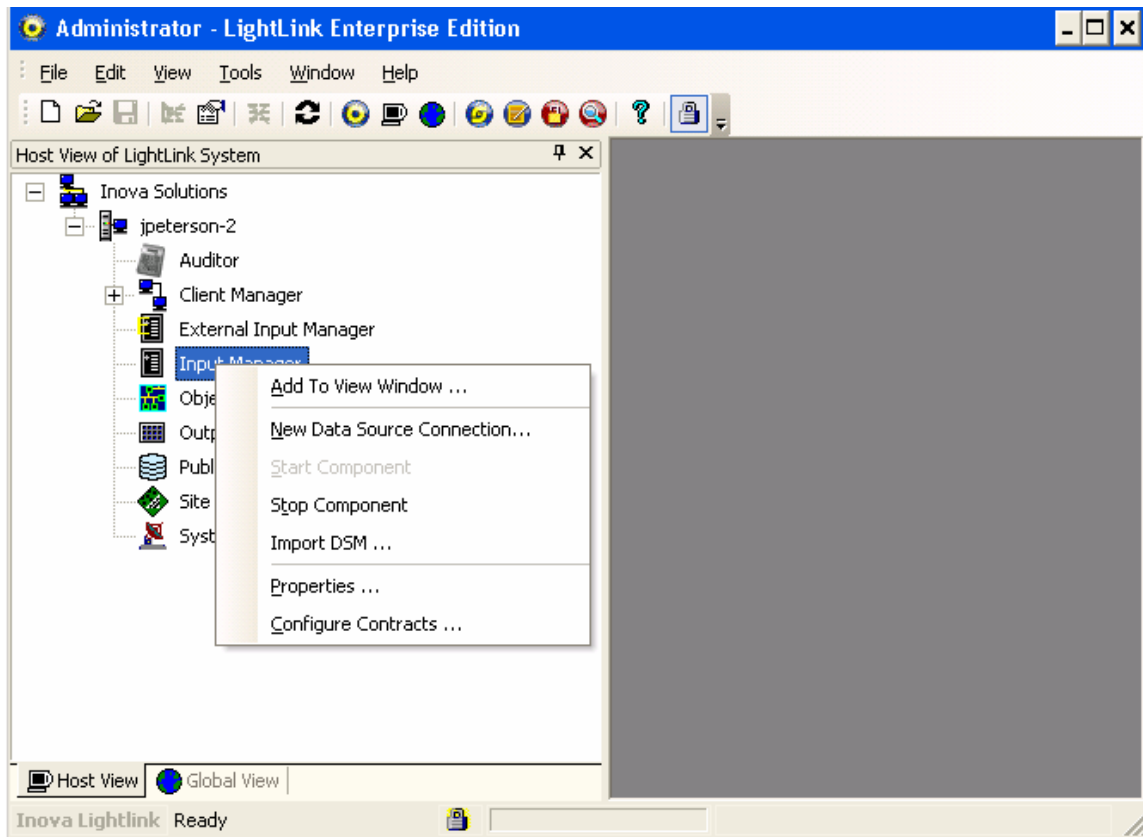
Configuration of LightLink is typically performed by Inova technicians. The procedural steps are presented in these Application Notes for informational purposes.

### 5.1. Administer Inova Historical Interface for Skill Data

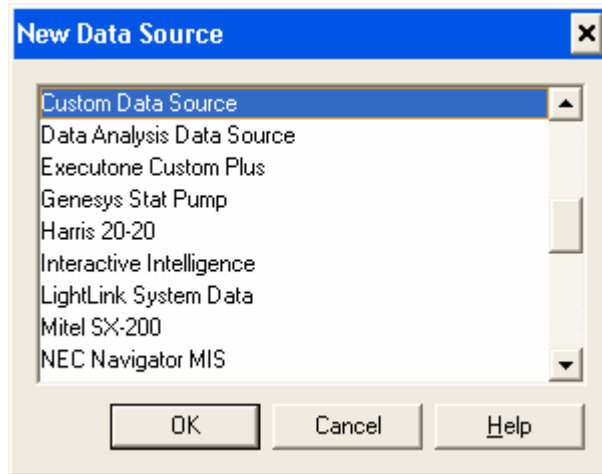
From the LightLink server, start the **Administrator** application by launching **Programs → Inova LightLink → Administrator**. The **Administrator** screen is displayed.

#### 5.1.1. Administer New Custom Data Source

Right-click on **Input Manager** in the left pane and select **New Data Source Connection** from the pop-up menu.

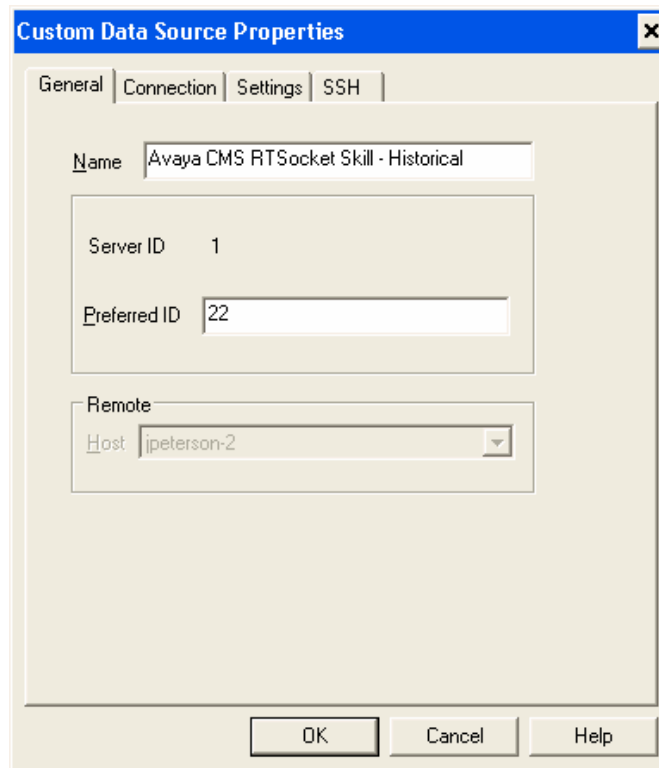


The **New Data Source** screen is displayed on top of the **Administrator** screen. Scroll down the window and select **Custom Data Source**. Click **OK**.



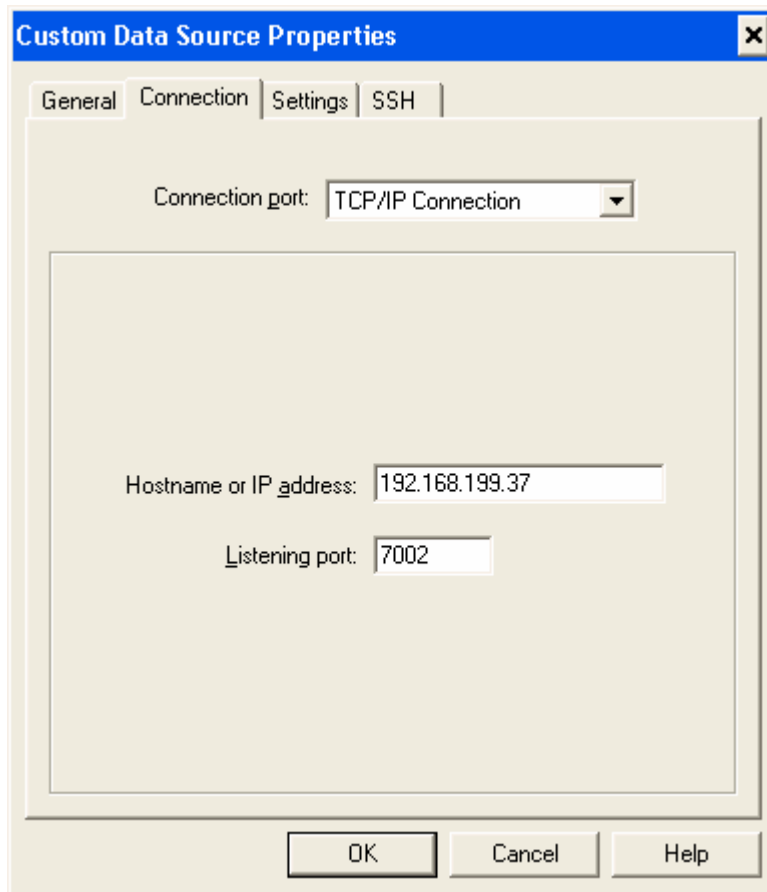
### 5.1.2. Administer Custom Data General Tab

The **Custom Data Source Properties** screen is displayed next. Select the **General** tab and enter a descriptive name for the new data source. In this case, “Avaya CMS RT Socket Skill – Historical” is used. Retain the default value for the **Preferred ID** field.



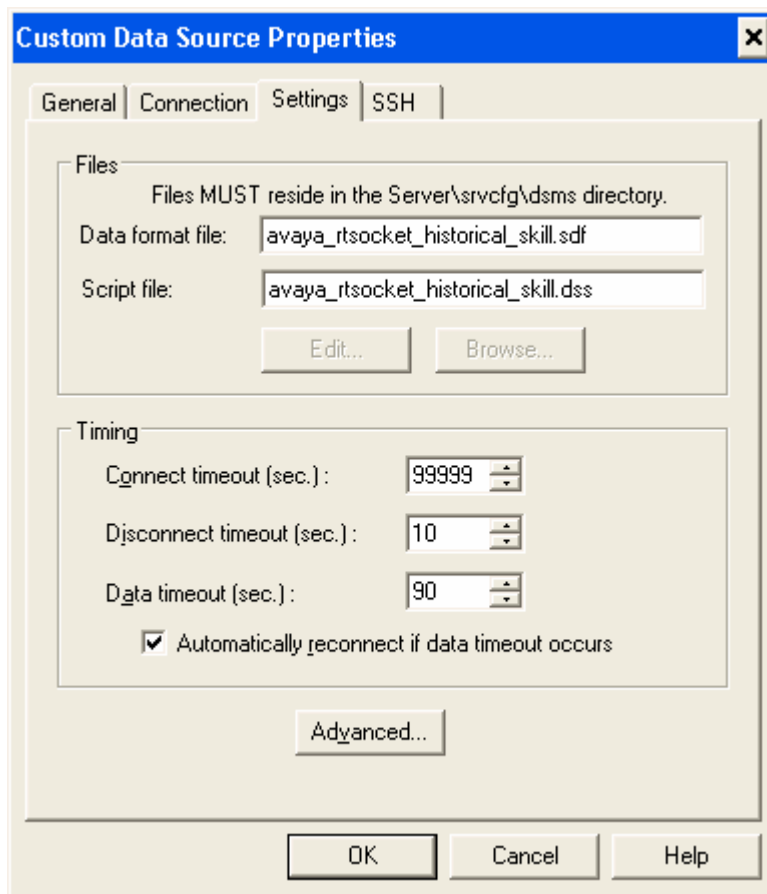
### 5.1.3. Administer Custom Data Connection Tab

Select the **Connection** tab. For the **Connection port** field, select “TCP/IP Connection” from the drop-down list. Enter the IP address of the LightLink server into the **Hostname or IP address** field. For the **Listening port** field, enter the TCP port number that the Avaya CMS server uses for transferring Skills data. This port number is provided by Avaya CSI. For the compliance testing, the port number used was “7002”.

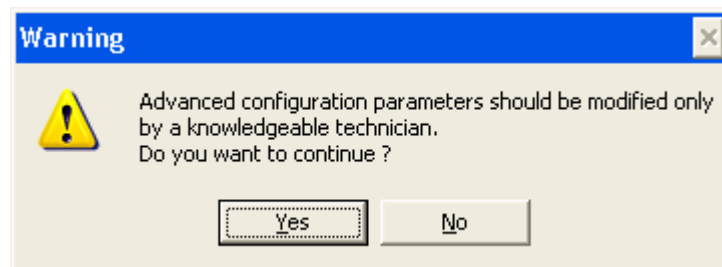


### 5.1.4. Administer Custom Data Settings Tab

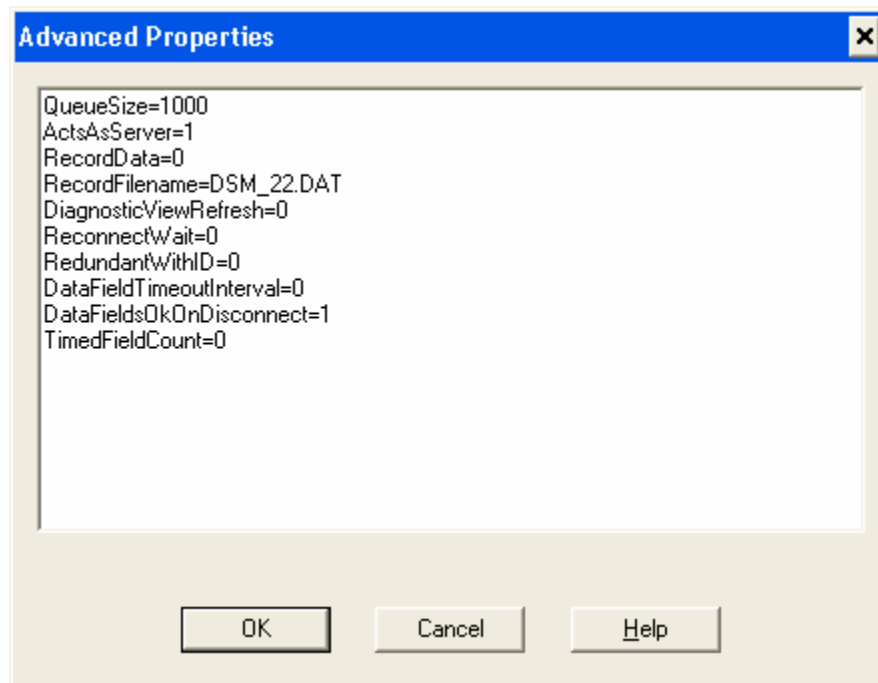
Select the **Settings** tab. Select the **Data format file** field, and click on **Browse**. From the **Select File** screen, select “avaya\_rtsocket\_historical\_skill.sdf” from the file list. Repeat the same procedure to select “avaya\_rtsocket\_historical\_skill.dss” for the **Script file** field. For the **Connect timeout (sec.)** field, increase the value to “99999” seconds, as shown below. Retain the default values for the remaining fields, and click on **Advanced**.



The **Warning** pop-up window below is displayed on top of the **Custom Data Source Properties** screen. Click **Yes** to continue.

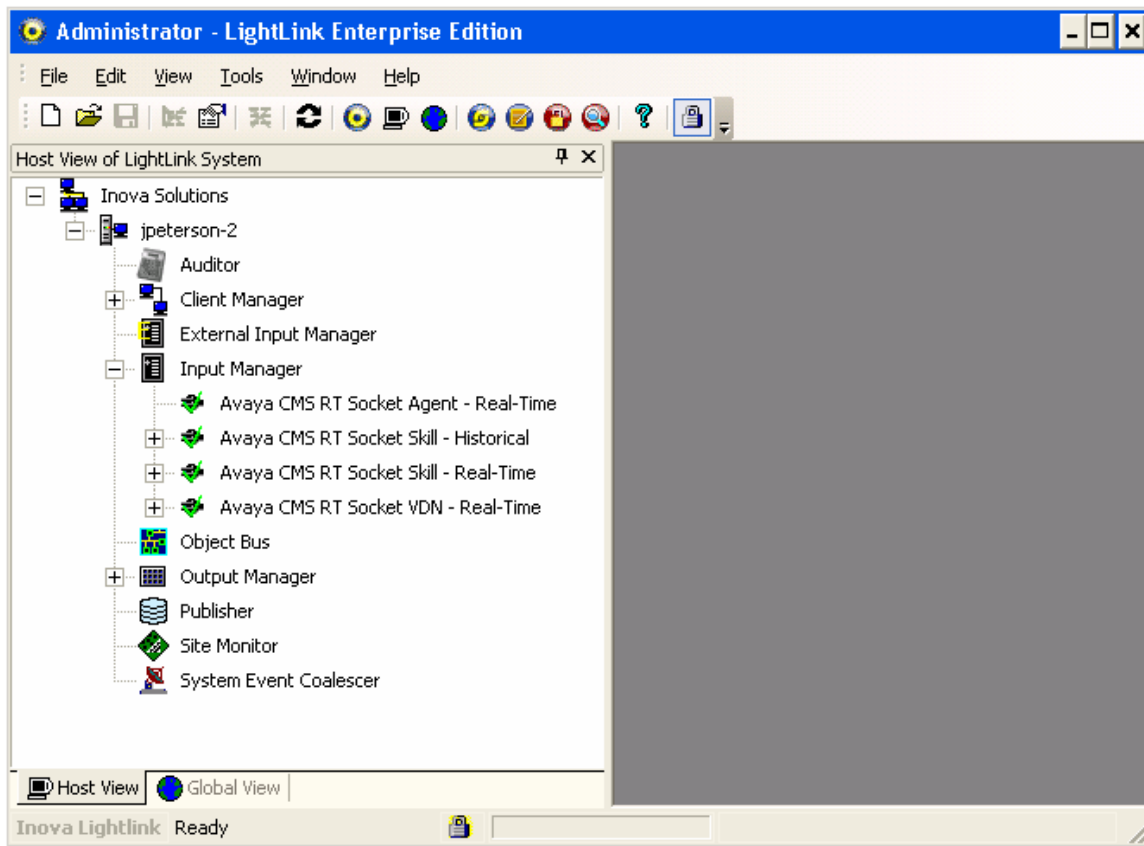


The **Advanced Properties** screen is displayed on top of the **Custom Data Source Properties** screen. Set the value of the **ActsAsServer** parameter to “1” as shown in the textbox below. to enable the LightLink server to take on the role of the “server” in communicating with Avaya CMS. Also, set the **DataFieldsOkOnDisconnect** parameter to “1”. Click **OK** to submit the changes for the **Advanced Properties** screen. Click **OK** on the **Custom Data Source Properties** screen to submit the changes for that screen.





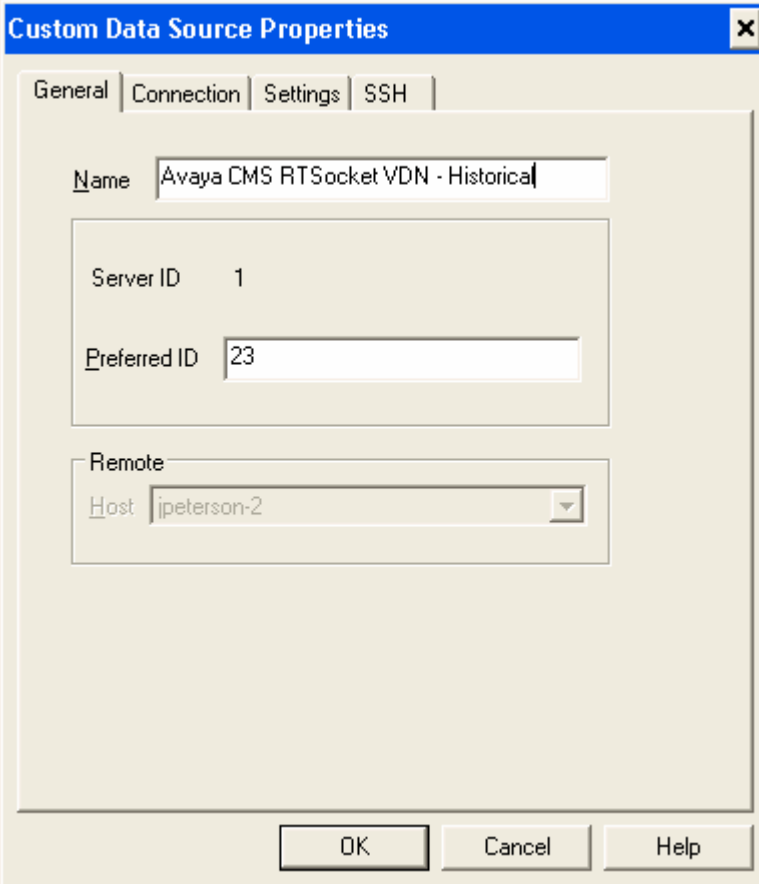
The **Administrator** screen is displayed next, and updated with the newly created custom data source “Avaya CMS RT Socket Skill – Historical” as shown below. A green checkmark is displayed by the data source when the connection to Avaya CMS is established.



## 5.2. Administer Inova Historical Interface for VDN Data

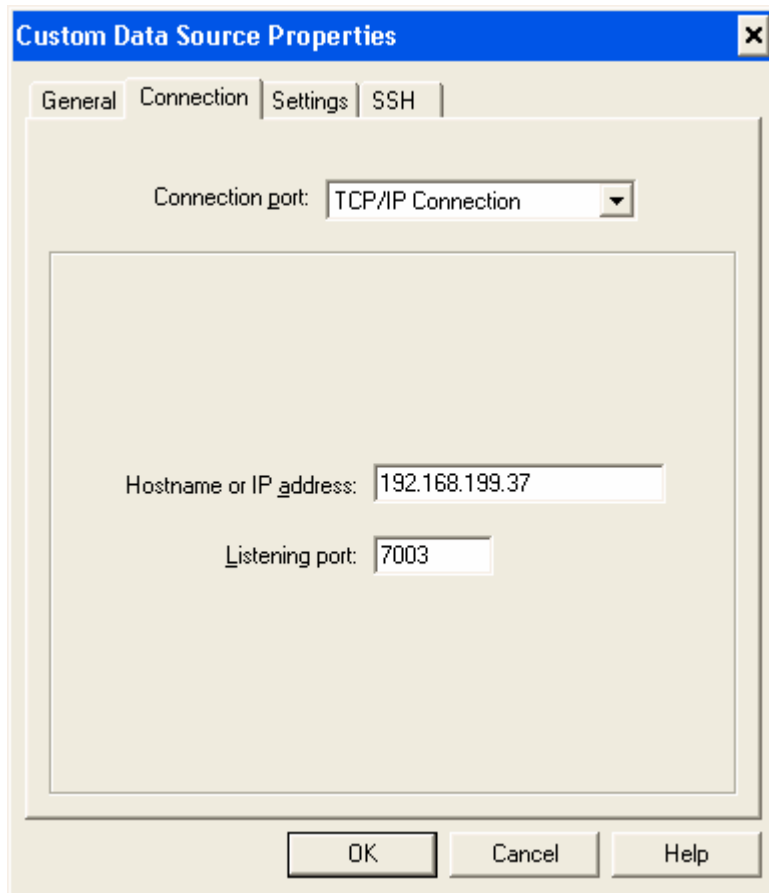
The procedure for administering the VDN data source is similar to the procedure described for administering the Skill data source. Follow all the steps in the procedure described in **Section 5.1** with the following exceptions:

- **Section 5.1.2** Use a different **Name** for the VDN data source.

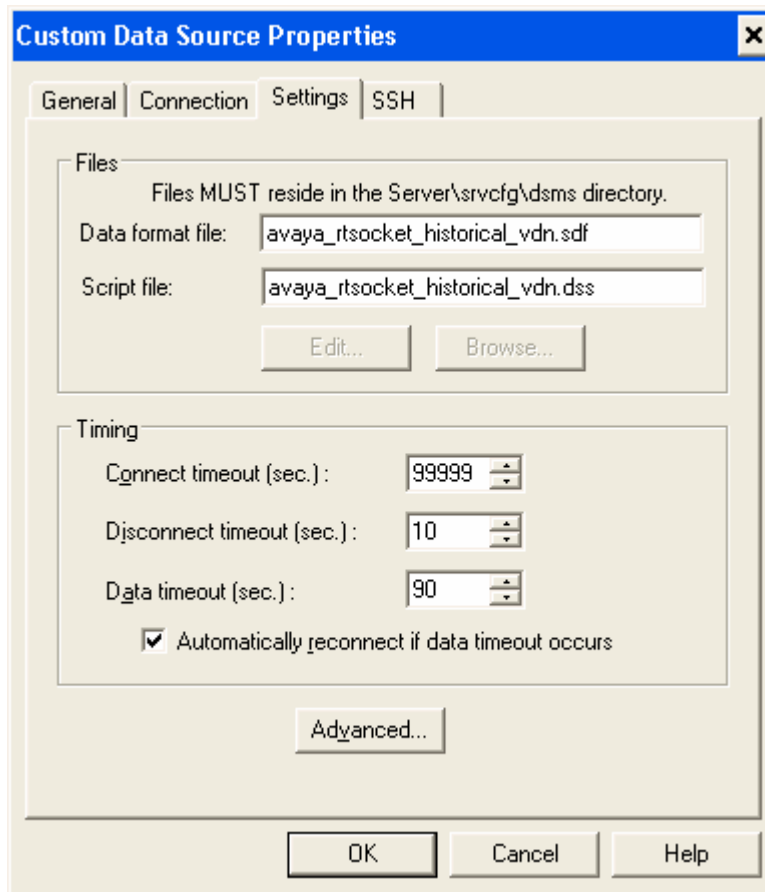


The screenshot shows a dialog box titled "Custom Data Source Properties" with a close button (X) in the top right corner. The dialog has four tabs: "General", "Connection", "Settings", and "SSH", with "General" selected. The "Name" field contains the text "Avaya CMS RTSocket VDN - Historical". Below this, there is a section for "Server ID" with the value "1" and a "Preferred ID" field containing "23". A "Remote" section contains a "Host" dropdown menu with "ipeterson-2" selected. At the bottom of the dialog are three buttons: "OK", "Cancel", and "Help".

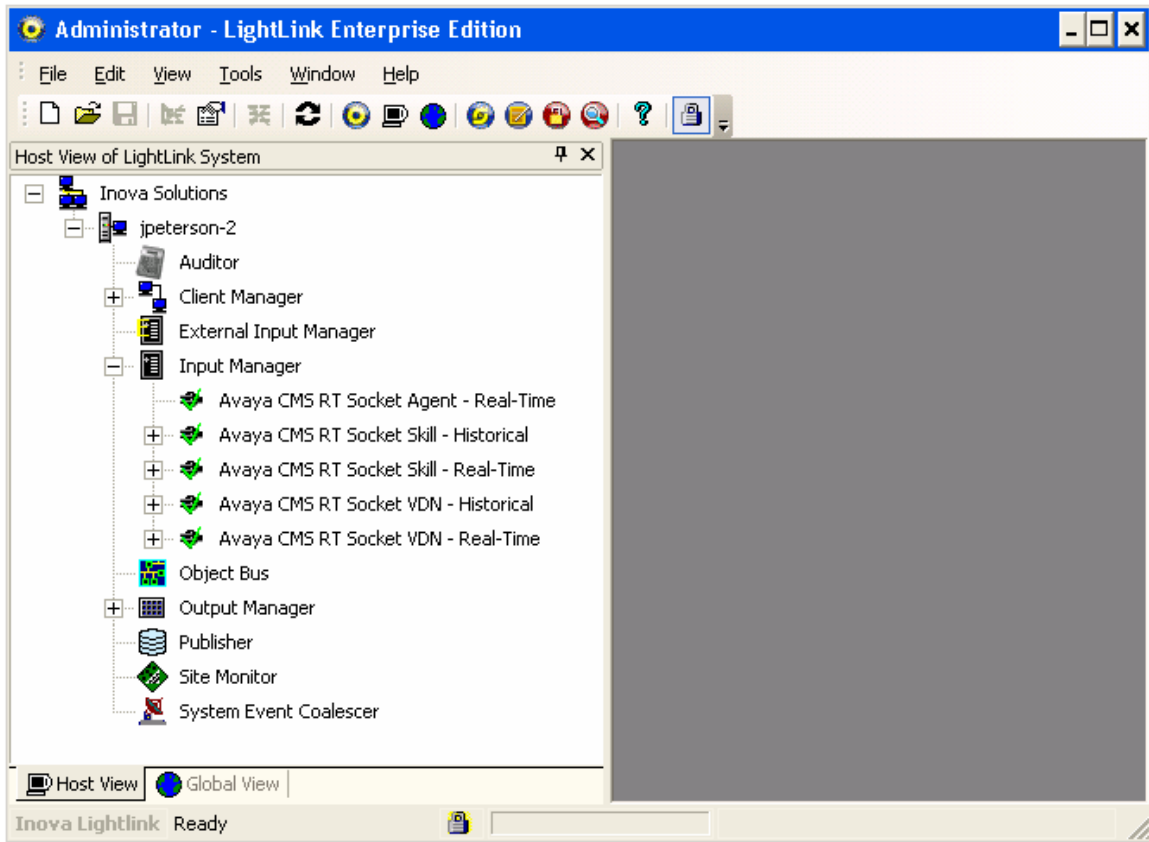
- **Section 5.1.3** Use the corresponding TCP port number for the **Listening Port** field. The corresponding TCP port number on the Avaya CMS server used for transferring VDN data is provided by Avaya CSI. For the compliance testing, the port number used was “7003”.



- **Section 5.1.4** Select “avaya\_rtsocket\_historical\_vdn.sdf” for the **Data format file** field and select “avaya\_rtsocket\_historical\_vdn.dss” for the **Script file** field as shown below.



A green checkmark will be displayed by the VDN data source in the **Administrator** screen once the connection to Avaya CMS is established.



### 5.3. Administer RT\_Socket Interface for Agent Data

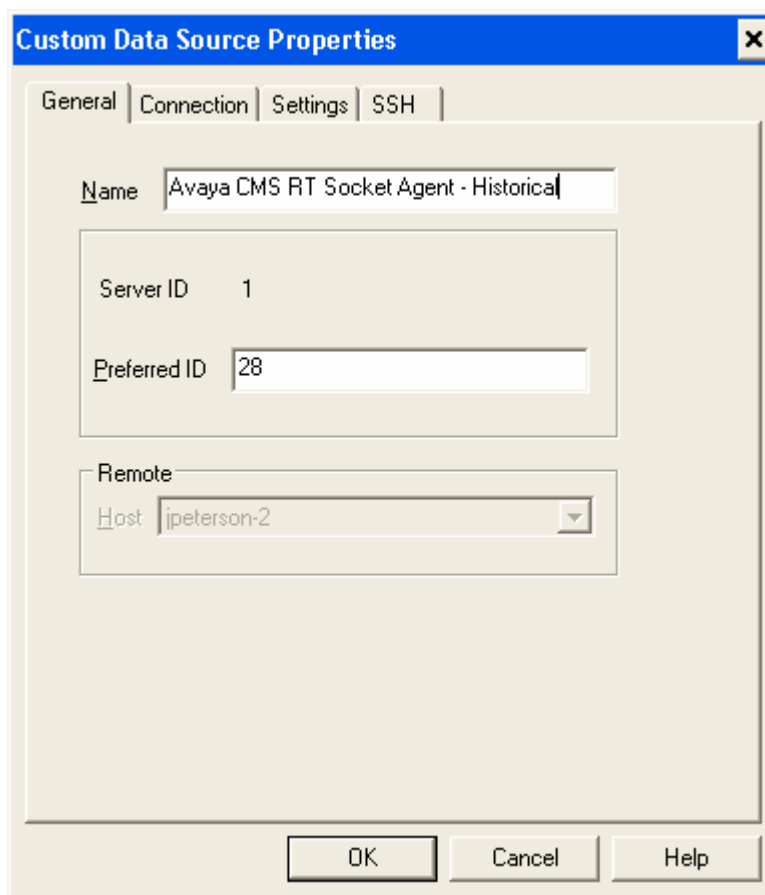
The procedure for administering the Agent data source requires more steps than configuring the Skill and VDN data sources, and includes the following areas:

- Administer Agent data source
- Administer data set contract
- Administer database output device
- Administer database updater

#### 5.3.1. Administer Agent Data Source

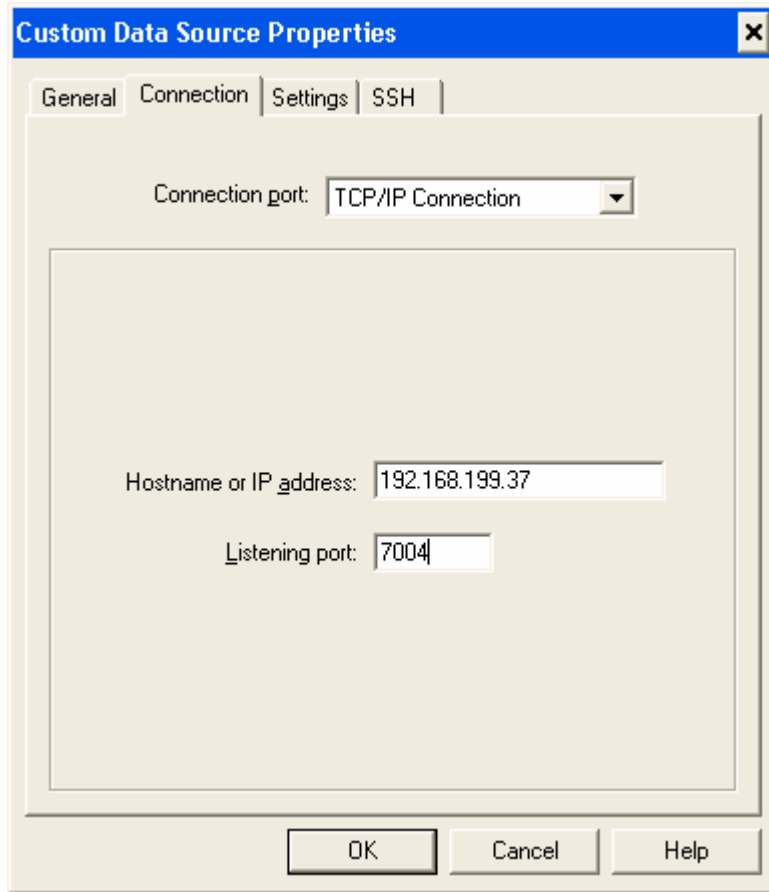
The procedure for administering the Agent data source is similar to the procedure described for administering the Skill data source. Follow all the steps in the procedure described in **Section 5.1** with the following exceptions:

- **Section 5.1.2** Use a different **Name** for the Agent data source.

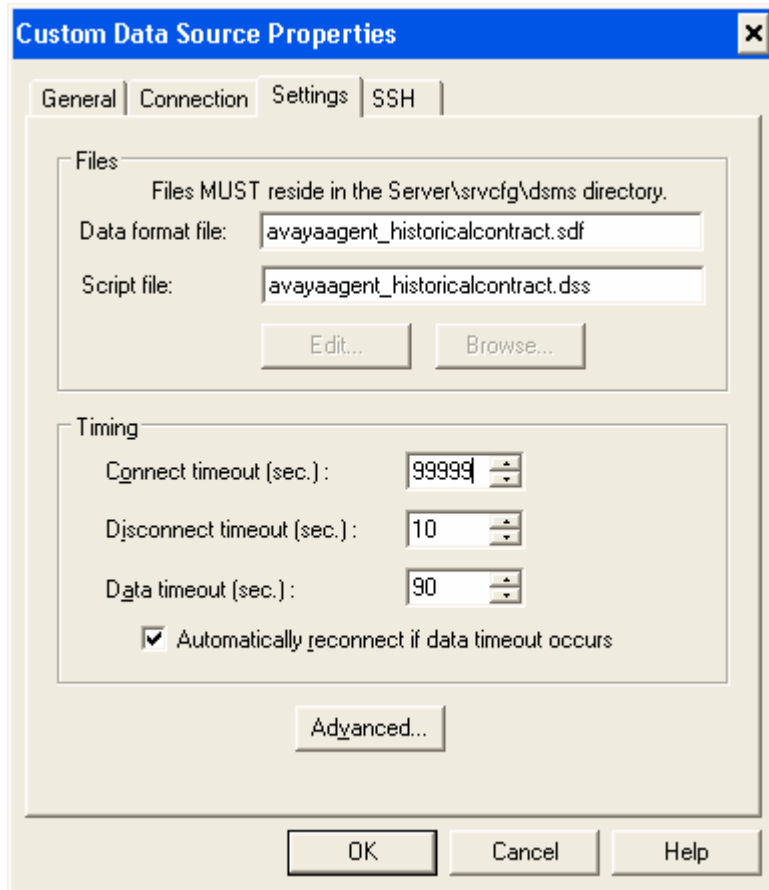


The screenshot shows a dialog box titled "Custom Data Source Properties" with a close button (X) in the top right corner. The dialog has four tabs: "General", "Connection", "Settings", and "SSH". The "General" tab is selected. The "Name" field contains "Avaya CMS RT Socket Agent - Historical". Below this, there is a section for "Server ID" with a value of "1" and a "Preferred ID" field containing "28". A "Remote" section contains a "Host" dropdown menu with "ipeterson-2" selected. At the bottom of the dialog are three buttons: "OK", "Cancel", and "Help".

- **Section 5.1.3** Use the corresponding TCP port number for the **Listening Port** field. The corresponding TCP port number on the Avaya CMS server used for transferring Agent data is provided by the Avaya CSI group. For the compliance testing, the port number used was “7004”.



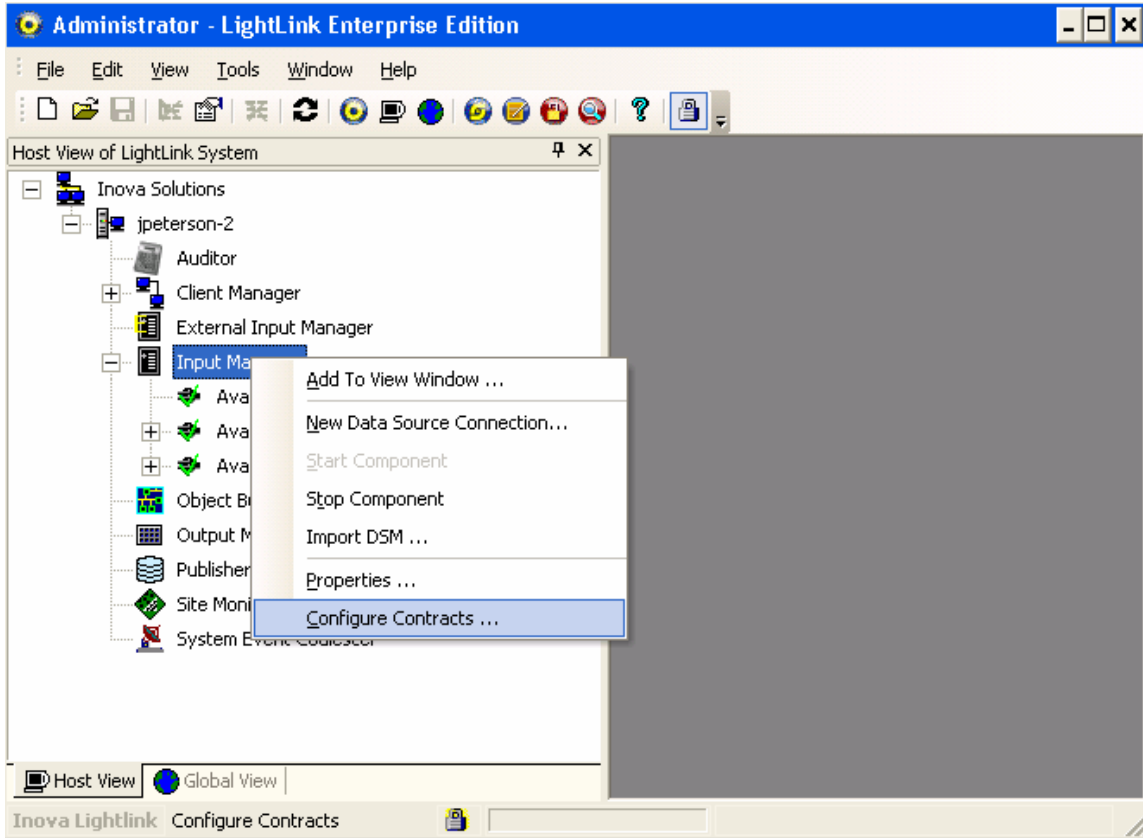
- **Section 5.1.4** Select “avayaagent\_historicalcontract.sdf” for the **Data format file** field and select “avayaagent\_historicalcontract.dss” for the **Script file** field as shown below.



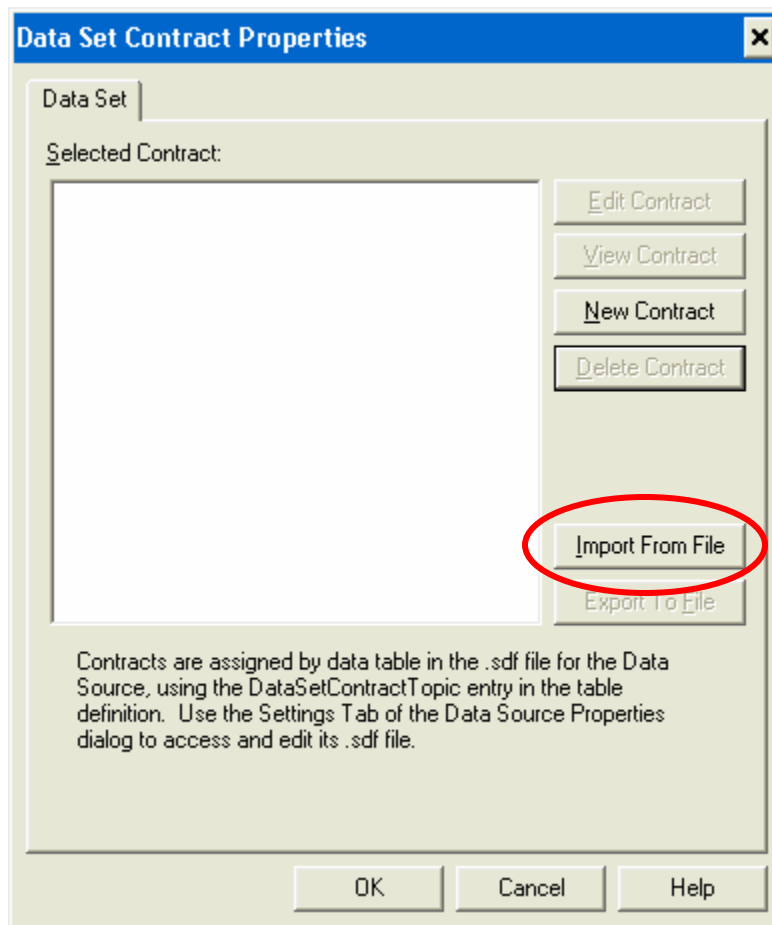


### 5.3.2. Administer Data Set Contract

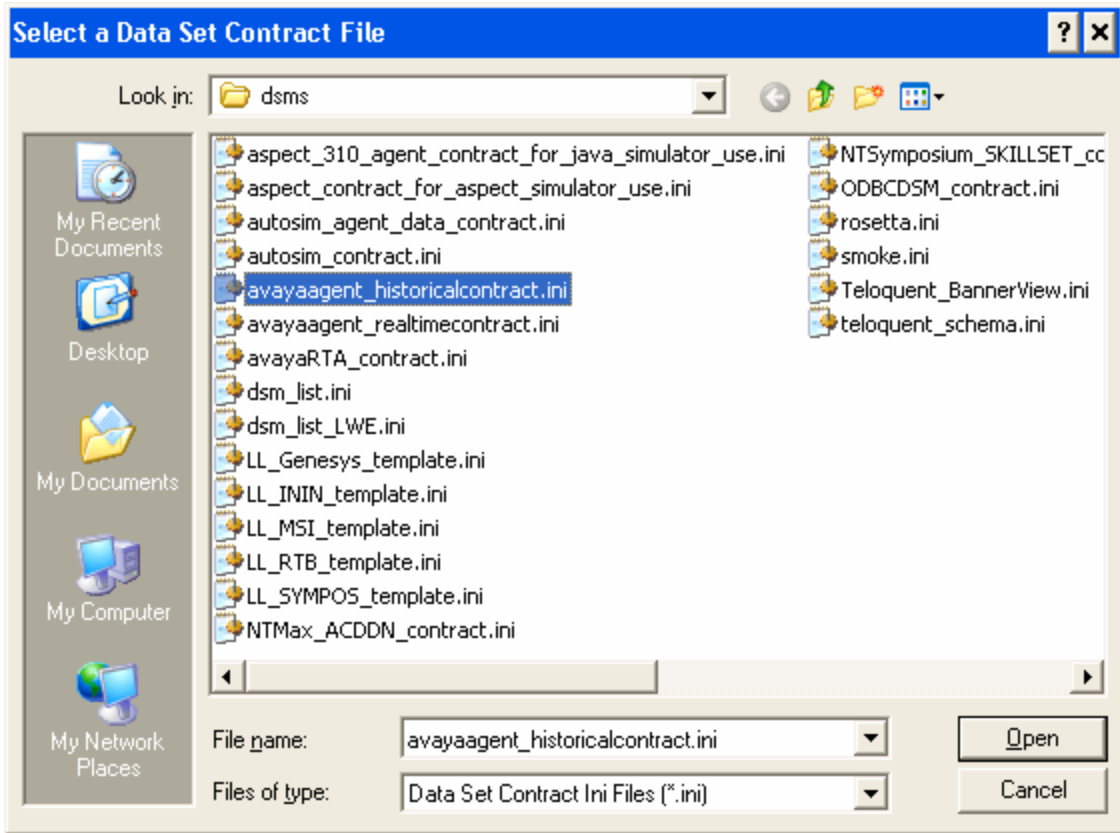
From the **Administrator** screen, right-click on **Input Manager** and select **Configure Contracts** from the pop-up menu to create a new data set contract.



The **Data Set Contract Properties** screen is displayed on top of the **Administrator** screen. Click on **Import From File**.



The **Select a Data Set Contract File** screen is displayed. Navigate to the directory “C:\Program Files\Inova Solutions\Server\srcvfg\dsm” and select “avayaagent\_historicalcontract.ini” as shown below. Click **Open**.



The **Imported Contract Properties** screen is displayed. For the **Topic Name** field, enter “/agenthistorical” as shown below. Retain the default values for the remaining fields, and click **OK**.

Imported Contract Properties - You Must Set the Topic Name

Header | Attributes | Validation Checks

Topic Name: /agenthistorical

Description: Avaya Historical Contract Data Sets

Author: Clint Vess

Comments: This specification provides a template to be used as a starting point for configuring what different sources can provide, and which values need defaults.

OK Cancel Help

The **Save Contract** pop-up screen is displayed next. Click on **Yes** to save the contract.

Save Contract?

Do you want to save the contract?  
Topic: /agenthistorical  
Description: Avaya Historical Contract Data Sets

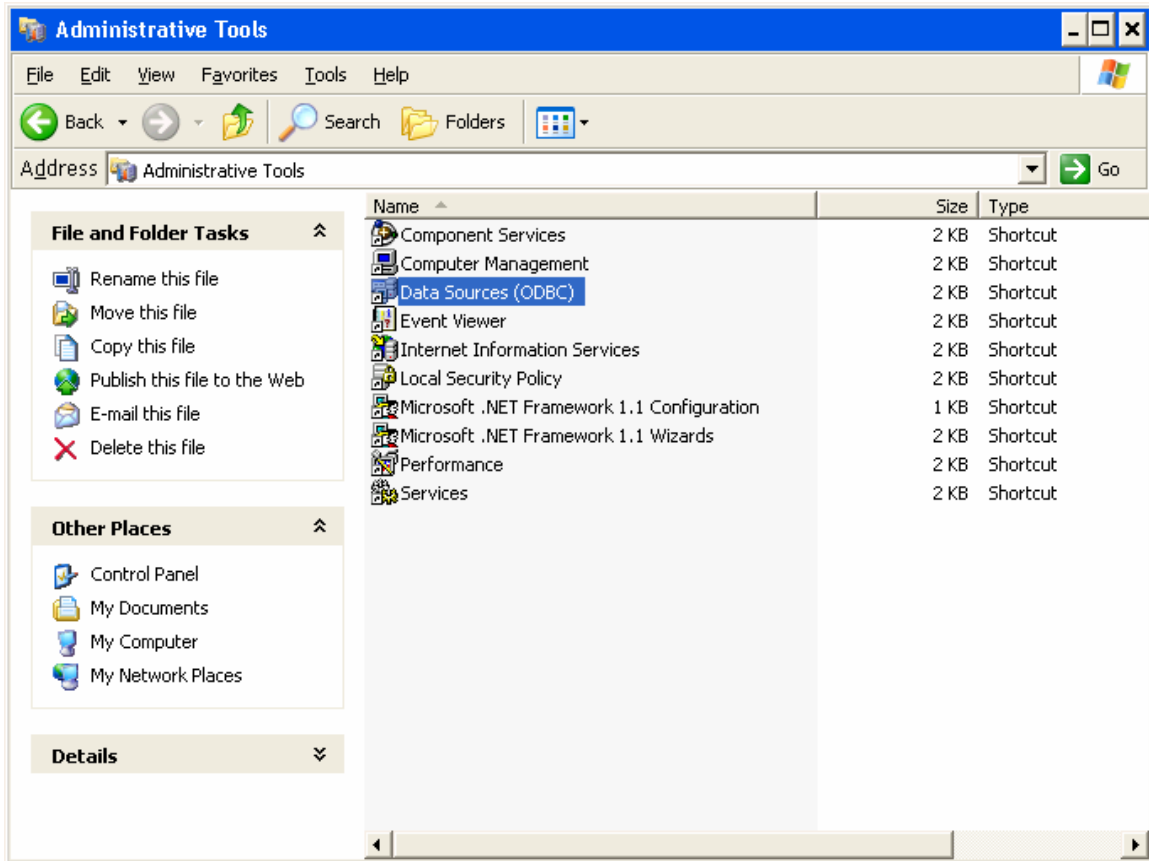
WARNING: Components using this contract must be restarted for changes to take affect.

Yes No

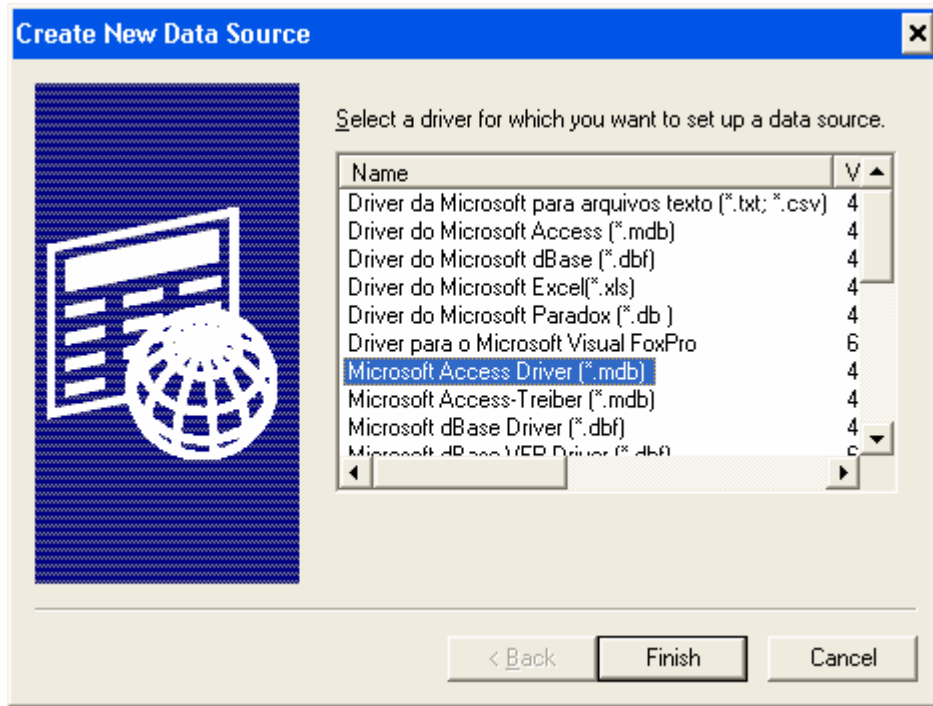
At the **Data Set Contract Properties** screen, click **OK**.



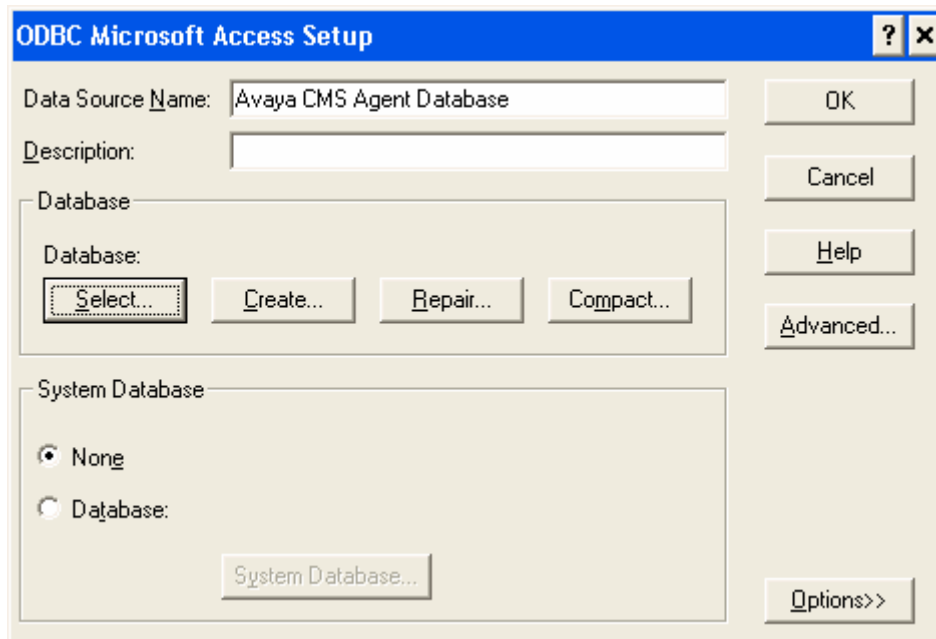
Next, build the connection from the data set contract to the database. Inova LightLink supports any ODBC-compliant database. For compliance testing, a Microsoft Access database was used. From the **Administrative Tools** folder in Microsoft Windows, double-click on **Data Sources (ODBC)**.



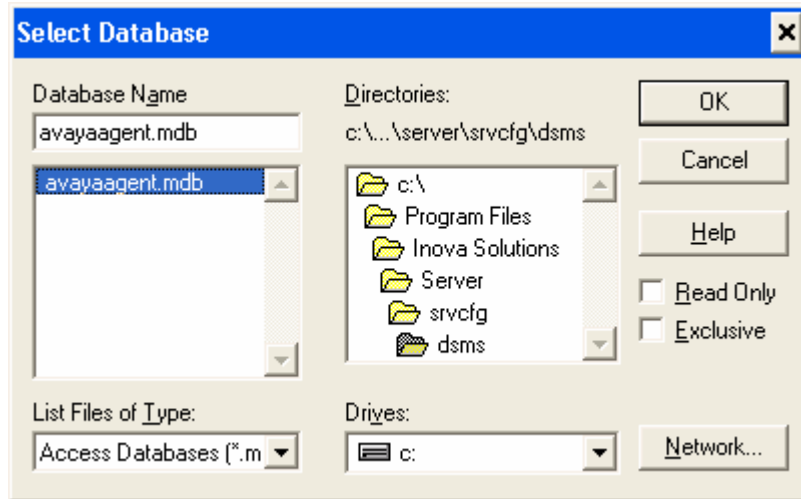
In the Create New Data Source screen, select “Microsoft Access Driver (\*.mdb)” as shown below. Click **Finish**.



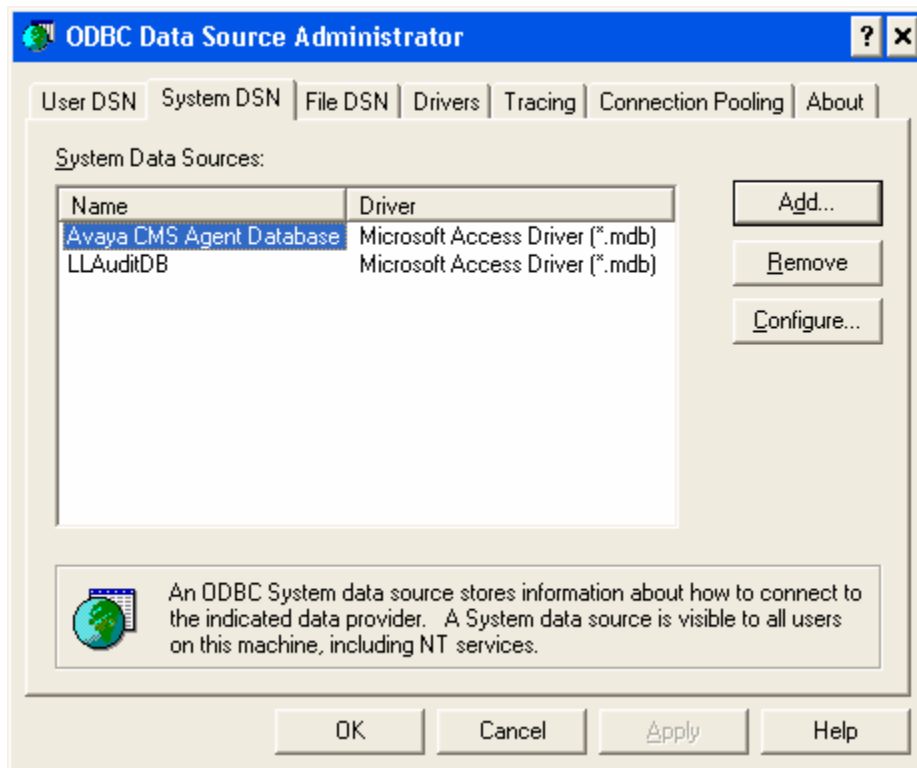
In the **ODBC Microsoft Access Setup** screen, enter a descriptive **Data Source Name** and then click **Select**.



In the **Select Database** screen, navigate to the directory where the database table is stored. For the compliance testing, a database table named “avayaagent.mdb” stored in the “C:\Program Files\Inova Solutions\Server\srvcfg\dsms” directory was selected for Microsoft Access. Click **OK**.



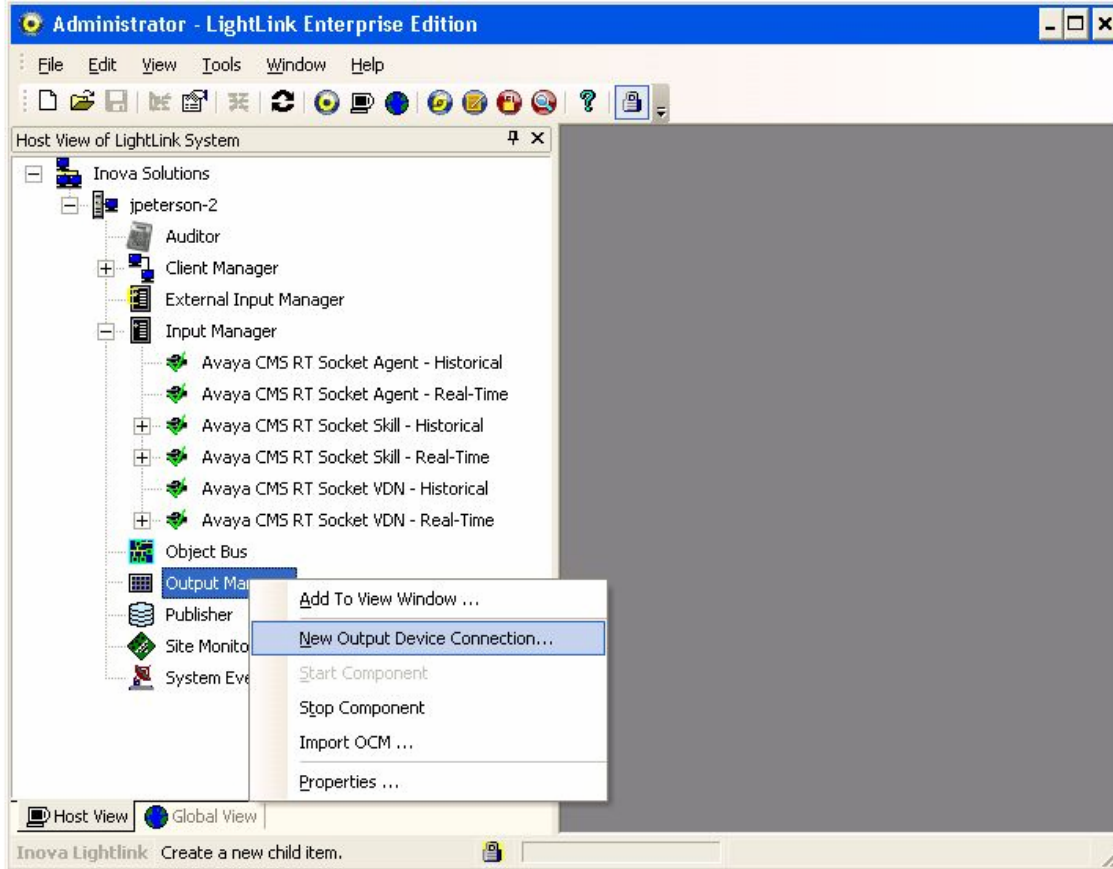
The Agent database should now appear under the **System DSN** tab in the **ODBC Data Source Administrator** screen. Click **OK**.



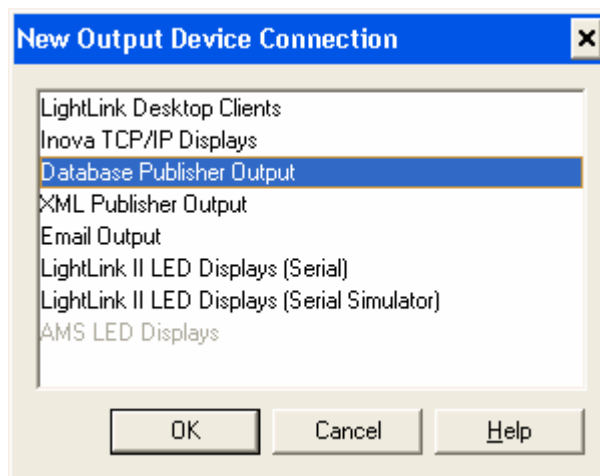


### 5.3.3. Administer Database Output Device

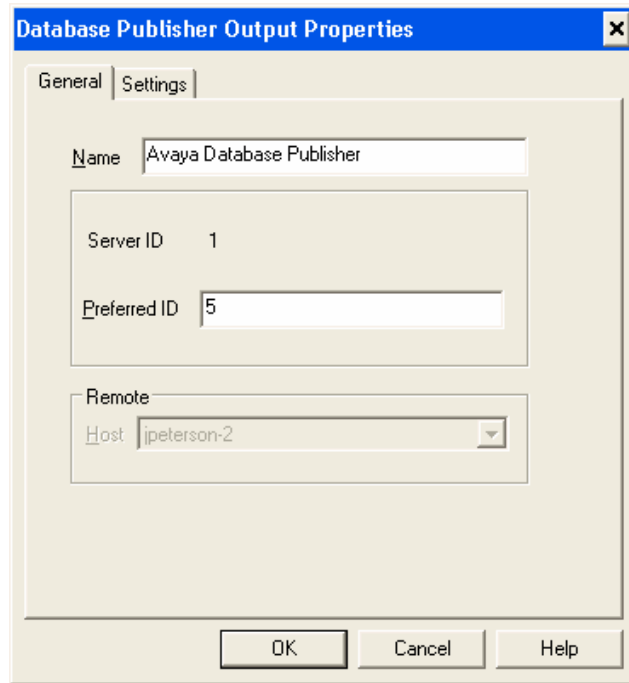
From the **Administrator** screen, right-click on **Output Manager** and select **New Output Device Connection** from the pop-up menu to associate the Agent data with an output device.



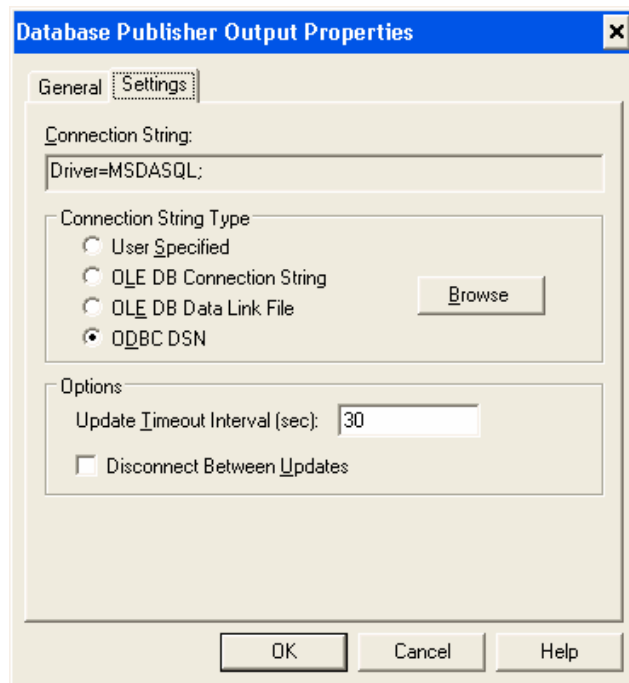
The **New Output Device Connection** screen is displayed on top of the **Administrator** screen. Select **Database Publisher Output** and click **OK**.



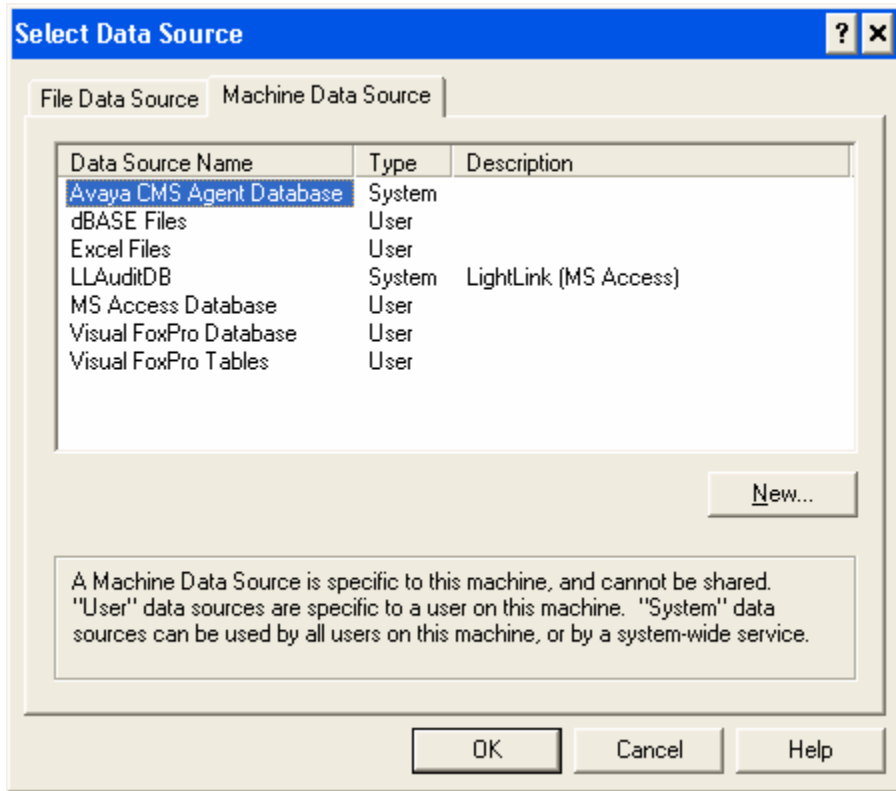
The **Database Publisher Output Properties** screen is displayed next. Select the **General** tab, and enter a descriptive name in the **Name** field.



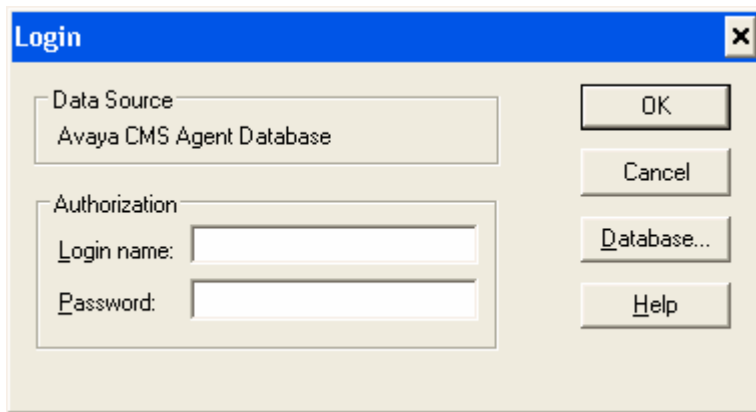
Under the **Settings** tab of the **Data Publisher Output Properties** screen, select the “ODBC DSN” option in the **Connection String Type** section. Click **Browse**.



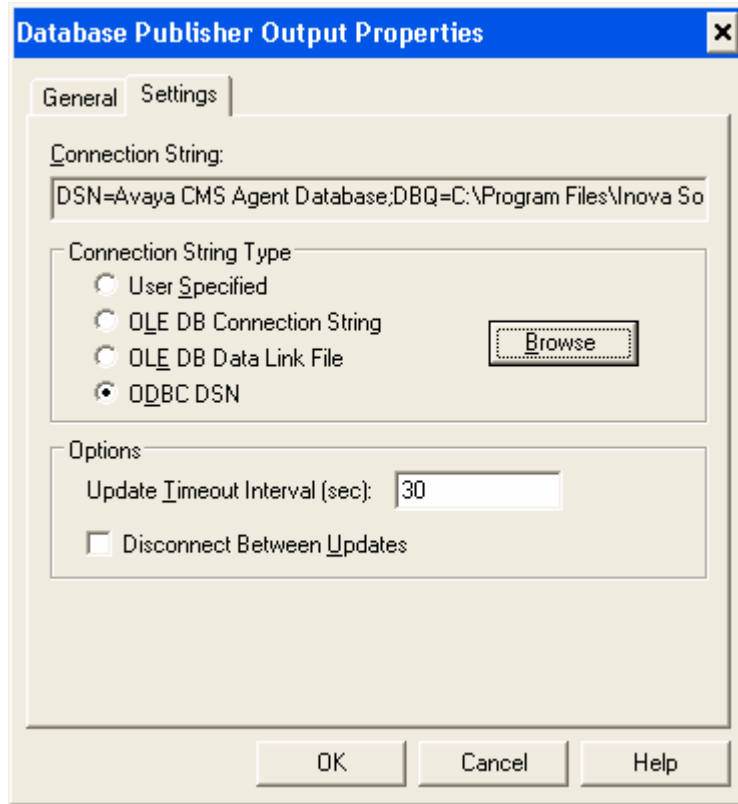
The **Select Data Source** screen is displayed. Select the data source corresponding to the Agent database and click **OK**.



In the **Login** screen, specify the login credentials if required. Click **OK**.

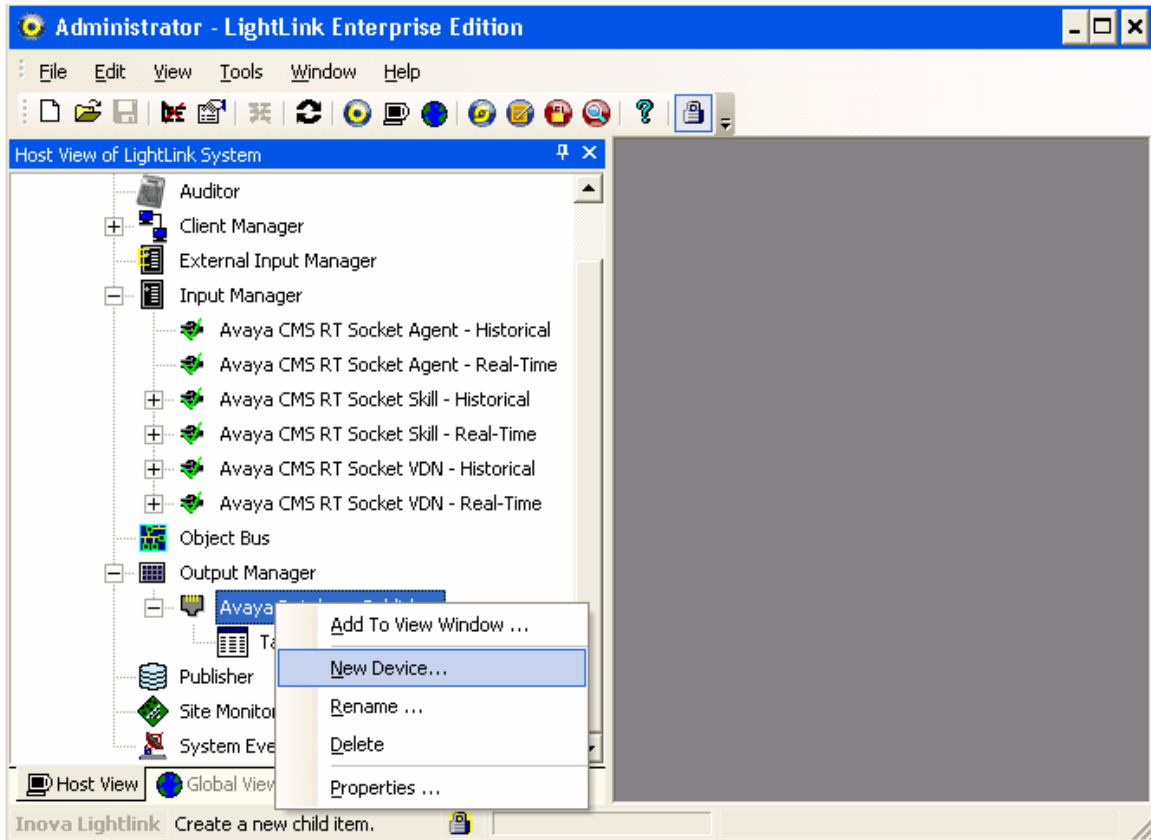


Return to the **Database Publisher Output Properties** screen and click **OK**.

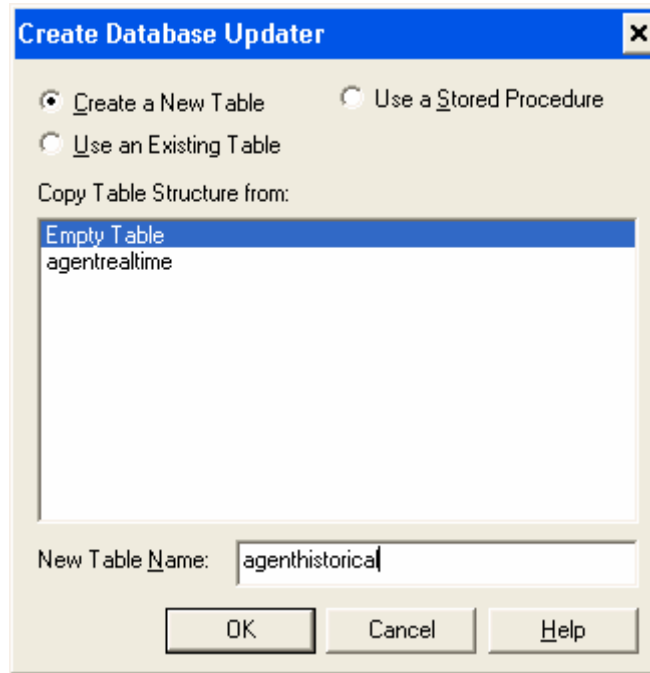


### 5.3.4. Administer Database Updater

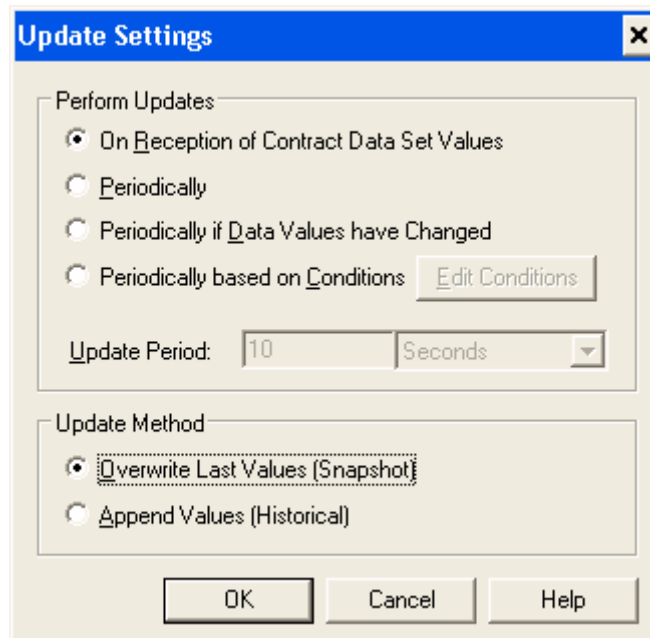
From the **Administrator** screen, expand **Output Manager**. Right-click on the newly created **Avaya Database Publisher** and select **New Device** from the pop-up menu to create a database updater for the new database output device.



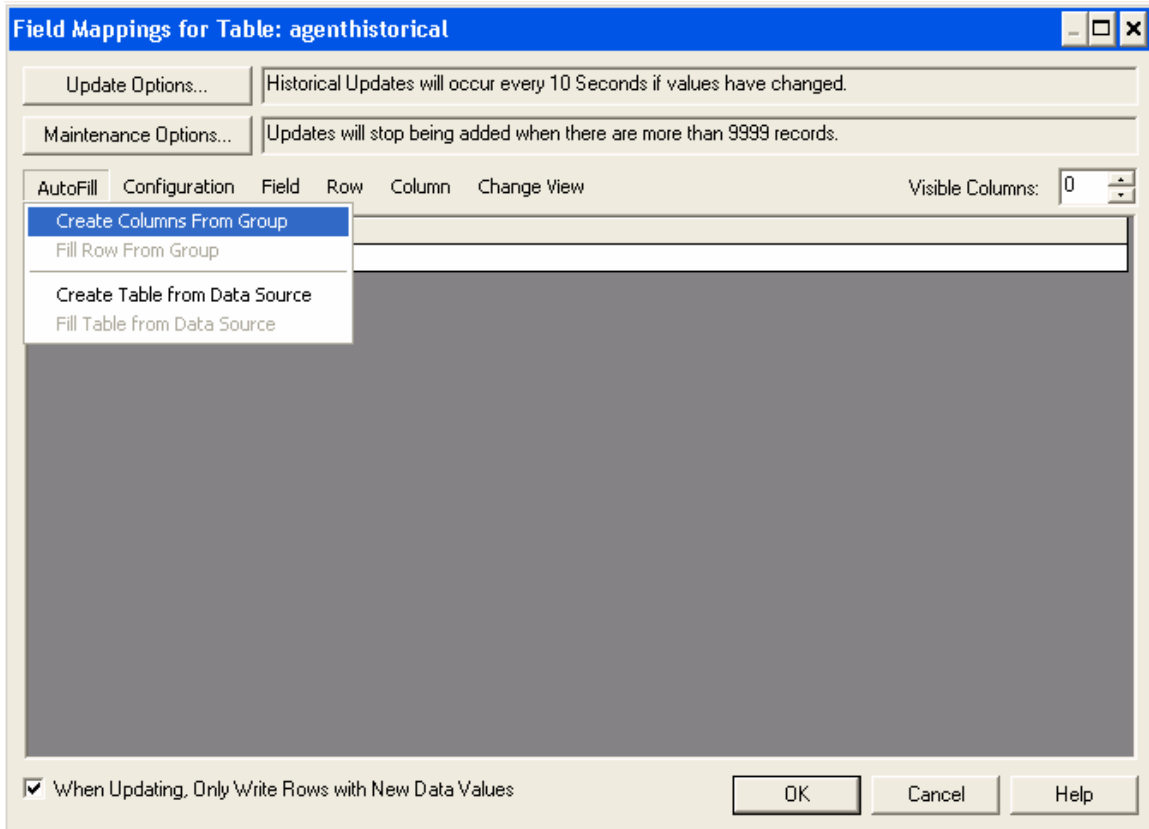
The **Create Database Updater** screen is displayed. Select the radio button for **Create a New Table**, and enter “agenthistorical” for the **New Table Name**. Click **OK**.



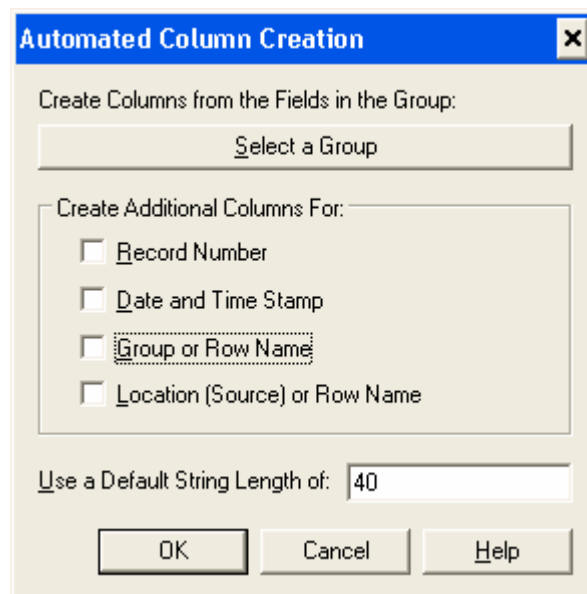
In the **Update Settings** screen, select the options shown in the screen below. Click **OK**.



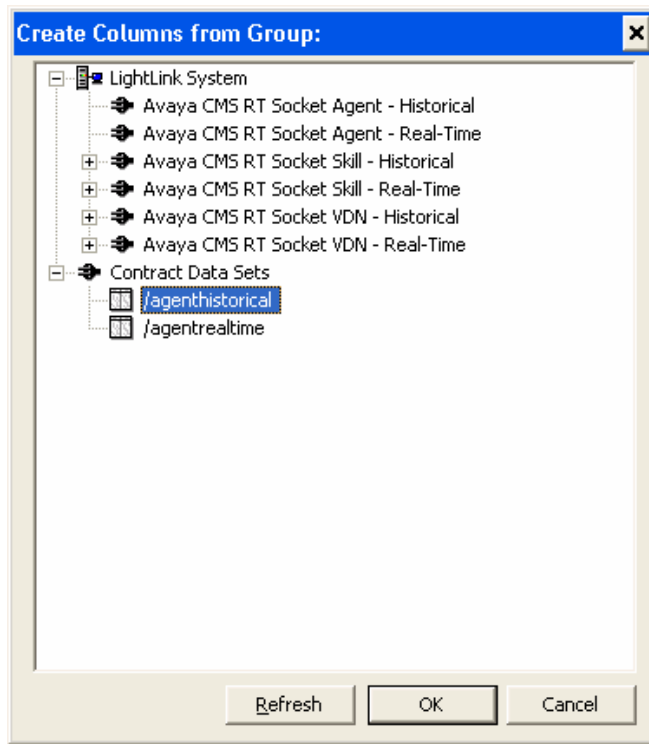
The **Field Mappings for Table** screen is displayed next and filled in with the table name. Click on the **AutoFill** menu option and select the **Create Columns From Group** in the pop-up menu.



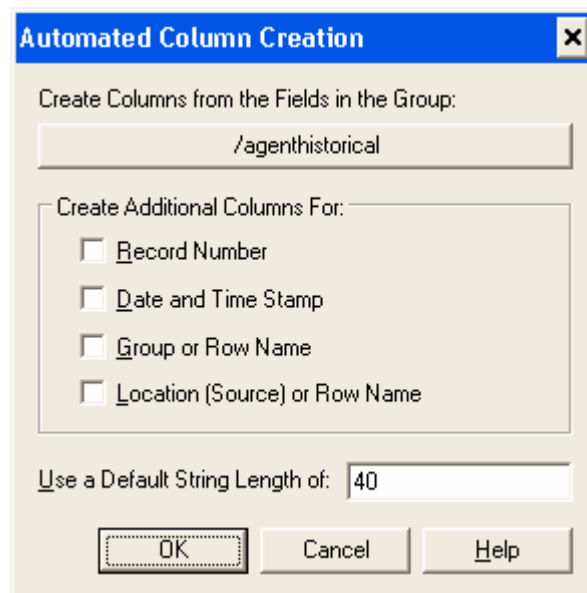
The **Automated Column Creation** screen is displayed on top of the **Field Mappings for Table** screen. Update the options as shown below and then click **Select a Group**.



The **Create Columns from Group** screen is displayed next. Expand **Contract Data Sets** and select “/agenthistorical” as shown below. Click **OK**.



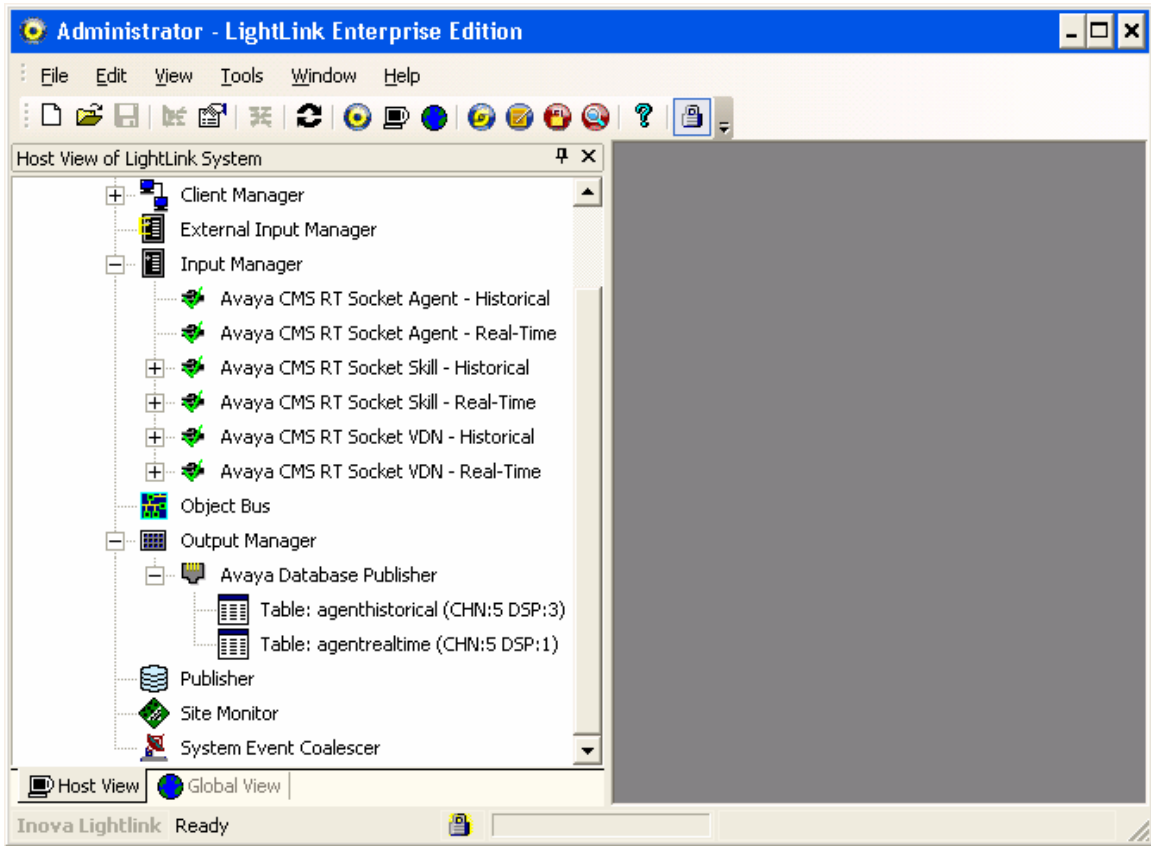
Click **OK** in the **Automated Column Creation** screen.







The **Administrator** screen will now display the “agenthistorical” table in the left pane.



## **6. Interoperability Compliance Testing**

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

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

### **6.1. General Test Approach**

The feature test cases were performed manually. Incoming calls were made to the monitored 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 the LAN cable to the LightLink server.

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

### **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 and Inova LightLink.

### 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 messag
At: 03/31/08 15:04
```

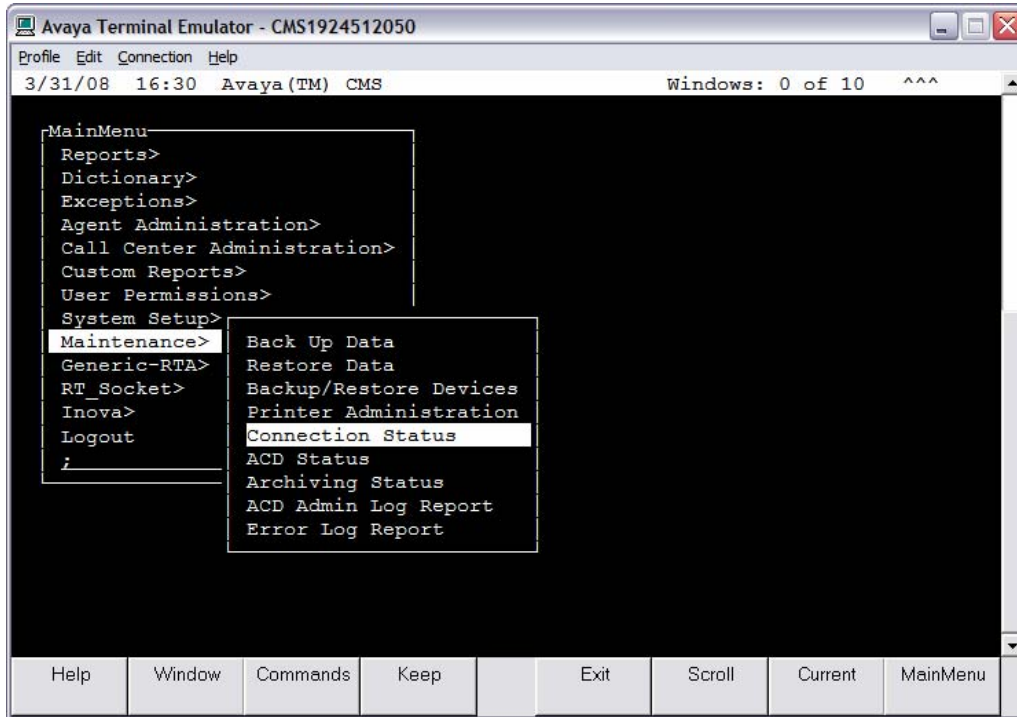
Verify the status of the TCP/IP link number by using the “status link n” command, where “n” is the TCP/IP link number assigned to the C-LAN used to connect to the Avaya CMS server from **Section 3.5**. Verify that the **Link Status** is “connected”, and that the **Service State** is “in-service/active”,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

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

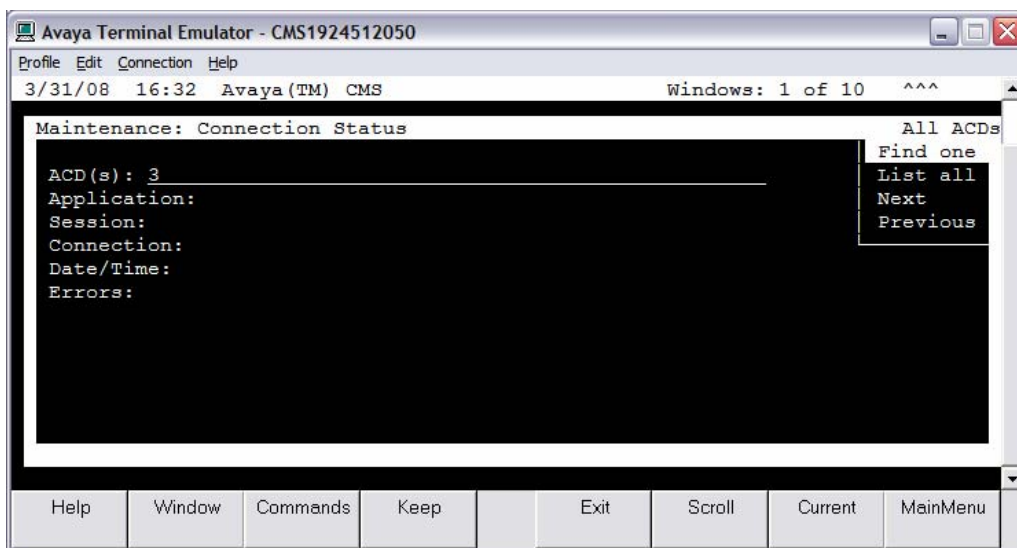
Link Number: 2
Link Status: connected
Link Type: ethernet
Link Name: Clan2
Service Port Location: 02A0217
Service Port Data Extension: 24981
Service State: in-service/active
Node Name: clan2
Source IP Address: 192.45.100.70
Subnet Mask: 255.255.255.0
Broadcast Address: 192.45.100.255
Physical Address: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

## 7.2. Verify Avaya Call Management System

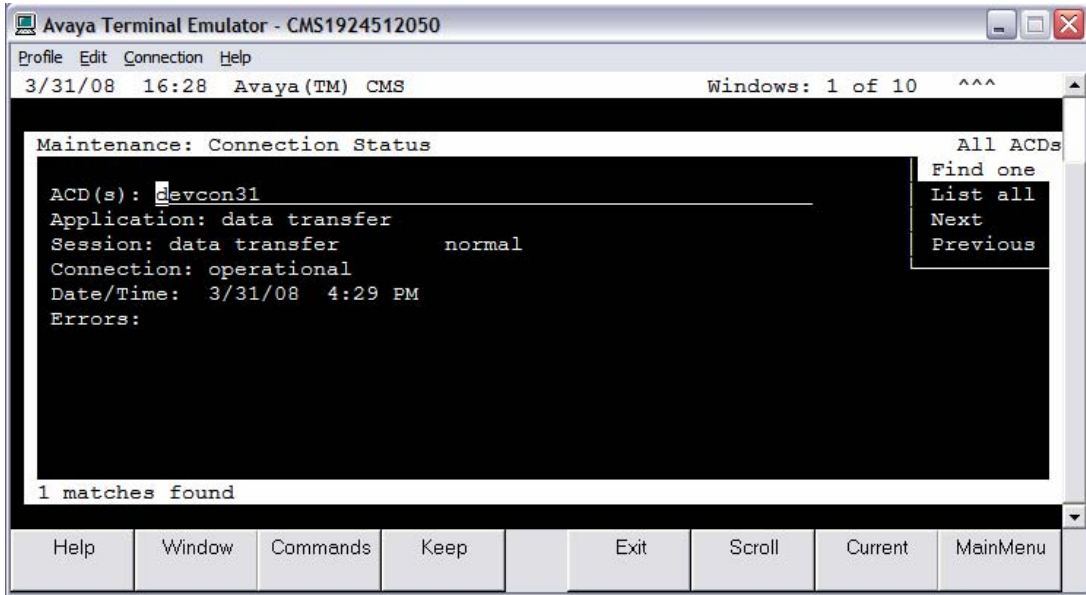
From the **MainMenu**, verify the status of the connection to Avaya Communication Manager by selecting **Maintenance** → **Connection Status**, as shown below.



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

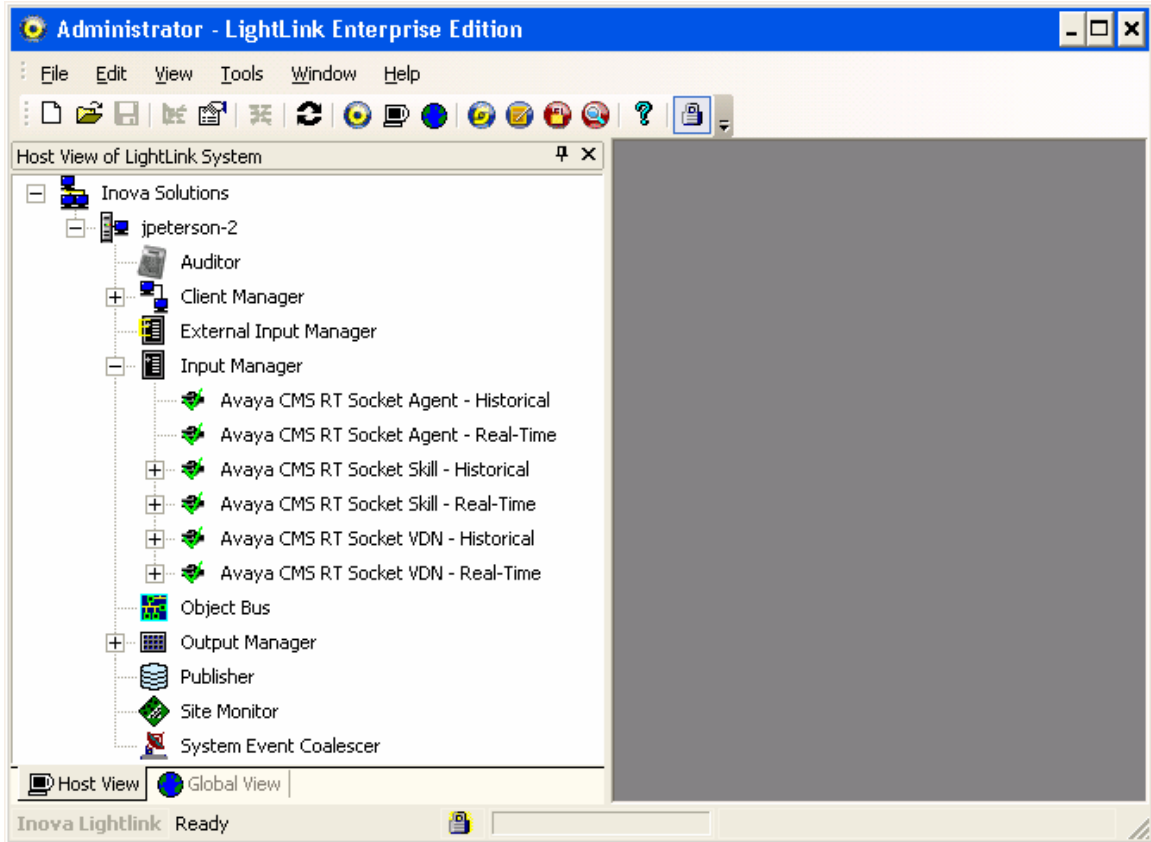


The switch connection status is displayed. Check the status in the **Session** and **Connection** fields, as shown below.



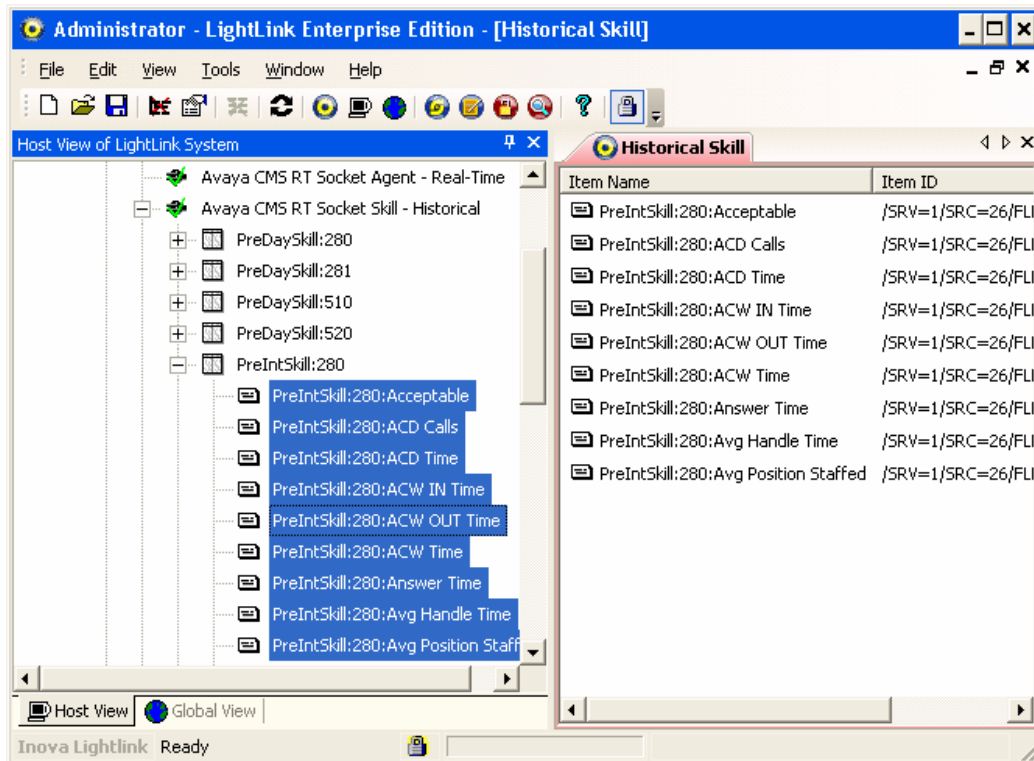
### 7.3. Verify Inova LightLink

From the **Administrator** screen, verify that **Avaya CMS RT Socket Agent – Historical**, **Avaya CMS RT Socket Skill – Historical**, and **Avaya CMS RT Socket VDN – Historical** under **Input Manager** in the left pane are all up and running with a green check mark as shown below. Note that different names may be used for these interfaces.

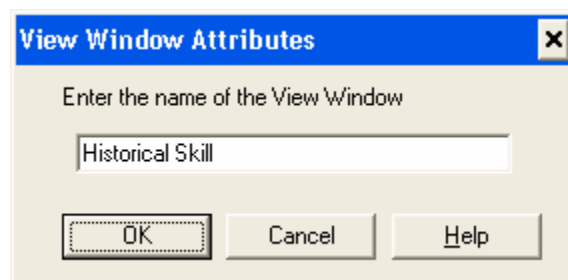


### 7.3.1. Verify Historical Skill Data

From the **Administrator** screen, expand on **Avaya CMS RT Socket Skill – Historical** under **Input Manager**. A list of fields that can be viewed from the Skill data streams is displayed in the left pane. Initially, the right pane will be empty (not shown). Click on **File** from the top left of the screen, and select **New** to create a new window for viewing.



The **View Window Attributes** screen is displayed on top of the **Administrator** screen. Enter a descriptive name for the view window and click **OK**.



An empty **verify data** screen is displayed (not shown). Click and drag data fields under **Avaya CMS RT Socket Skill – Historical** from the left pane into the new **verify data** window in the right pane. Data values from subsequent data streams will then be displayed into the right pane as shown in the Administrator screen above.

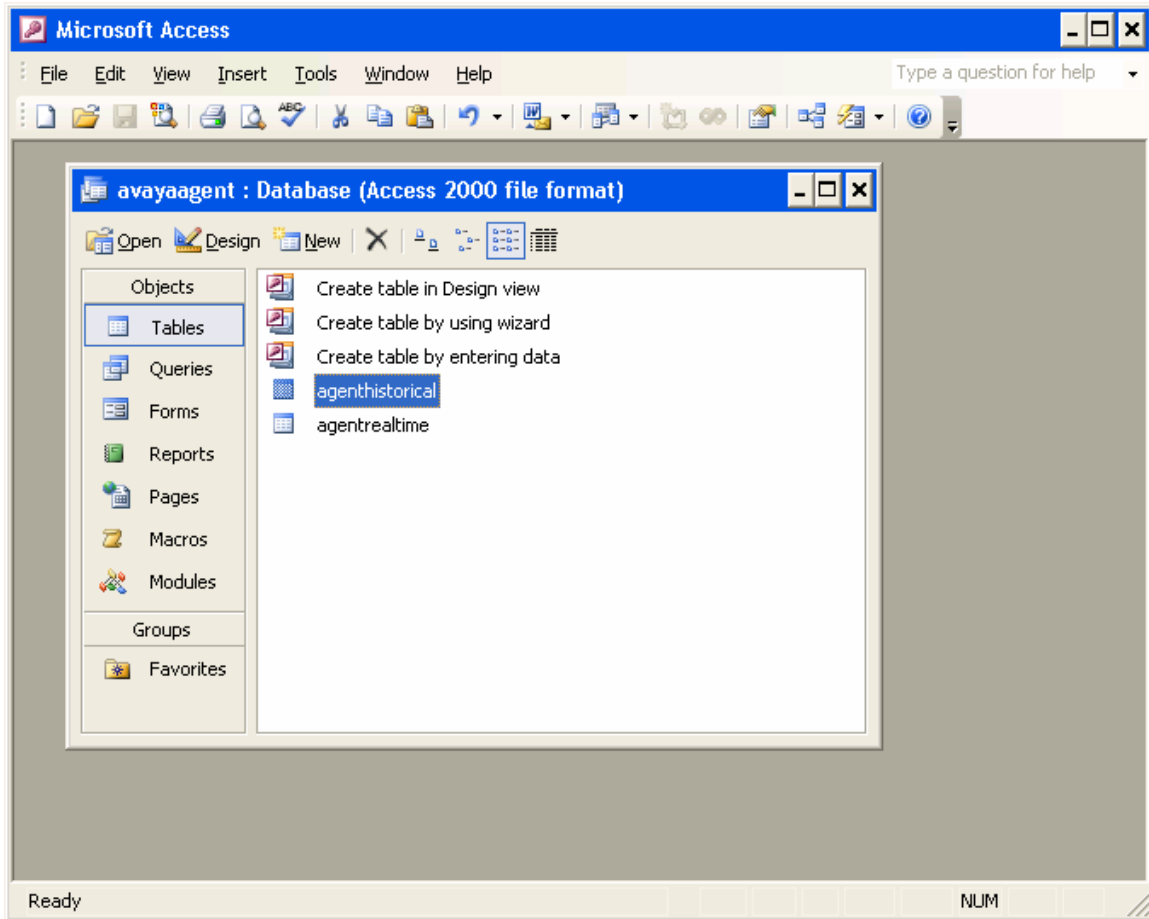


### 7.3.2. Verify Historical VDN Data

Follow the procedures in **Section 7.3.1**, to expand **Avaya CMS RT Socket VDN – Historical** and create a new window for viewing the selected VDN data.

### 7.3.3. Verify Historical Agent Data

From the LightLink server, navigate to the database table used for storing the Agent data in Microsoft Access. Double-click on the “agenthistorical” database table to display the Agent data received by LightLink from Avaya CMS.



The Agent data is displayed as shown in the screen below. The Agent data will be populated in real-time as call center activity takes place. To view the latest Agent data, re-open the “agenthistorical” table.

The screenshot shows a Microsoft Access window with the 'agenthistorical' table open in Datasheet View. The table contains the following data:

TimeStamp	Period	ACD	LogID	Extension	Skill
8/28/2008 8:06:56 PM	PreDay	3	29101	20101	280
008 8:06:56 PM	PreDay	3	29102	20102	280
008 8:06:56 PM	PreDay	3	29103	20103	281
008 8:06:56 PM	PreDay	3	29104	20104	280
008 8:06:56 PM	PreDay	3	29104	20104	281
008 8:06:56 PM	PreDay	3	35511	24511	510
008 8:06:56 PM	PreDay	3	35513	24513	520
008 8:06:56 PM	PreDay	3	35514	24514	520
008 8:06:56 PM	PreInt	3	29101	20101	280
008 8:06:56 PM	PreInt	3	29102	20102	280
008 8:06:56 PM	PreInt	3	29103	20103	281
008 8:06:56 PM	PreInt	3	29104	20104	280
008 8:06:56 PM	Today	3	29101	20101	280
008 8:06:56 PM	Today	3	29102	20102	280
008 8:06:56 PM	Today	3	29103	20103	281
008 8:06:56 PM	Today	3	29104	20104	280
008 8:06:56 PM	Today	3	29104	20104	281
008 8:06:56 PM	Today	3	35511	24511	510
008 8:06:56 PM	Today	3	35513	24513	520
008 8:06:56 PM	Today	3	35514	24514	520

The interface includes a menu bar (File, Edit, View, Insert, Format, Records, Tools, Window, Help), a toolbar with various icons, and a status bar at the bottom showing 'Record: 1 of 20' and 'NUM'.

## 8. Support

Contact Inova Solutions for technical support and for other display options such as real-time and historical dashboards, digital signage and desktop products.

- **Web:** [www.inova-support.com](http://www.inova-support.com)
- **Phone:** (888) 637-1080
- **Email:** [support@inovasolutions.com](mailto:support@inovasolutions.com)

## 9. Conclusion

These Application Notes describe the configuration steps required for Inova LightLink to successfully interoperate with Avaya Communication Manager using the Inova Historical 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>.
- *Inova LightLink Middleware Installation Instructions*, available at <http://www.inova-support.com>.

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