



Avaya Solution & Interoperability Test Lab

Application Notes for Inova LightLink with Avaya IQ using the Inova Historical Interface – Issue 1.0

Abstract

These Application Notes describe the configuration steps required to integrate Inova LightLink with Avaya IQ using the Inova Historical interface to capture ACD call center data from Avaya Aura™ Communication Manager. The Inova Historical interface is used to obtain historical data for queues (splits/skills), routing points (Vector Directory Numbers - VDNs), and agents periodically. This interface is provided by Avaya Professional Services.

Inova LightLink is a middleware platform that supports the integration, management, and delivery of historical data. Inova LightLink utilizes the call center data from Avaya Communication Manager for queues, routing points, and agents, and provides the information to applications or contact center organizations for effective management.

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 IQ using the Inova Historical interface to capture ACD call center data from Avaya Aura™ Communication Manager. The Inova Historical interface is used to obtain historical data for queues (splits/skills), routing points (Vector Directory Numbers - VDNs), and agents periodically. This interface is provided by Avaya Professional Services.

Inova LightLink is a middleware platform that supports the integration, management, and delivery of historical data. Inova LightLink utilizes the call center data from Communication Manager for queues, routing points, and agents, and provides the information to applications or contact center organizations for effective management.

Inova LightLink establishes a connection to Avaya IQ using a socket interface to receive historical data via separate data streams, one for each report. A TCP client-server model is used for the connection, with Avaya IQ 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 IQ. Avaya IQ can be configured with a data interval of 15 or 30 minutes. This compliance test was performed with a 30 minute data interval. Shortly after the data interval expires, Avaya IQ opens a socket connection with Inova LightLink and sends the historical data. After the data is sent, the socket connection is dropped.

Avaya Professional Services installs and configures the Inova historical interface on Avaya IQ, and provides the TCP port numbers associated with each data 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.

The Inova historical interface for Avaya IQ provides four reports, including a Queue (splits/skills) report, a Routing Point (VDN) report, an agent report, and an agent aux report. The agent aux report provides the duration that an agent spends in a particular agent state for the specified time interval. There are three types of data for each report: Previous Day, Previous Interval, and Today. Previous day and today provide cumulative data and previous interval provides data for the time interval that just expired. If no activity occurs for a measured entity for one of the categories of data, IQ does not provide an entry in the historical report. A separate session is established for each report (i.e., 4 sessions in total). Refer to the Appendix for a sample of each historical report.

1.1 Interoperability Compliance Testing

The interoperability compliance test focused on verifying the ability of Inova LightLink to receive historical data over a socket interface from Avaya IQ and to parse the call center data and display it accurately on the LightLink Administrator application.

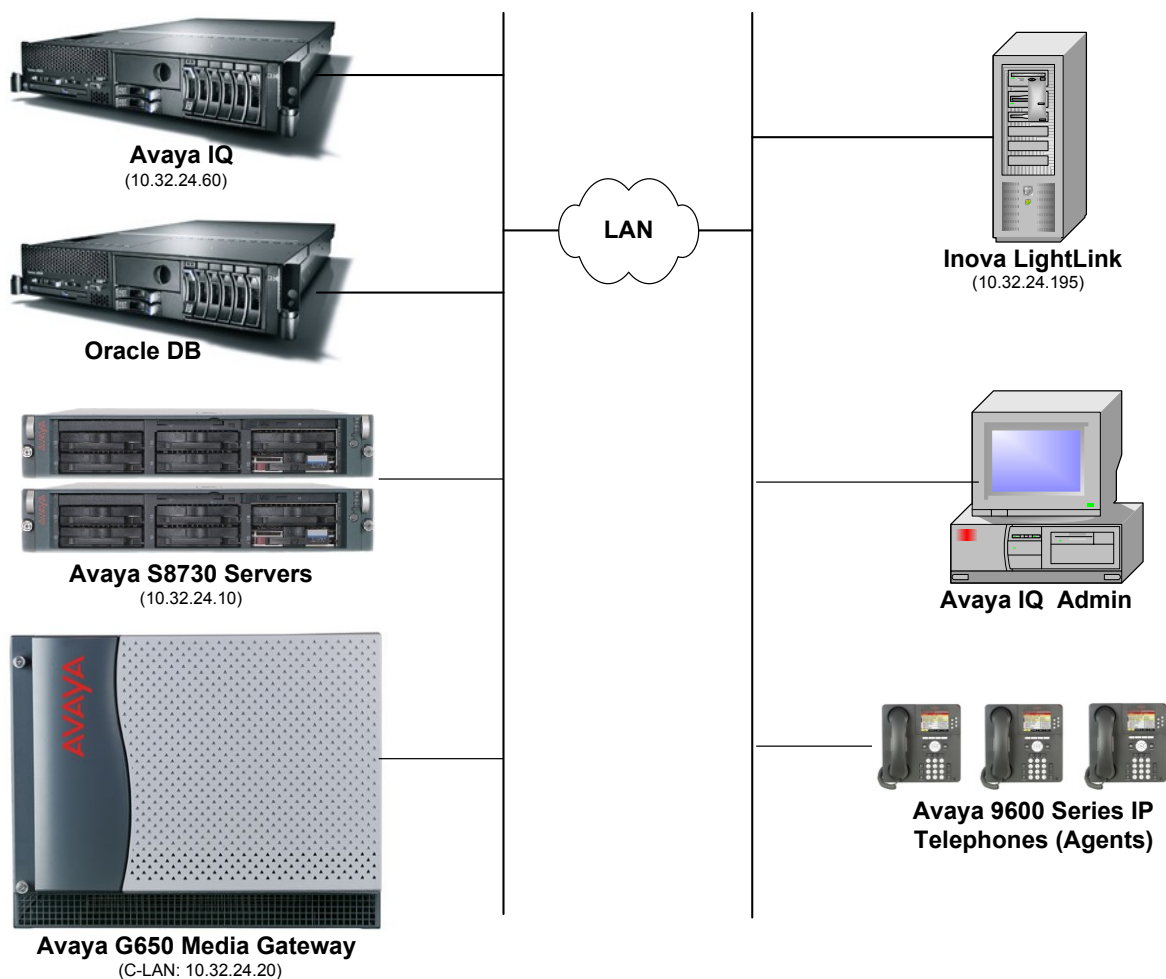
1.2 Support

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

- **Web:** <http://support.inovasolutions.com>
- **Phone:** (888) 637-1080
- **Email:** support@inovasolutions.com

2 Reference Configuration

The network diagram below illustrates the test configuration. In this configuration, Avaya Aura™ Communication Manager receives calls to the skills and VDNs monitored by Avaya IQ. The calls are then routed to available agents in the ACD call center. Call center information is sent from Communication Manager to Avaya IQ over a configured link. Avaya IQ stores the call and agent data in its database and also sends the data to Inova LightLink using the Inova historical interface. The Inova LightLink Administrator application is used to view the historical data and the Avaya IQ Admin PC is used to access the Inova historical interface menu. The Avaya IQ OAM and Reporting interfaces are accessed from an Internet browser on any Windows PC.



Inova LightLink with Avaya Communication Manager and Avaya IQ

3 Equipment and Software Validated

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

Equipment	Software
Avaya S8730 Servers and Avaya G650 Media Gateway	Avaya Aura™ Communication Manager 5.2 (R015x.02.0.947.3) with Service Pack 3 (Patch 17579)
Avaya IQ	5.0.1
Avaya 9600 Series IP Telephones	3.0 (H.323)
Inova LightLink	5.7.327

4 Configure Avaya Aura™ Communication Manager

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

- Verify Communication Manager Options
- Administer reporting adjunct release
- Administer IP node names for C-LAN
- Administer IP interface 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 IQ.

4.1 Verify Communication Manager Software Options

Log into the System Access Terminal (SAT) to verify that the Avaya Aura™ 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 “V15” on **Page 1**, as shown below.

display system-parameters customer-options		Page 1 of 11
OPTIONAL FEATURES		
G3 Version: V15	Software Package: Standard	
Location: 1	RFA System ID (SID): 1	
Platform: 6	RFA Module ID (MID): 1	
		USED
Platform Maximum Ports: 48000		222
Maximum Stations: 36000		149
Maximum XMOBILE Stations: 0		0
Maximum Off-PBX Telephones - EC500: 5		0
Maximum Off-PBX Telephones - OPS: 100		10
Maximum Off-PBX Telephones - PBFMC: 0		0
Maximum Off-PBX Telephones - PVFMC: 0		0
Maximum Off-PBX Telephones - SCCAN: 0		0

Navigate to **Page 6** and verify that the **Call Center Release** field is set to “5.0”, as shown below.

display system-parameters customer-options

Page 6 of 11

CALL CENTER OPTIONAL FEATURES

Call Center Release: 5.0

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?	y	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)?	y
Forced ACD Calls?	n	Vectoring (ANI/II-Digits Routing)?	y
		Vectoring (G3V4 Advanced Routing)?	y
Lookahead Interflow (LAI)?	y	Vectoring (CINFO)?	y
Multiple Call Handling (On Request)?	y	Vectoring (Best Service Routing)?	y
Multiple Call Handling (Forced)?	y	Vectoring (Holidays)?	n
PASTE (Display PBX Data on Phone)?	y	Vectoring (Variables)?	y

(NOTE: You must logoff & login to effect the permission changes.)

4.2 Administer Adjunct CCR Release

Use the “change system-parameters features” command and navigate to **Page 12**. Set the **Report Adjunct Release** field to the software release of Avaya IQ. In this case, “5.0” is used to correspond to Avaya IQ software release 5.0.

```
change system-parameters features                                     Page 12 of 18
      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): R15
      IQ (appl ccr): 5.0

      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
```

4.3 Administer IP Node Name for C-LAN

Use the “change node-names ip” command, to add entries for Avaya IQ and the C-LAN that will be used for connectivity. In this case, “avayaiq” and “10.32.24.60” are entered as **Name** and **IP Address** for the Avaya IQ server, and “clancrm” and “10.32.24.20” 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 2
      IP NODE NAMES

      Name          IP Address
avayaiq            10.32.24.60
clancrm            10.32.24.20
```

4.4 Administer IP Interface for C-LAN

Add the C-LAN to the system configuration using the “add ip-interface 1a04” command. The actual slot number may vary. In this case, “1a04” is used as the slot number. Enter the C-LAN node name assigned from **Section 4.3** in the **Node Name** field.

Enter proper values for the **Subnet Mask** and **Node Name** fields. In this case, 255.255.255.0 is used so “/24” is entered and “clancrm” corresponds to the C-LAN used in the network configuration for these Application Notes. Set the **Enable Interface** field to “y”. Default values may be used in the remaining fields. Submit these changes.

add ip-interface 1a04		Page 1 of 3
IP INTERFACES		
Type: C-LAN	Target socket load and Warning level: 400	
Slot: 01A04	Receive Buffer TCP Window Size: 8320	
Code/Suffix: TN799 D	Allow H.323 Endpoints? y	
Enable Interface? y	Allow H.248 Gateways? y	
VLAN: n	Gatekeeper Priority: 5	
Network Region: 1		
IPV4 PARAMETERS		
Node Name: clancrm		
Subnet Mask: /24		
Gateway Node Name: Gateway001		
Ethernet Link: 1		
Network uses 1's for Broadcast Addresses? y		

4.5 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 the changes.

- **Enable:** “y”
- **Appl.:** “ccr”
- **Mode:** “s” for server mode.
- **Interface Link:** Link number for the C-LAN configured in **Section 4.4**.
- **Interface Chan:** TCP channel number for Avaya IQ. In this case “5002”.
- **Destination Node:** Avaya IQ server node name from **Section 4.3**.
- **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 IQ TCP channel number, which is defined as part of the Avaya IQ installation. For the compliance testing, TCP channel number of “5002” was used.

change communication-interface processor-channels									
PROCESSOR CHANNEL ASSIGNMENT									
Proc	Chan	Enable	Appl.	Gtwy To	Interface Link/Chan	Destination Node	Port	Session Local/Remote	Mach ID
1:	y	ccr	s	1	5002	avayaiq	0	1	1
2:	n								

4.6 Administer Measured VDN

Use the “change vdn n” command, where “n” is the extension of the VDN to be measured by Avaya IQ. Set the **Measured** field to “external” or “both” to enable measurement data on the VDN to be sent to Avaya IQ. Repeat this step for all VDNs that will be monitored by Avaya IQ.

change vdn 75000		Page 1 of 3
VECTOR DIRECTORY NUMBER		
Extension: 75000		
Name*: IQ VDN 1		
Destination: Vector Number		250
Attendant Vectoring?		n
Meet-me Conferencing?		n
Allow VDN Override?		n
COR:		1
TN*:		1
Measured: both		
Acceptable Service Level (sec):		20
Service Objective (sec):		20
VDN of Origin Annc. Extension*:		
1st Skill*:		
2nd Skill*:		
3rd Skill*:		
* Follows VDN Override Rules		

4.7 Administer Measured Skill

Use the “change hunt-group n” command, where “n” is the extension of the ACD/Skill group number to be measured by Avaya IQ. 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 IQ. Repeat this step for all ACD/Skill groups that will be measured by Avaya IQ.

change hunt-group 250		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? n	
Controlling Adjunct: none		
VuStats Objective:		
Timed ACW Interval (sec):	Dynamic Queue Position? n	
Multiple Call Handling: none		
Interruptible Aux Threshold: none		
Redirect on No Answer (rings):		
Redirect to VDN:		
Forced Entry of Stroke Counts or Call Work Codes? n		

5 Configure Avaya IQ

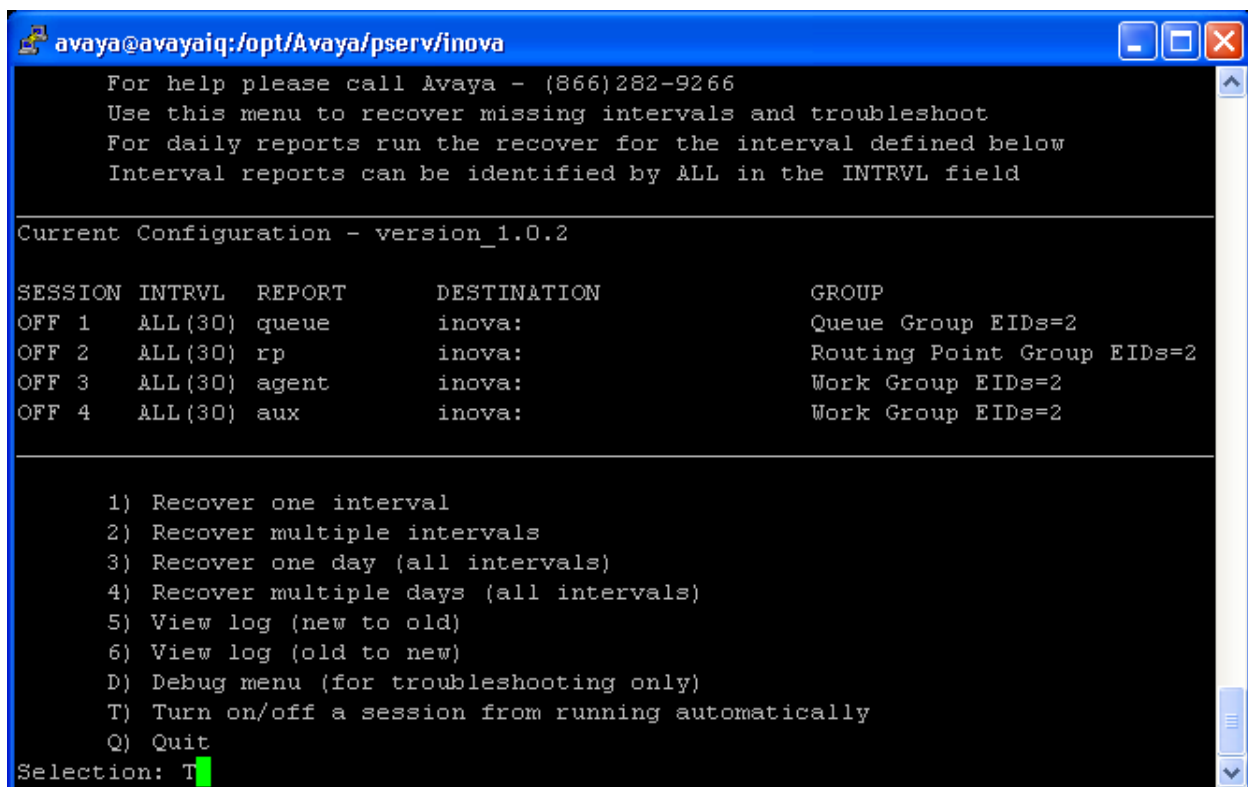
Configuration of the Inova historical interface is performed by Avaya Professional Services and is outside the scope of these Application Notes. After the interface is configured, the user can follow the procedure below to enable the interface. The historical interface was configured to establish four sessions to Inova LightLink using different port numbers. These sessions are established when Avaya IQ needs to send data to Inova LightLink. The following port numbers were configured for the each session:

- **Session 1:** port number 7001 was used for the queue report
- **Session 2:** port number 7000 was used for the routing point report
- **Session 3:** port number 6999 was used for the agent report
- **Session 4:** port number 7002 was used for the agent aux report

5.1 Enable Historical Interface

Use a terminal emulator to connect to Avaya IQ and log in with the appropriate credentials. At the command prompt, follow these steps:

- Change to the `/opt/Avaya/pserv/inova` directory
- Run the `./menu` command to display the **Inova Historical Interface Menu** shown below.



```
avaya@avayaaiq:/opt/Avaya/pserv/inova
For help please call Avaya - (866)282-9266
Use this menu to recover missing intervals and troubleshoot
For daily reports run the recover for the interval defined below
Interval reports can be identified by ALL in the INTRVL field

Current Configuration - version_1.0.2

SESSION INTRVL  REPORT      DESTINATION      GROUP
OFF 1    ALL(30)  queue       inova:           Queue Group EIDs=2
OFF 2    ALL(30)  rp          inova:           Routing Point Group EIDs=2
OFF 3    ALL(30)  agent      inova:           Work Group EIDs=2
OFF 4    ALL(30)  aux        inova:           Work Group EIDs=2

1) Recover one interval
2) Recover multiple intervals
3) Recover one day (all intervals)
4) Recover multiple days (all intervals)
5) View log (new to old)
6) View log (old to new)
D) Debug menu (for troubleshooting only)
T) Turn on/off a session from running automatically
Q) Quit
Selection: T
```

The Inova historical interface may be turned on and off. Enter 'T' to toggle the interface on or off, followed by the **Enter** key. When prompted for the session(s) to stop or start, enter the appropriate session number or enter "1 2 3 4" to toggle the status of all the sessions, followed by the **Enter** key as shown below. In the configuration, session numbers 1-4 were used, one session per report.

```

avaya@avaya1q:/opt/Avaya/pserv/inova

This will toggle the session to run or not run automatically
You can still run a manual recover from the menu
* If the session is currently on it will be turned off
* If the session is currently off it will be turned on

Current Configuration - version_1.0.2

SESSION INTRVL  REPORT      DESTINATION      GROUP
OFF 1    ALL(30)  queue        inova:           Queue Group EIDs=2
OFF 2    ALL(30)  rp           inova:           Routing Point Group EIDs=2
OFF 3    ALL(30)  agent       inova:           Work Group EIDs=2
OFF 4    ALL(30)  aux         inova:           Work Group EIDs=2

Enter session number(s) or press <ENTER> for all sessions [ex. 1 2 4]: 1 2 3 4

```

After toggling the session status, the session status is updated and the status is displayed as ON as shown below.

```

avaya@avaya1q:/opt/Avaya/pserv/inova

For daily reports run the recover for the interval defined below
Interval reports can be identified by ALL in the INTRVL field

Current Configuration - version_1.0.2

SESSION INTRVL  REPORT      DESTINATION      GROUP
ON 1     ALL(30)  queue        inova:           Queue Group EIDs=2
ON 2     ALL(30)  rp           inova:           Routing Point Group EIDs=2
ON 3     ALL(30)  agent       inova:           Work Group EIDs=2
ON 4     ALL(30)  aux         inova:           Work Group EIDs=2

1) Recover one interval
2) Recover multiple intervals
3) Recover one day (all intervals)
4) Recover multiple days (all intervals)
5) View log (new to old)
6) View log (old to new)
D) Debug menu (for troubleshooting only)
T) Turn on/off a session from running automatically
Q) Quit
Selection:

```

Note: The option to recover data for a particular interval generates the **PreDay** data only.

6 Configure Inova LightLink

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

- Administer historical interface for Queue data
- Administer historical interface for Routing Point data
- Administer historical interface for Agent data
- Administer historical interface for Agent Aux data

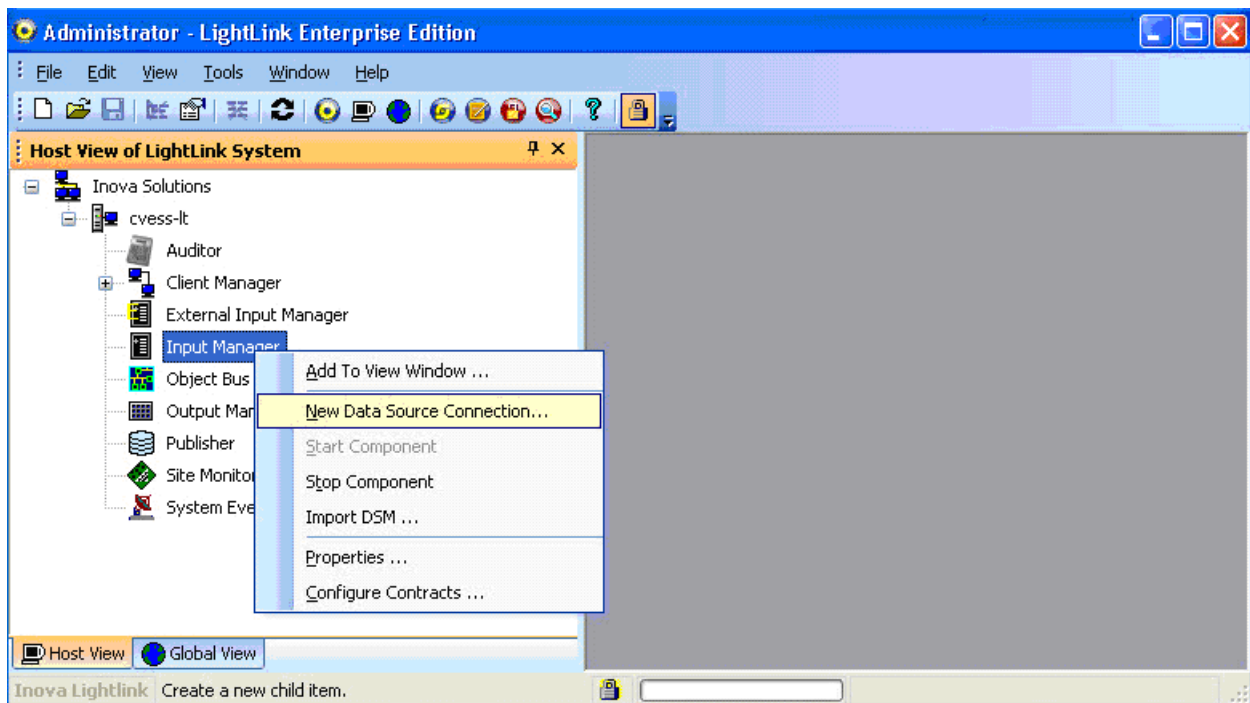
Configuration of LightLink is typically performed by Inova technicians. The procedural steps are presented in these Application Notes for informational purposes.

6.1 Administer Historical Interface for Queue Data

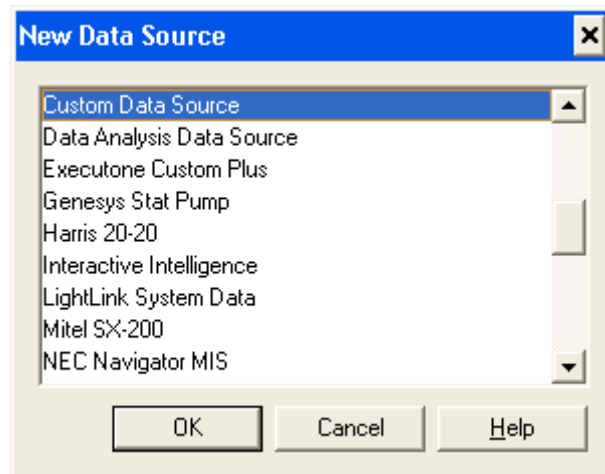
From the LightLink server, start the **Administrator** application by launching **Programs→Inova Solutions→Supervisor→Administrator**. The **Administrator** screen is displayed.

6.1.1 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.

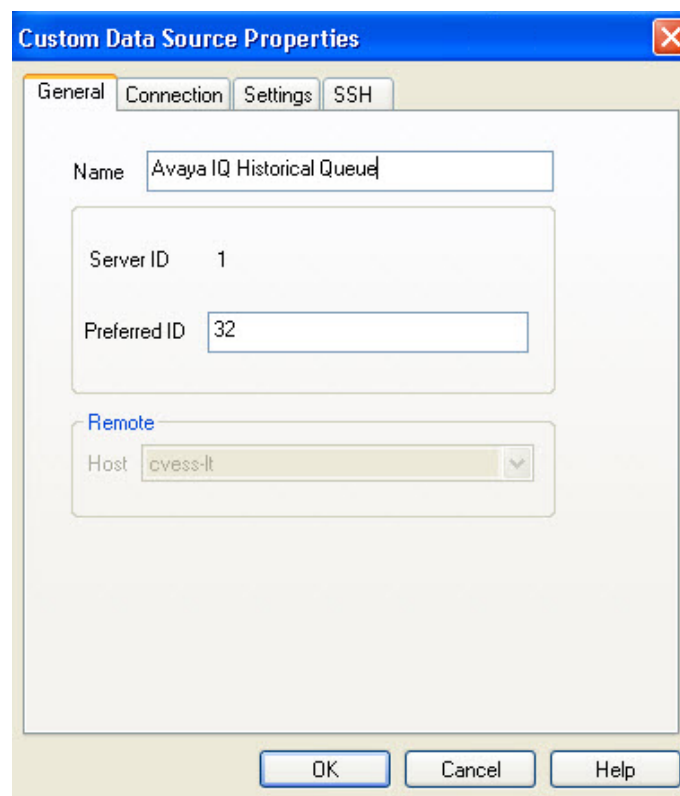


The **New Data Source** screen is displayed on top of the **Administrator** screen. Scroll down the window and select **Custom Data Source**. Click **OK**.



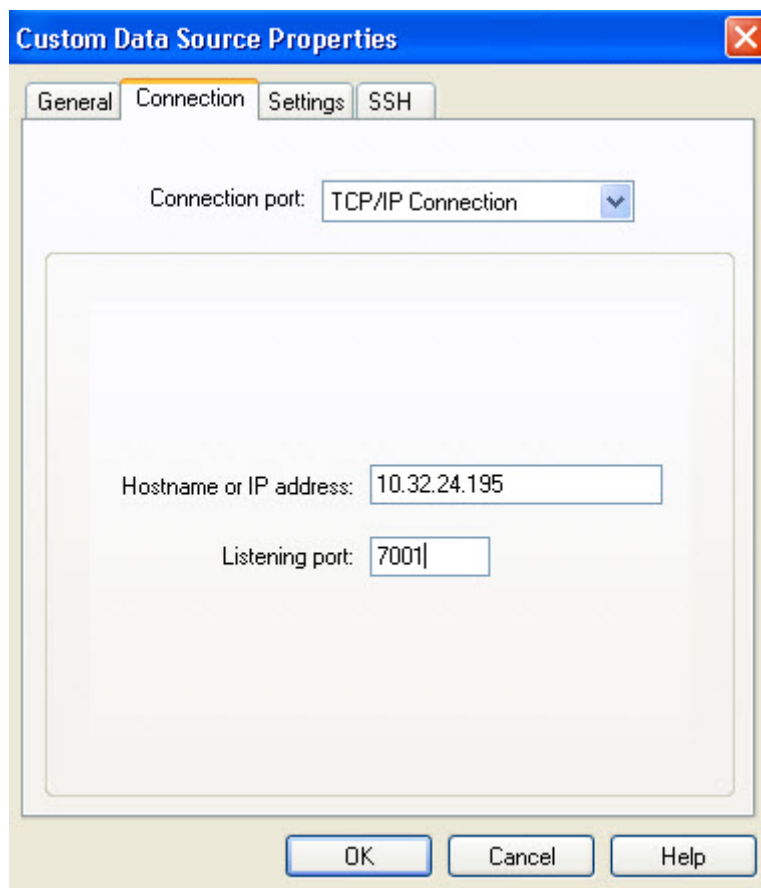
6.1.2 Administer Custom Data General Tab

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 IQ Historical Queue” is used. Retain the default value for the **Preferred ID** field.



6.1.3 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 in the **Hostname or IP address** field. For the **Listening port** field, enter the TCP port number that Avaya IQ uses for sending Queue data. This port number is provided by Avaya Professional Services. For the compliance test, the port number used was “7001”.



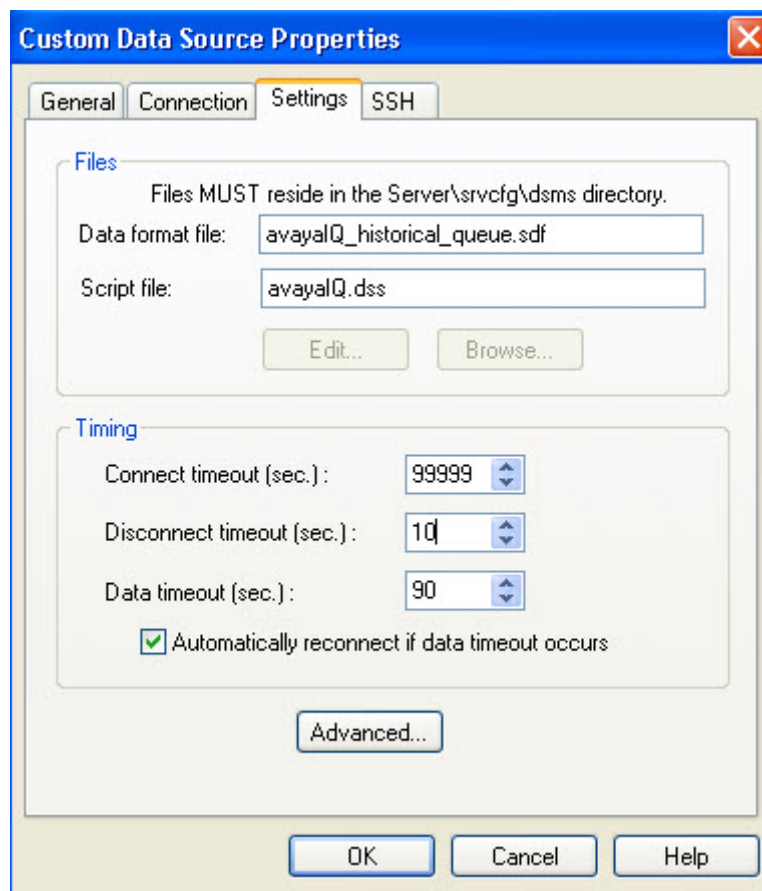
The screenshot shows a Windows-style dialog box titled "Custom Data Source Properties". It has four tabs: "General", "Connection" (which is selected and highlighted), "Settings", and "SSH". The "Connection" tab contains the following fields:

- "Connection port:" with a drop-down menu showing "TCP/IP Connection".
- "Hostname or IP address:" with a text box containing "10.32.24.195".
- "Listening port:" with a text box containing "7001".

At the bottom of the dialog are three buttons: "OK", "Cancel", and "Help".

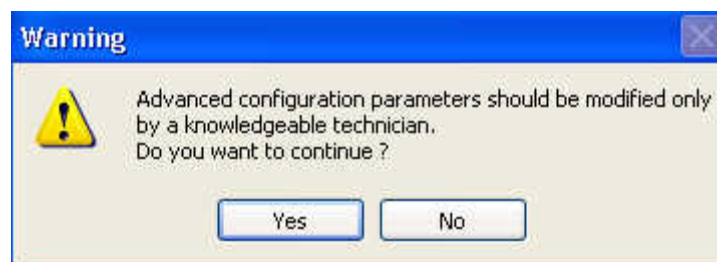
6.1.4 Administer Custom Data Settings Tab

Select the **Settings** tab. Select the **Data format file** field, and click on **Browse**. From the **Select File** screen, select “avayaIQ_historical_queue.sdf” from the file list. Repeat this step to select “avayaIQ.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**.

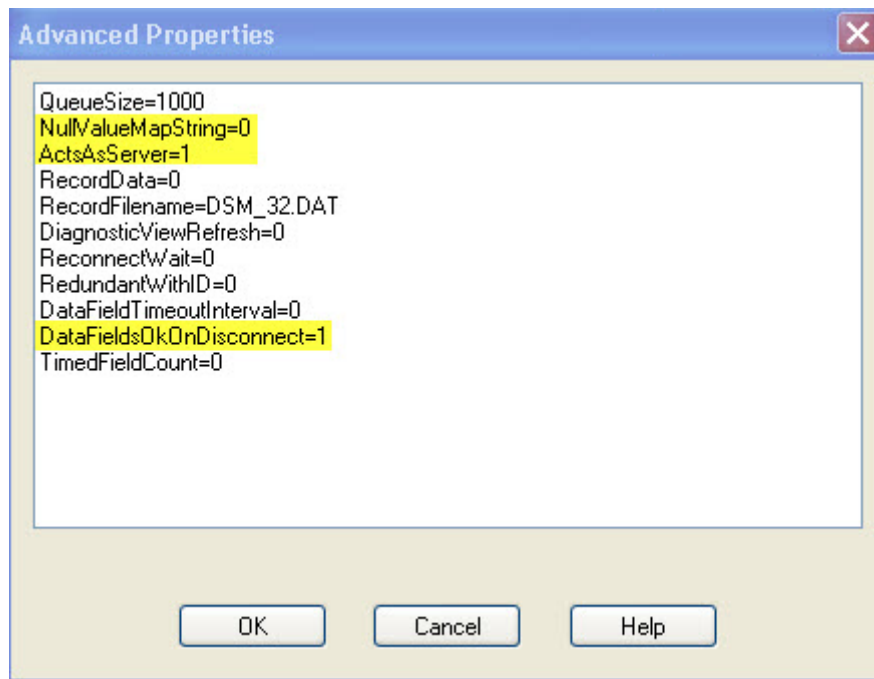


The image shows the 'Custom Data Source Properties' dialog box with the 'Settings' tab selected. The 'Files' section contains two text fields: 'Data format file' with the value 'avayaIQ_historical_queue.sdf' and 'Script file' with the value 'avayaIQ.dss'. Below these fields are 'Edit...' and 'Browse...' buttons. The 'Timing' section contains three spinners: 'Connect timeout (sec.)' set to 99999, 'Disconnect timeout (sec.)' set to 10, and 'Data timeout (sec.)' set to 90. A checkbox labeled 'Automatically reconnect if data timeout occurs' is checked. An 'Advanced...' button is located below the timing section. At the bottom of the dialog are 'OK', 'Cancel', and 'Help' buttons.

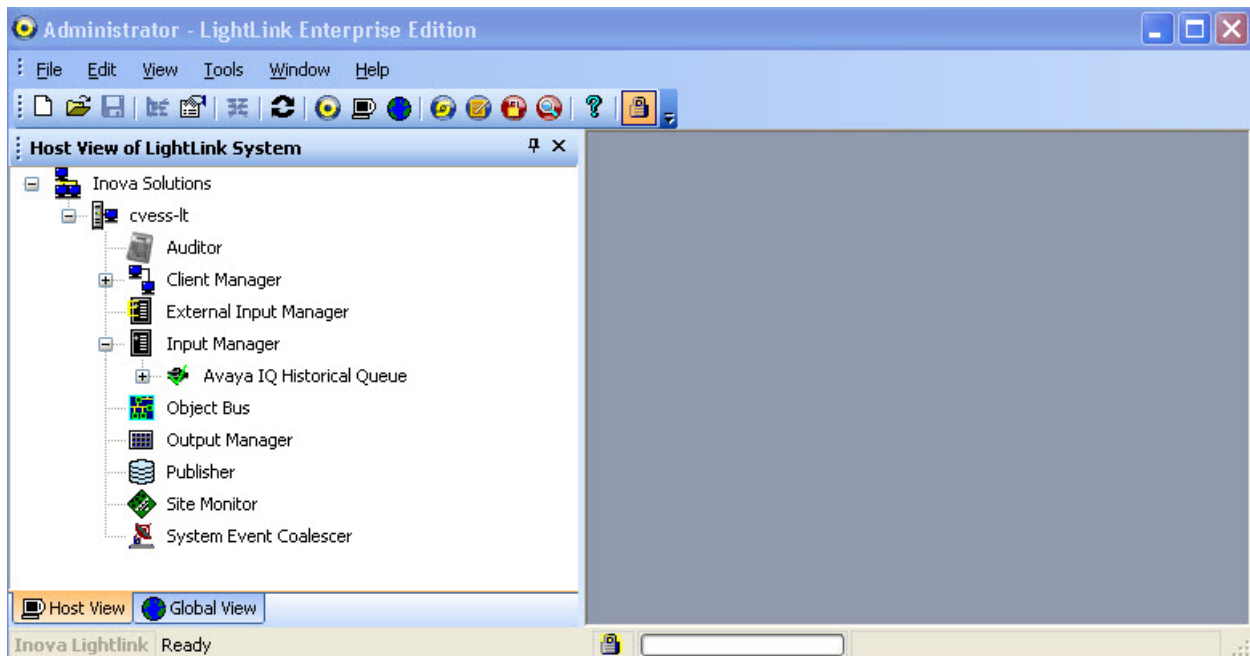
The **Warning** pop-up window below is displayed on top of the **Custom Data Source Properties** screen. Click **Yes** to continue.



The **Advanced Properties** screen is displayed on top of the **Custom Data Source Properties** screen. Set the value of the **NullValueMapString** parameter to '0' to allow null values received in the report to be replaced with '0'. Set the value of the **ActsAsServer** parameter to '1' as shown in the textbox below. This will enable the LightLink server to take on the role of the "server" when communicating with Avaya IQ. Lastly, 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.



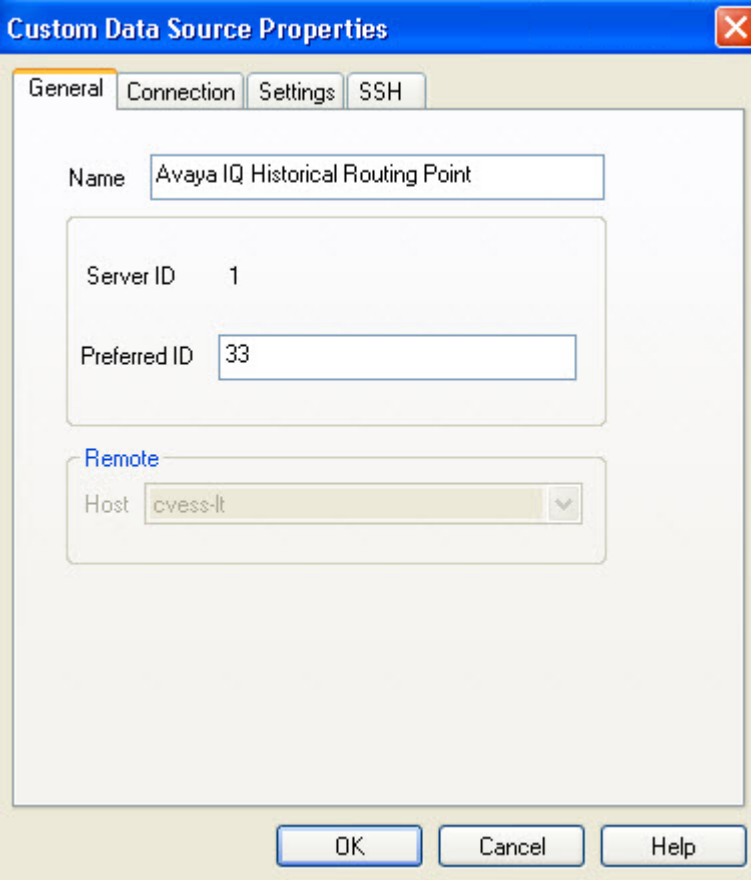
The **Administrator** screen is displayed next, and updated with the newly created custom data source “Avaya IQ Historical Queue” as shown below. A green checkmark indicates that the data source is ready to accept a connection from Avaya IQ.



6.2 Administer Historical Interface for Routing Point Data

The procedure for administering the Routing Point data source is similar to the procedure described for administering the Queue data source. Follow all the steps in the procedure described in **Section 6.1** with the following exceptions:

- **Section 6.1.2** Use a different **Name** for the queue data source.

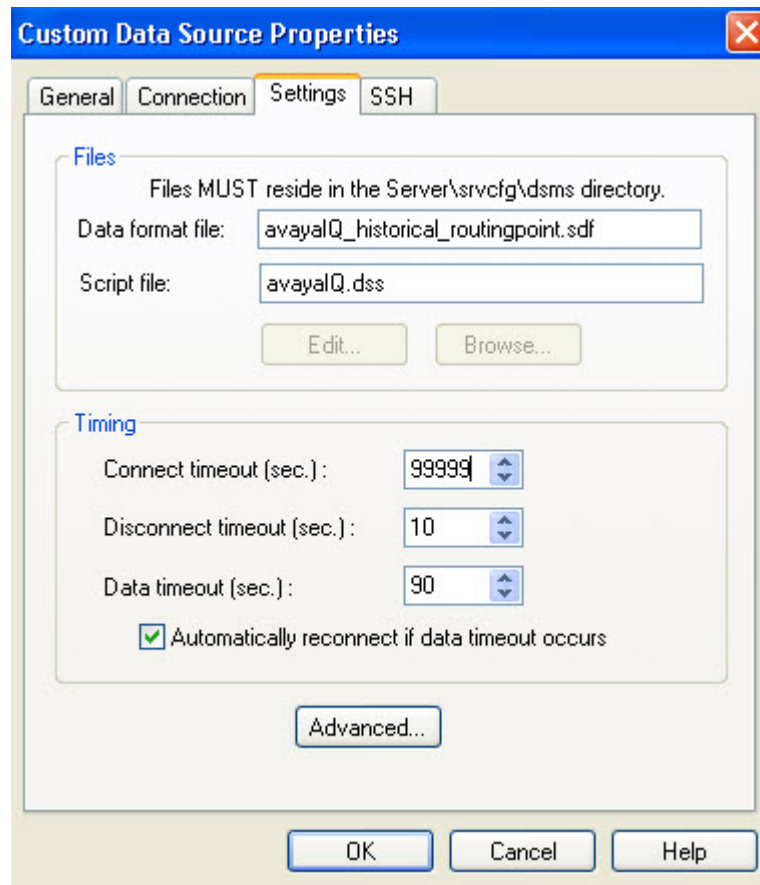


The screenshot shows a Windows-style dialog box titled "Custom Data Source Properties". It has four tabs: "General", "Connection", "Settings", and "SSH". The "General" tab is selected. Inside the dialog, there is a "Name" field with the text "Avaya IQ Historical Routing Point". Below this, there is a "Server ID" field with the value "1" and a "Preferred ID" field with the value "33". Further down, there is a "Remote" section with a "Host" dropdown menu currently showing "cvess-It". At the bottom of the dialog are three buttons: "OK", "Cancel", and "Help".

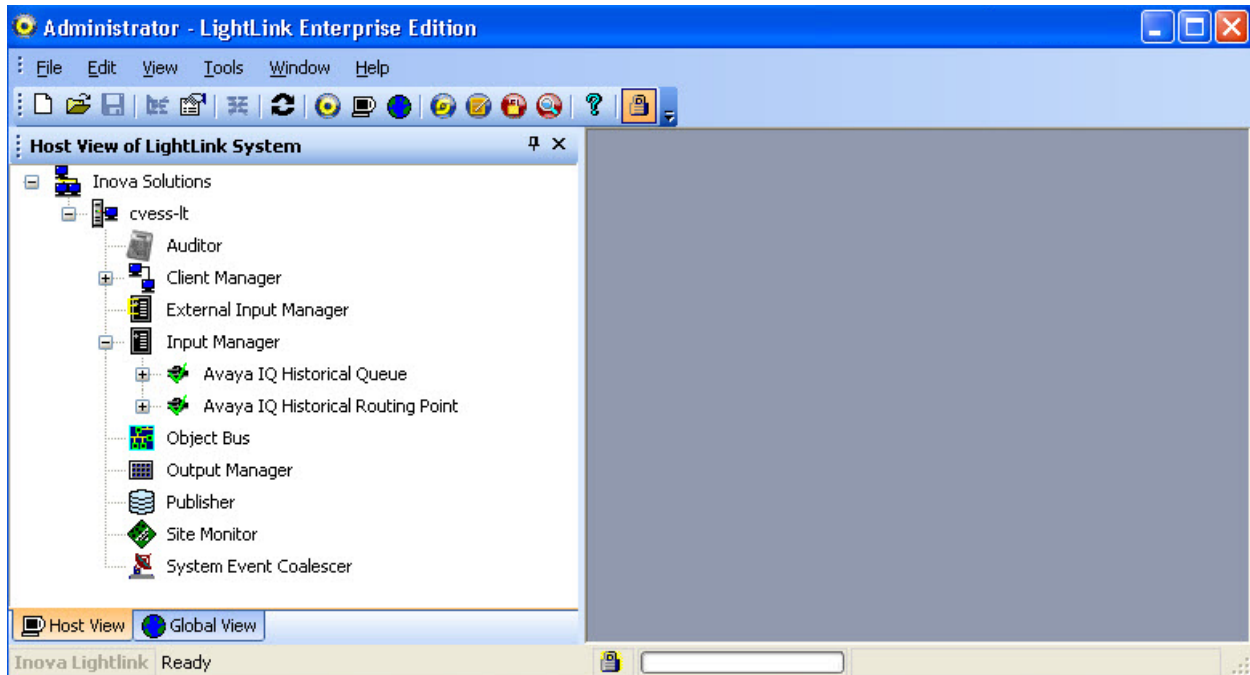
- **Section 6.1.3** Use the corresponding TCP port number for the **Listening Port** field. The corresponding TCP port number on Avaya IQ used for sending Routing Point data is provided by Avaya Professional Services. For the compliance test, the port number used was “7000”.

The screenshot shows a Windows-style dialog box titled "Custom Data Source Properties" with a red close button in the top right corner. The dialog has four tabs: "General", "Connection" (which is selected and highlighted with an orange border), "Settings", and "SSH". Inside the "Connection" tab, there is a "Connection port:" label followed by a dropdown menu showing "TCP/IP Connection". Below this is a large, empty rectangular frame. At the bottom of the frame, there are two labels: "Hostname or IP address:" followed by a text box containing "10.32.24.195", and "Listening port:" followed by a text box containing "7000". At the bottom of the dialog box, outside the frame, are three buttons: "OK", "Cancel", and "Help".

- **Section 6.1.4** Select “avayaIQ_historical_routingpoint.sdf” for the **Data format file** field and select “avayaIQ.dss” for the **Script file** field as shown below.



A green checkmark will be displayed by the Routing Point data source in the **Administrator** screen to indicate that the data source is ready to accept a connection from Avaya IQ.



6.3 Administer Historical Interfaces for Agent Reports

This section covers the administration of the historical interfaces for the Agent and Agent Aux reports. The procedure for administering the Agent and Agent Aux data sources require more steps than configuring the Queue and Routing Point data sources, and includes the following areas:

- Administer Agent data source and data set contract
- Administer Agent Aux data source and data set contract
- Administer connection between Inova LightLink data set contract and database, including:
 - Configure ODBC data source
 - Administer database output device
- Administer database updater for Agent and Agent Aux reports

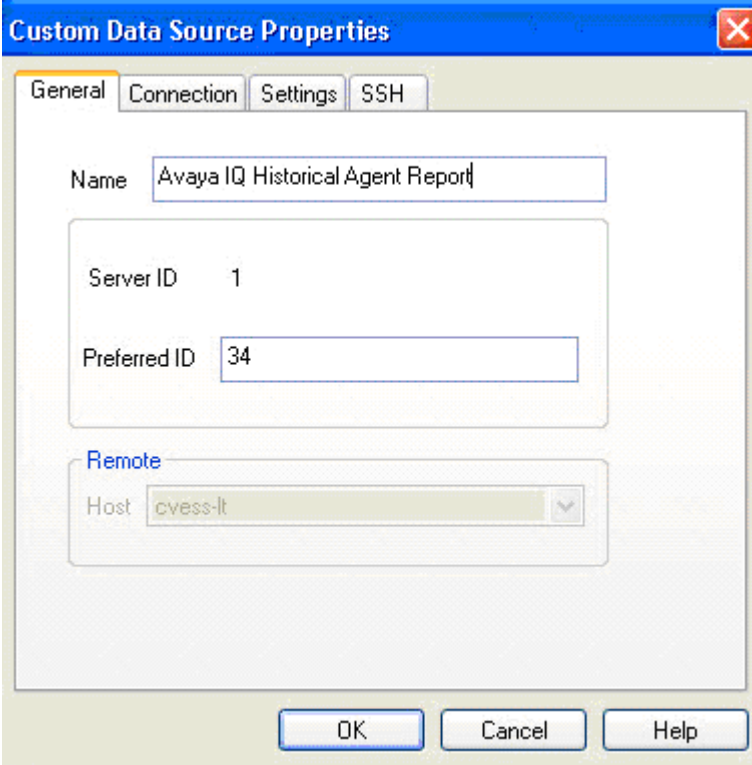
6.3.1 Agent Data Administration

This section covers the administration of the Agent data source and data set contract.

6.3.1.1 Administer Agent Data Source

The procedure for administering the Agent data source is similar to the procedure described for administering the Queue data source. Follow all the steps in the procedure described in **Section 6.1** with the following exceptions:

- **Section 6.1.2** Use a different **Name** for the Agent data source.

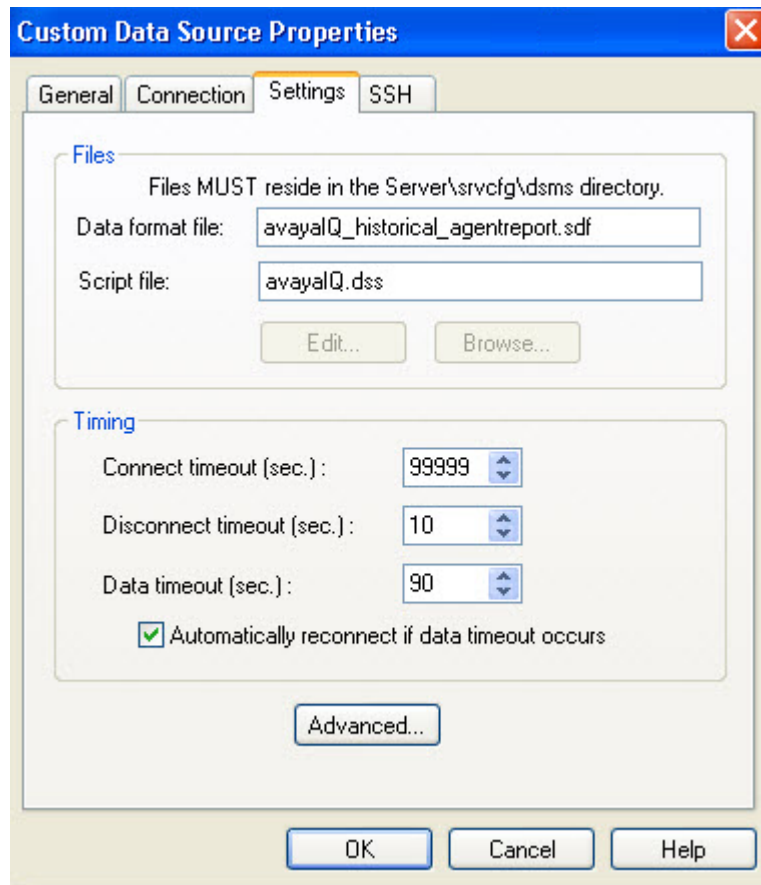


The screenshot shows a Windows-style dialog box titled "Custom Data Source Properties". It has four tabs: "General", "Connection", "Settings", and "SSH". The "General" tab is selected. Inside the dialog, there is a "Name" field with the text "Avaya IQ Historical Agent Report". Below this is a group box containing a "Server ID" field with the value "1" and a "Preferred ID" field with the value "34". Further down is a "Remote" section with a "Host" dropdown menu currently showing "cvess-It". At the bottom of the dialog are three buttons: "OK", "Cancel", and "Help".

- **Section 6.1.3** Use the corresponding TCP port number for the **Listening Port** field. The corresponding TCP port number on Avaya IQ used for sending Agent data is provided by Avaya Professional Services. For the compliance test, the port number used was “6999”.

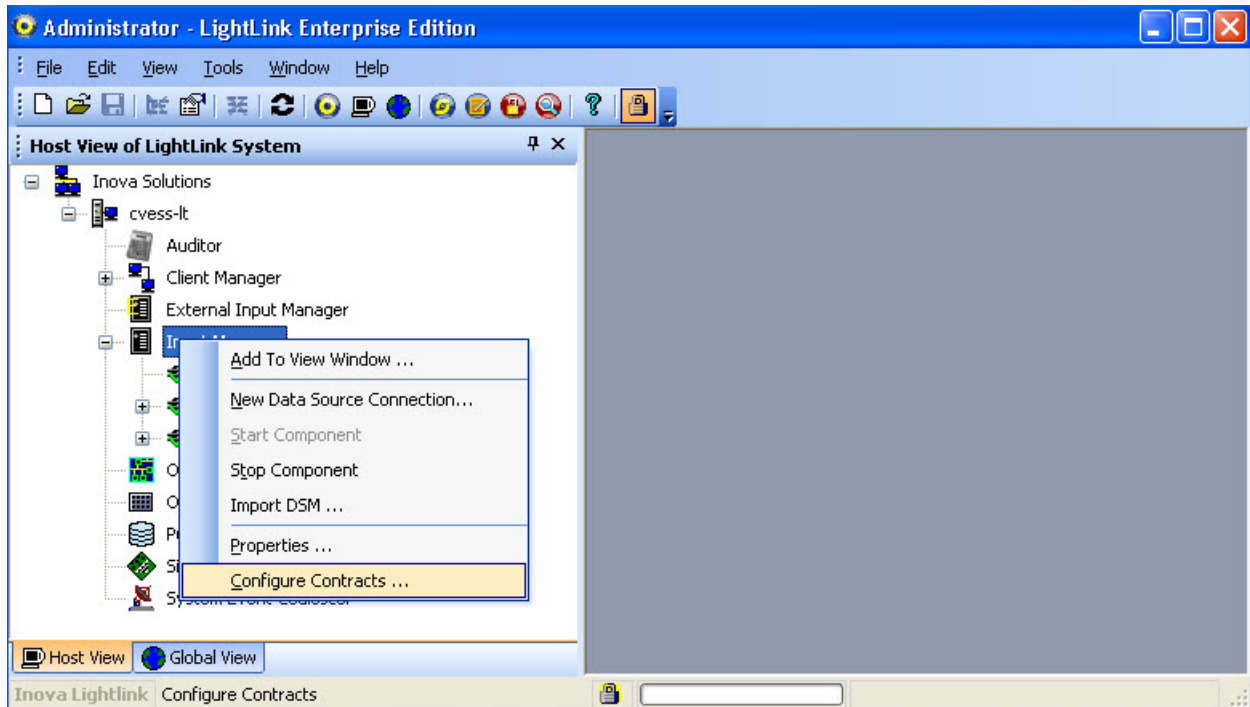
The screenshot shows a Windows-style dialog box titled "Custom Data Source Properties". It has four tabs: "General", "Connection" (which is selected and highlighted with an orange border), "Settings", and "SSH". Inside the "Connection" tab, there is a "Connection port:" label followed by a dropdown menu showing "TCP/IP Connection". Below this is a large, empty rectangular area. Underneath that area, there are two text input fields: "Hostname or IP address:" containing the value "10.32.24.195" and "Listening port:" containing the value "6999". At the bottom of the dialog box are three buttons: "OK", "Cancel", and "Help".

- **Section 6.1.4** Select “avayaIQ_historical_agentreport.sdf” for the **Data format file** field and select “avayaIQ.dss” for the **Script file** field as shown below.



6.3.1.2 Administer Agent Data Set Contract

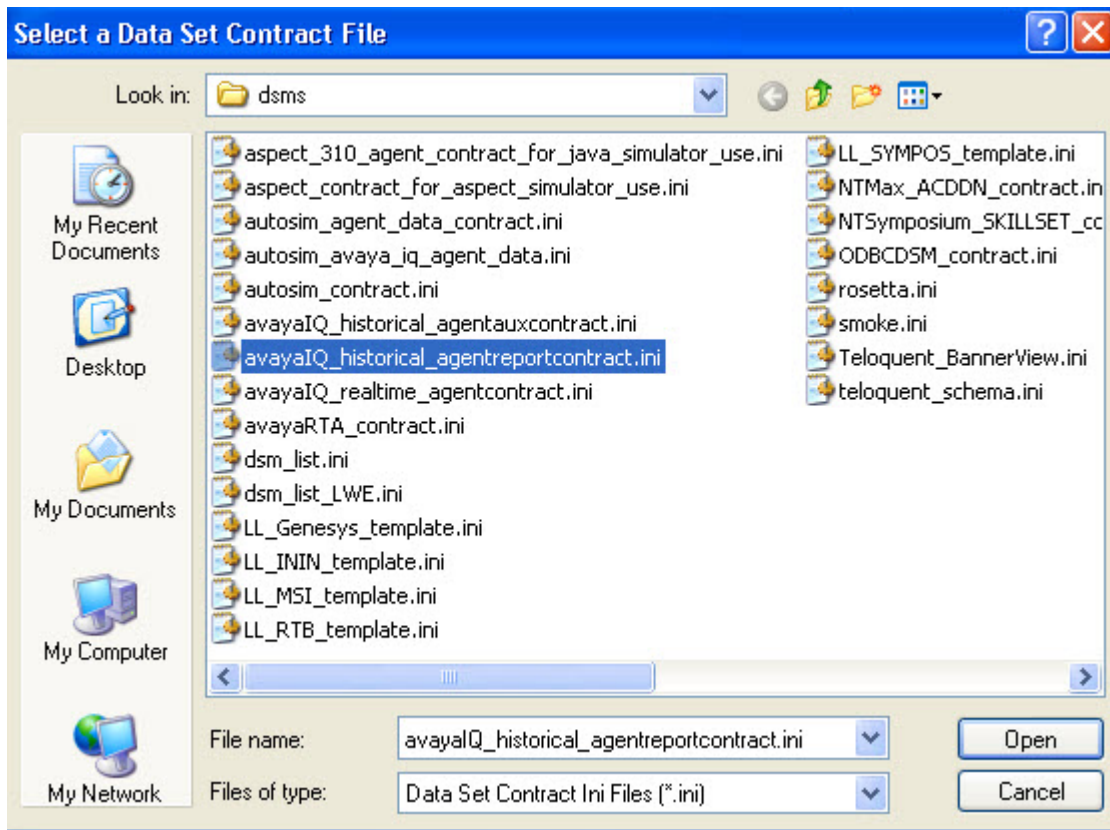
From the **Administrator** screen, right-click on **Input Manager** and select **Configure Contracts** from the pop-up menu to create a new data set contract.



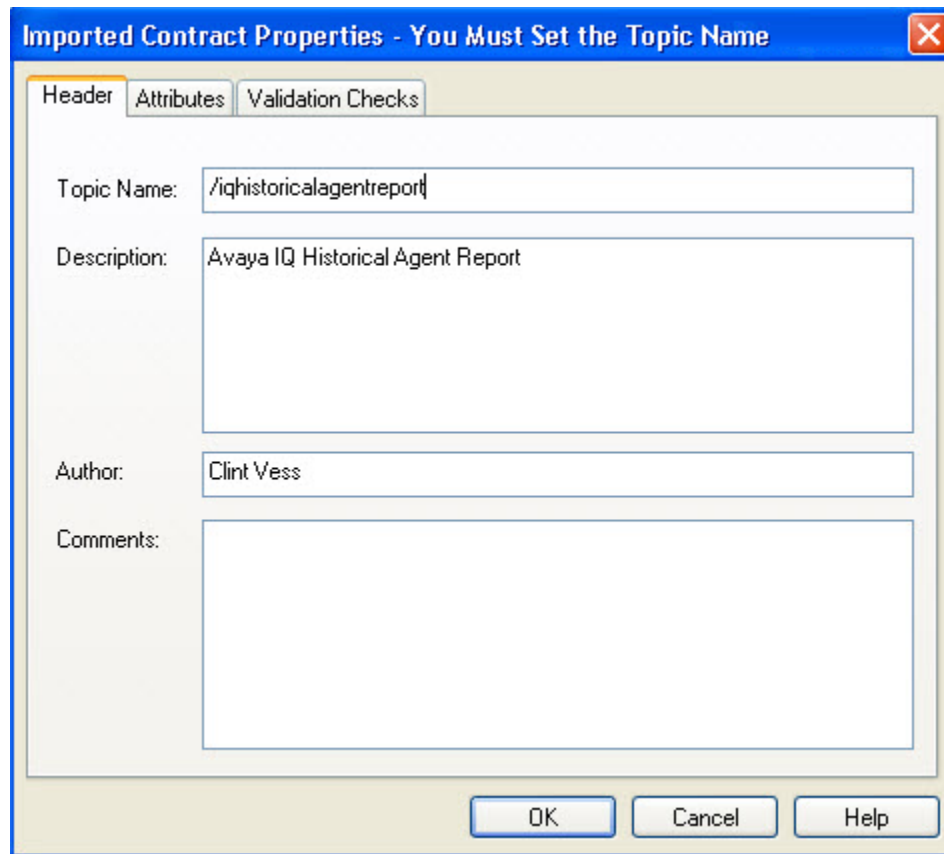
The **Data Set Contract Properties** screen is displayed on top of the **Administrator** screen. Click on **Import From File**.



The **Select a Data Set Contract File** screen is displayed. Navigate to the directory “Program Files\Inova Solutions\Server\srvcfg\dsms” and select “avayaIQ_historical_agentreportcontract.ini” as shown below. Click **Open**.



The **Imported Contract Properties** screen is displayed. For the **Topic Name** field, enter “/iqhistoricalagentreport” as shown below. Provide a description and click **OK**.

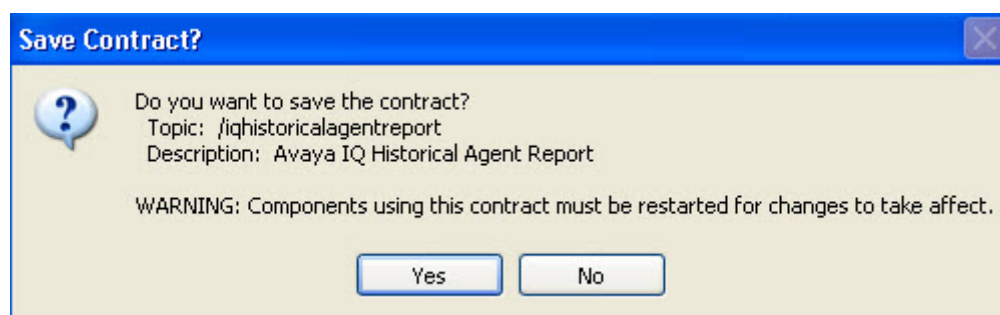


The dialog box is titled "Imported Contract Properties - You Must Set the Topic Name". It has three tabs: "Header" (selected), "Attributes", and "Validation Checks". The "Header" tab contains the following fields:

- Topic Name:** /iqhistoricalagentreport
- Description:** Avaya IQ Historical Agent Report
- Author:** Clint Vess
- Comments:** (empty text area)

At the bottom right, there are three buttons: "OK", "Cancel", and "Help".

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



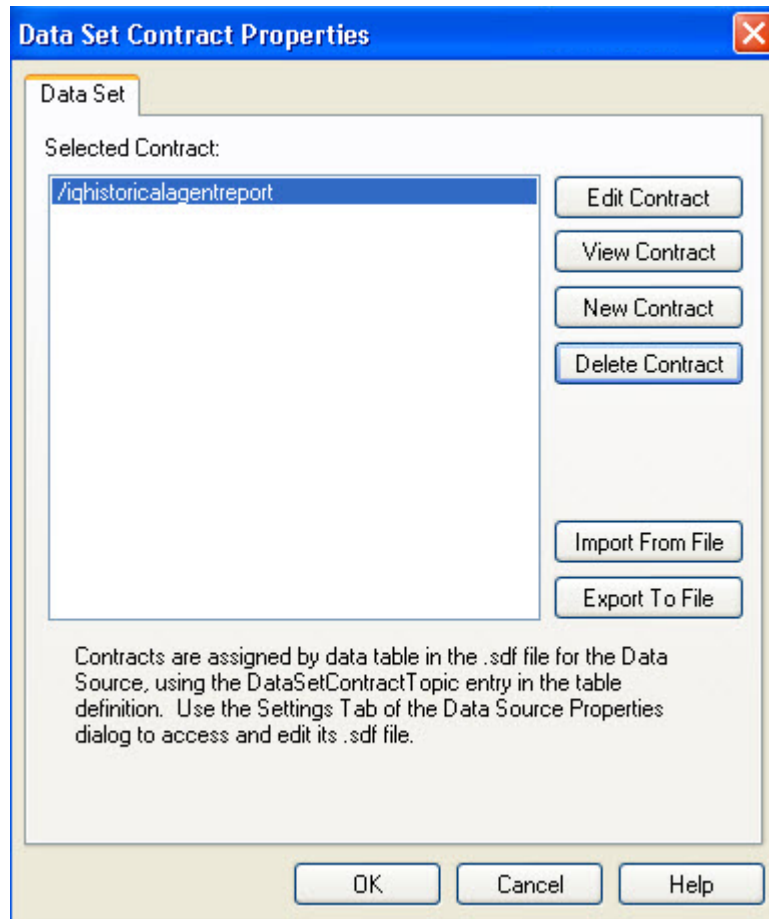
The dialog box is titled "Save Contract?". It contains a question mark icon and the following text:

Do you want to save the contract?
Topic: /iqhistoricalagentreport
Description: Avaya IQ Historical Agent Report

Below this is a warning message: "WARNING: Components using this contract must be restarted for changes to take affect."

At the bottom, there are two buttons: "Yes" and "No".

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



6.3.2 Agent Aux Data Administration

This section covers the administration of the Agent Aux data source and data set contract.

6.3.2.1 Administer Agent Aux Data Source

The procedure for administering the Agent Aux data source is similar to the procedure described for administering the Queue data source. Follow all the steps in the procedure described in **Section 6.1** with the following exceptions:

- **Section 6.1.2** Use a different **Name** for the Agent Aux data source.

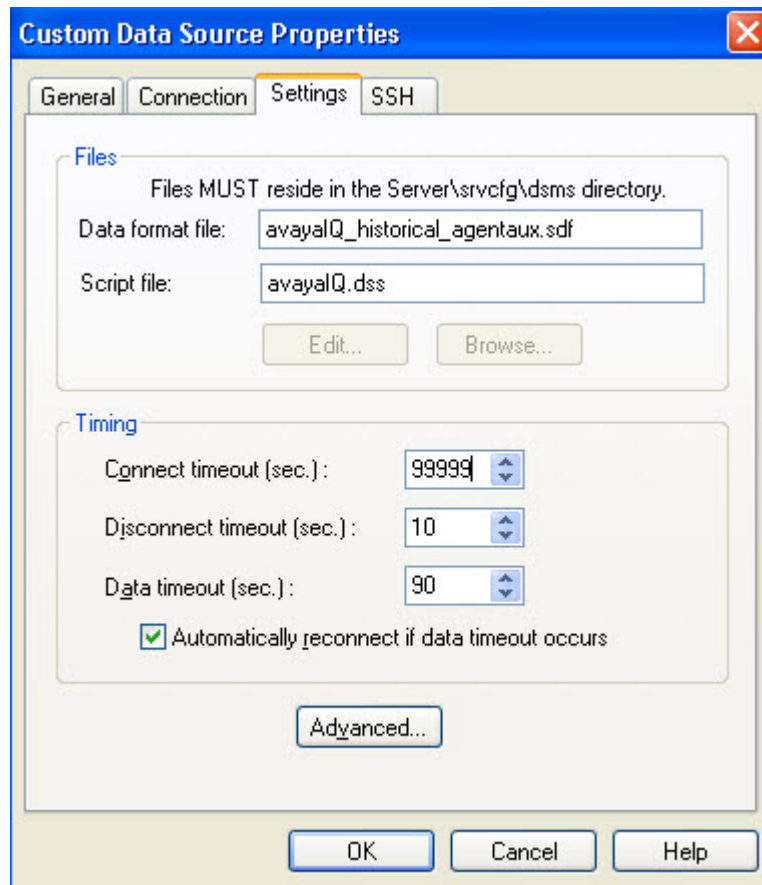


The image shows a Windows-style dialog box titled "Avaya Historical Agent Aux Properties". It has four tabs: "General", "Connection", "Settings", and "SSH". The "General" tab is selected. Inside the dialog, there is a "Name" field with the text "Avaya IQ Historical Agent Aux". Below this is a "Server ID" field with the value "1". Underneath that is a "Preferred ID" field with the value "35". Further down, there is a "Remote" section with a "Host" dropdown menu showing "cress-1t". At the bottom of the dialog are three buttons: "OK", "Cancel", and "Help".

- **Section 6.1.3** Use the corresponding TCP port number for the **Listening Port** field. The corresponding TCP port number on Avaya IQ used for sending Agent Aux data is provided by Avaya Professional Services. For the compliance test, the port number used was “7002”.

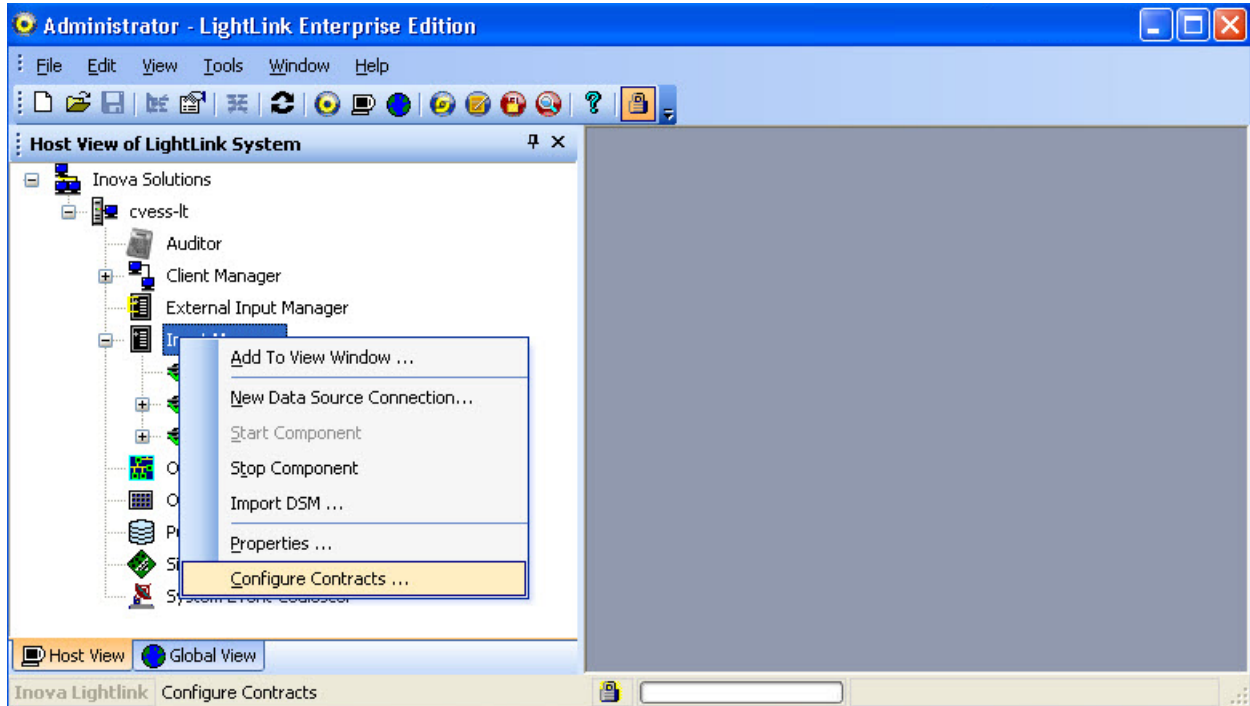
The screenshot shows a Windows-style dialog box titled "Custom Data Source Properties" with a red close button in the top right corner. The dialog has four tabs: "General", "Connection", "Settings", and "SSH". The "Connection" tab is currently selected and highlighted. Inside the "Connection" tab, there is a "Connection port:" label followed by a dropdown menu showing "TCP/IP Connection". Below this, there is a "Hostname or IP address:" label followed by a text input field containing "10.32.24.195". Further down, there is a "Listening port:" label followed by a text input field containing "7002". At the bottom of the dialog, there are three buttons: "OK", "Cancel", and "Help".

- **Section 6.1.4** Select “avayaIQ_historical_agentaux.sdf” for the **Data format file** field and select “avayaIQ.dss” for the **Script file** field as shown below.

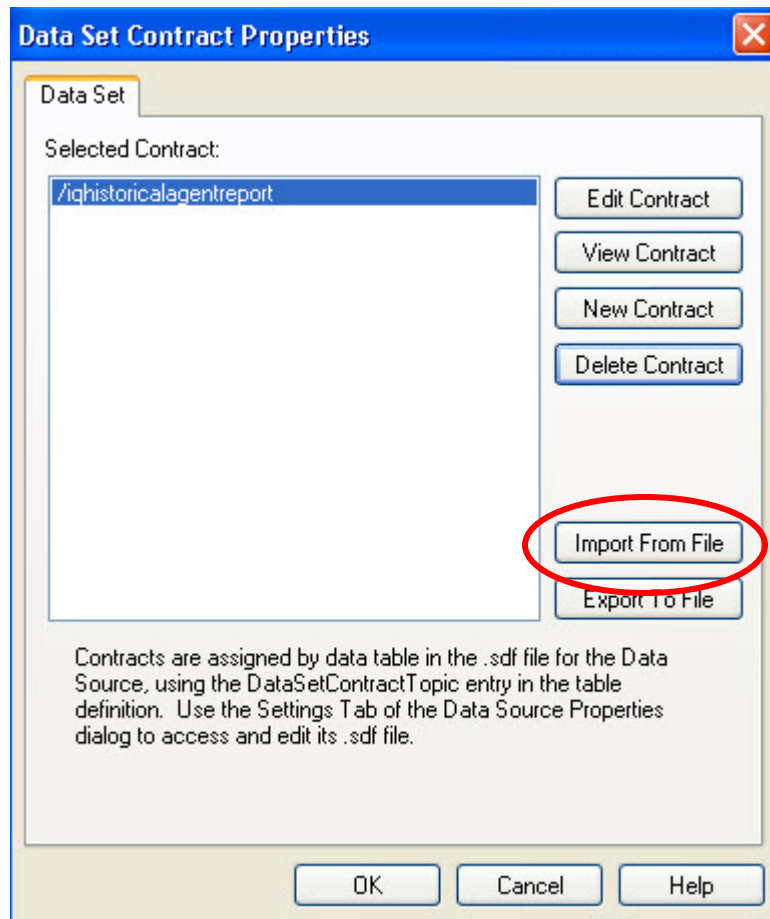


6.3.2.2 Administer Agent Aux Data Set Contract

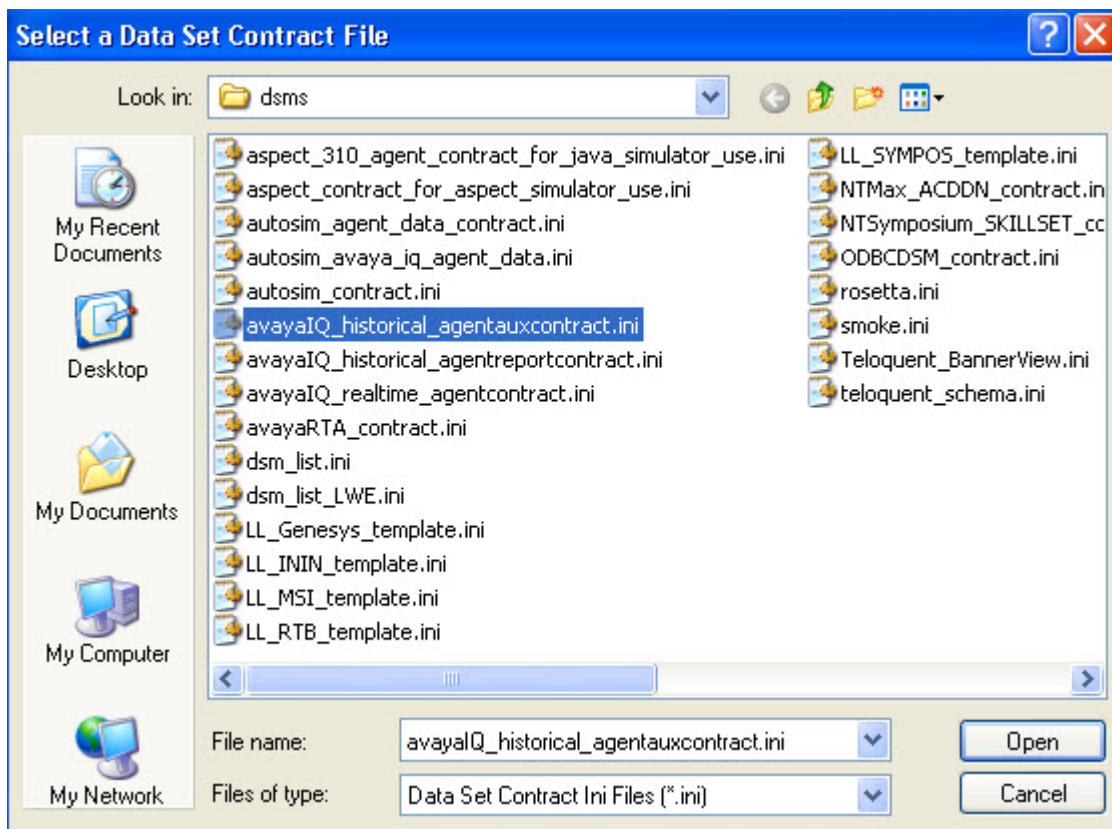
From the **Administrator** screen, right-click on **Input Manager** and select **Configure Contracts** from the pop-up menu to create a new data set contract.



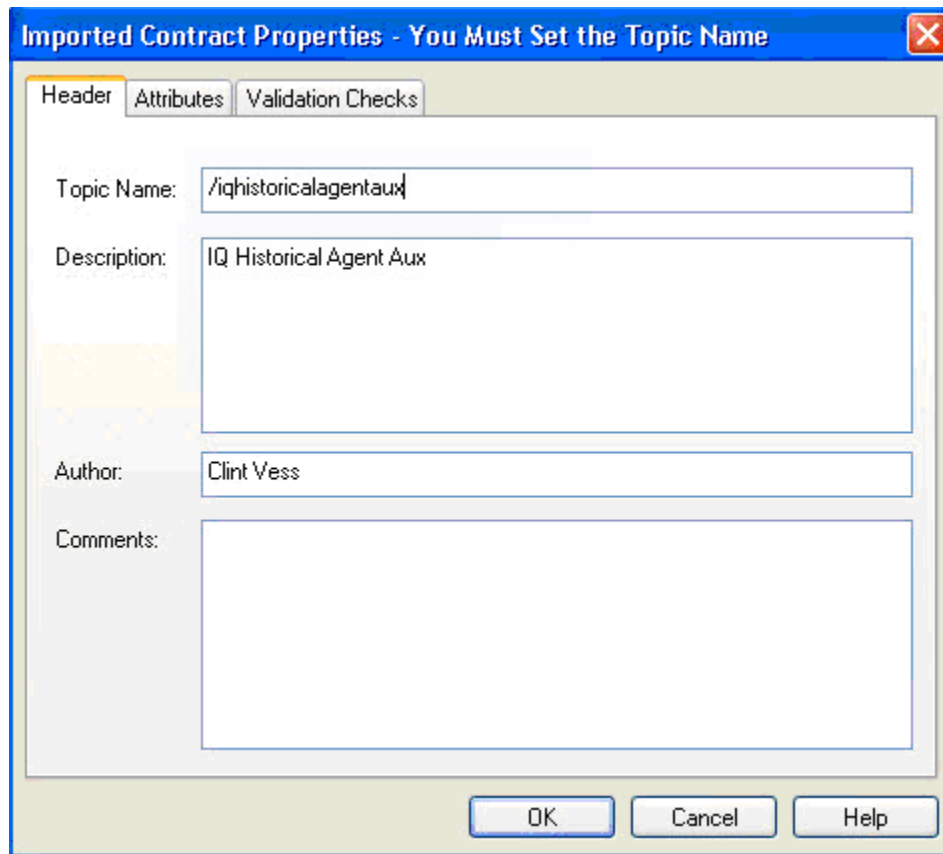
The **Data Set Contract Properties** screen is displayed on top of the **Administrator** screen. Click on **Import From File**.



The **Select a Data Set Contract File** screen is displayed. Navigate to the directory “Program Files\Inova Solutions\Server\srcf\dsms” and select “avayaIQ_historical_agentauxcontract.ini” as shown below. Click **Open**.



The **Imported Contract Properties** screen is displayed. For the **Topic Name** field, enter “/iqhistoricalagentaux” as shown below. Provide a description if desired and click **OK**.

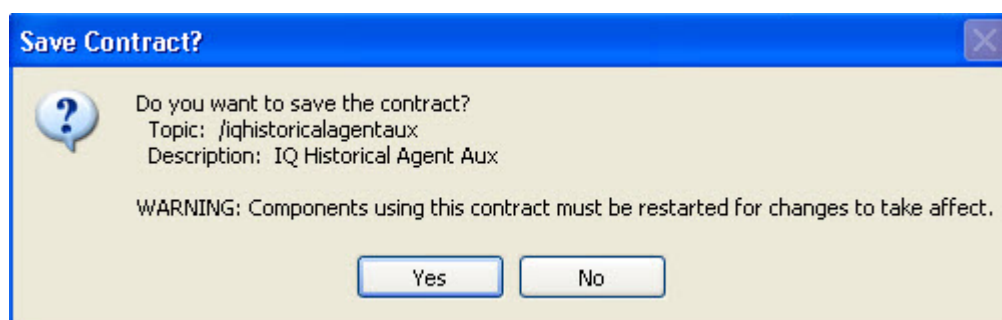


The dialog box is titled "Imported Contract Properties - You Must Set the Topic Name". It has three tabs: "Header", "Attributes", and "Validation Checks". The "Header" tab is selected. It contains the following fields:

- Topic Name:** /iqhistoricalagentaux
- Description:** IQ Historical Agent Aux
- Author:** Clint Vess
- Comments:** (empty text area)

At the bottom are three buttons: "OK", "Cancel", and "Help".

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



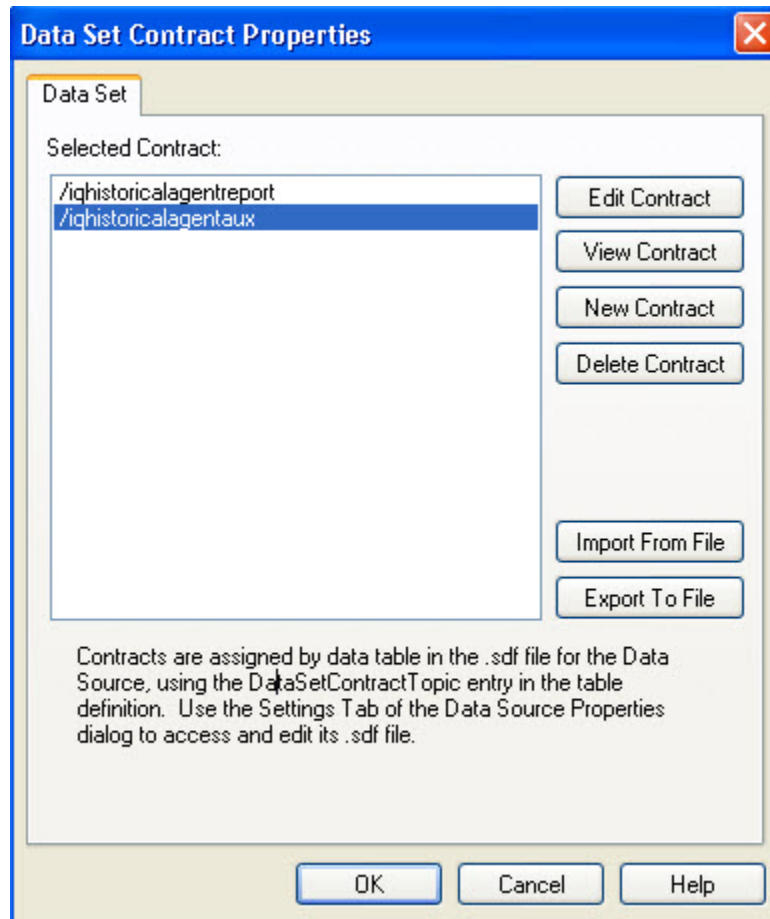
The dialog box is titled "Save Contract?". It contains a question mark icon and the following text:

Do you want to save the contract?
Topic: /iqhistoricalagentaux
Description: IQ Historical Agent Aux

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

At the bottom are two buttons: "Yes" and "No".

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

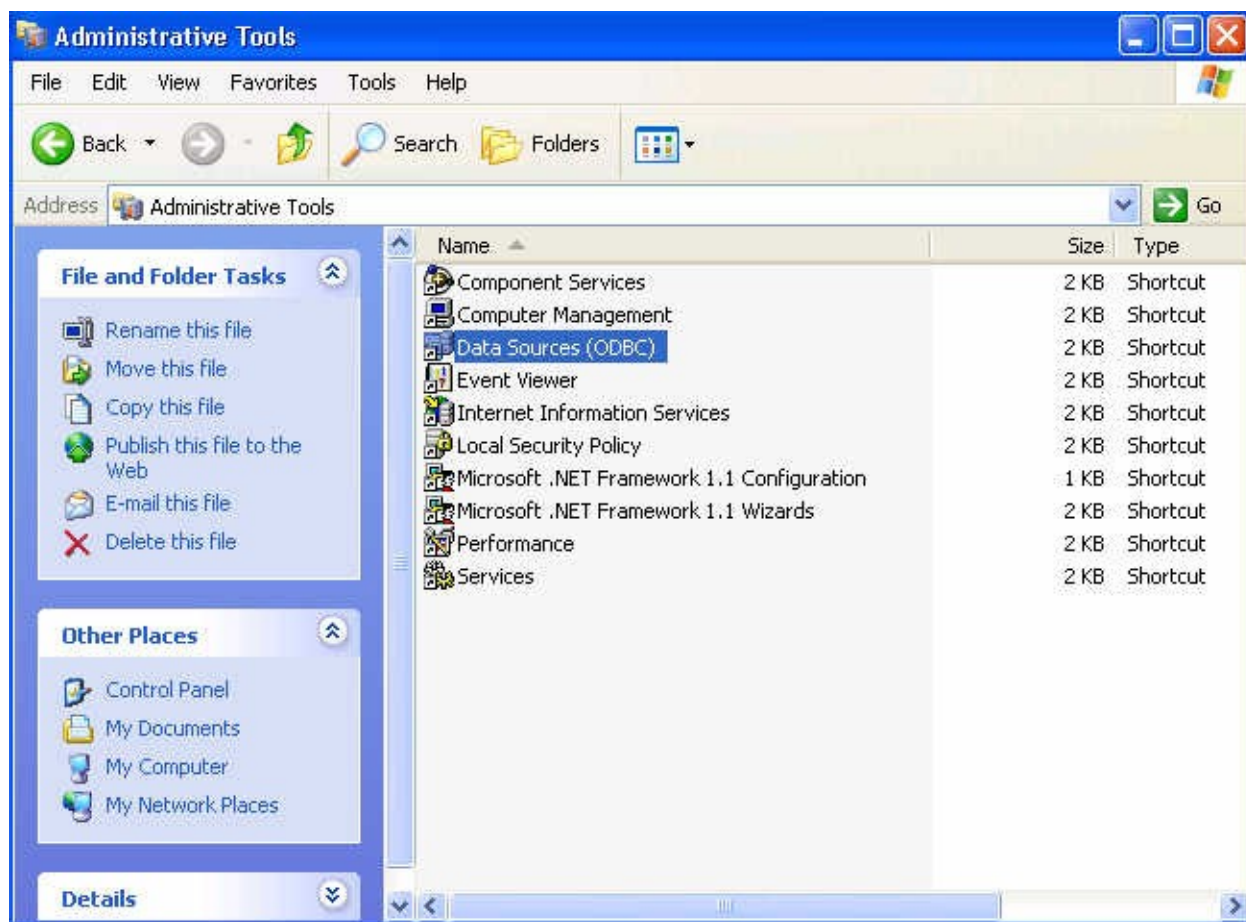


6.3.3 Administer Connection between Agent Data Set Contract and Database

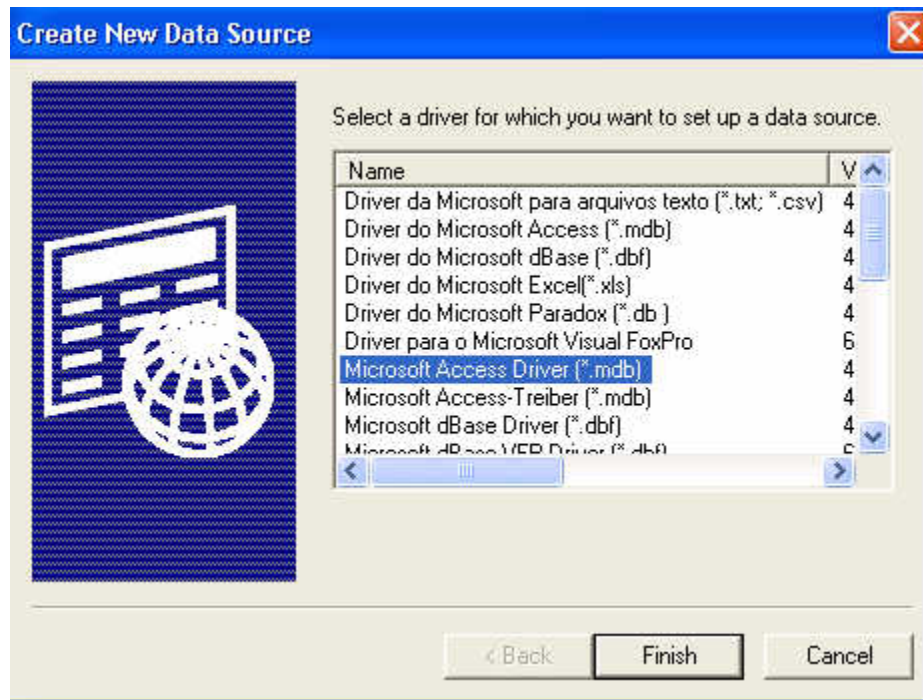
This section covers the procedure for building a connection from the Inova LightLink Agent data set contract to the database. Inova LightLink supports any ODBC-compliant database. For compliance testing, a Microsoft Access database was used. This procedure requires configuring an ODBC data source and configuring the database output device in Inova LightLink.

6.3.3.1 Configure ODBC Data Source

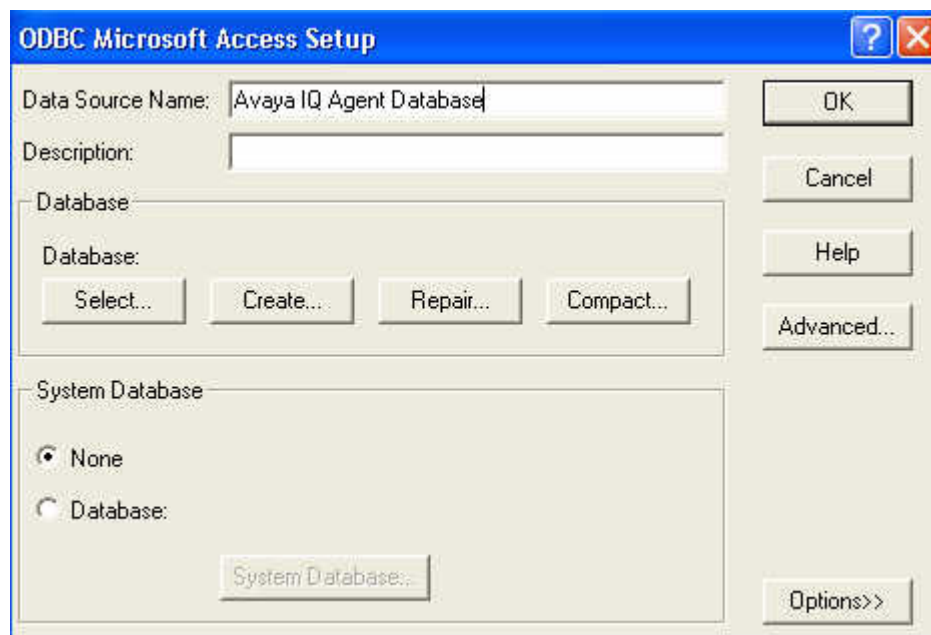
From the **Administrative Tools** folder in Microsoft Windows, double-click on **Data Sources (ODBC)**.



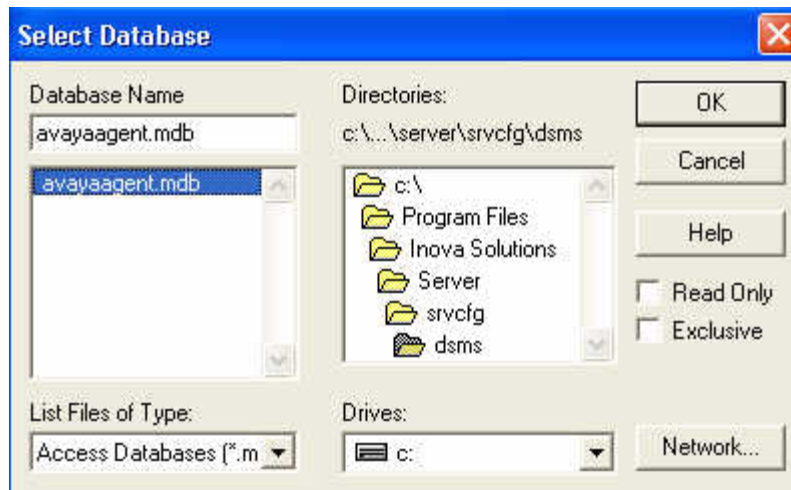
In the **Create New Data Source** screen, select “Microsoft Access Driver (*.mdb)” as shown below. Click **Finish**.



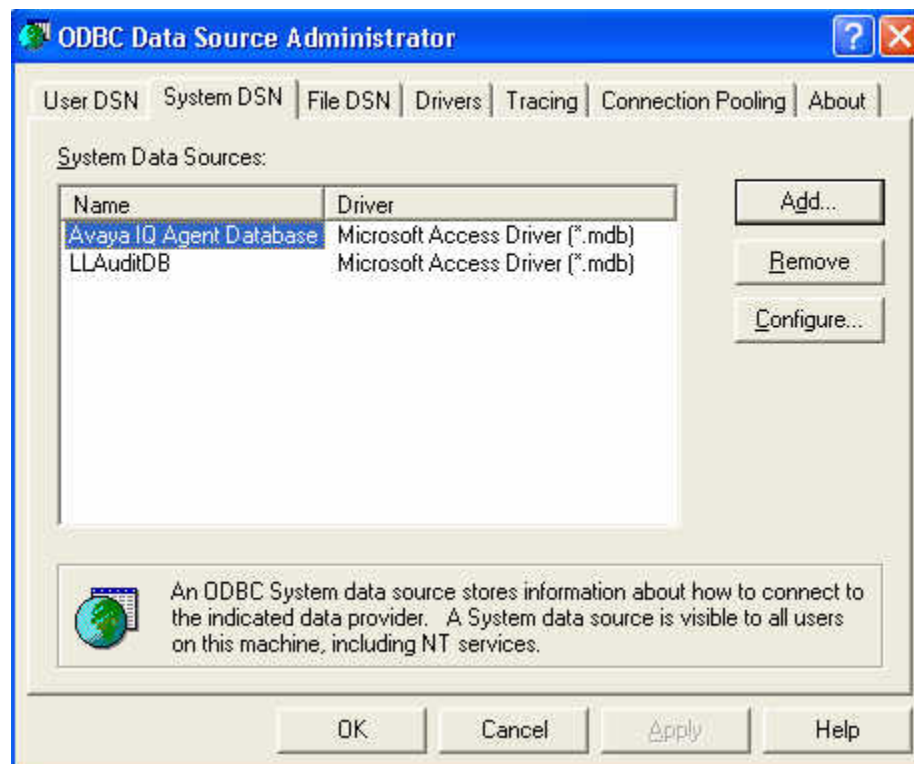
In the **ODBC Microsoft Access Setup** screen, enter a descriptive **Data Source Name** and then click **Select**.



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 “Program Files\Inova Solutions\Server\srcfg\dsms” directory was selected for Microsoft Access. Click **OK**.

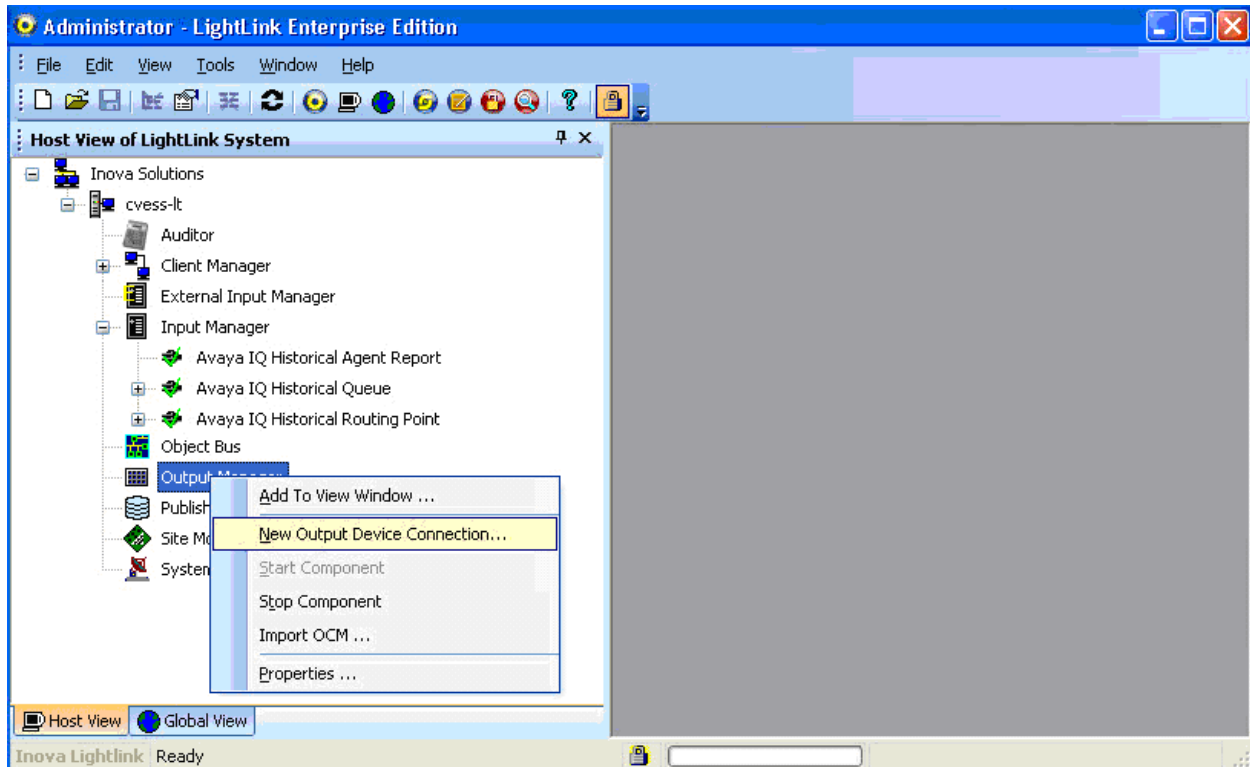


The Agent database should now appear under the **System DSN** tab in the **ODBC Data Source Administrator** screen. Click **OK**.



6.3.3.2 Administer Database Output Device

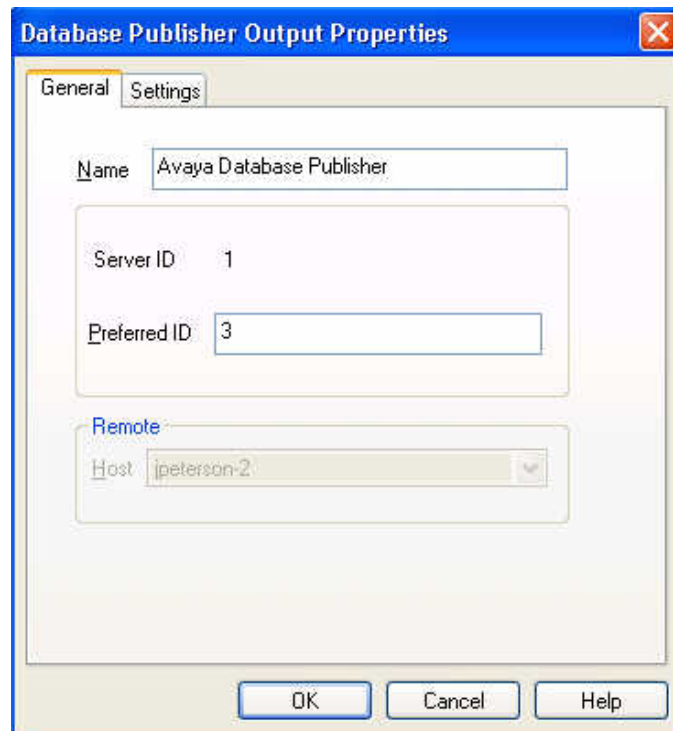
From the **Administrator** screen, right-click on **Output Manager** and select **New Output Device Connection** from the pop-up menu to associate the Agent data with an output device.



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

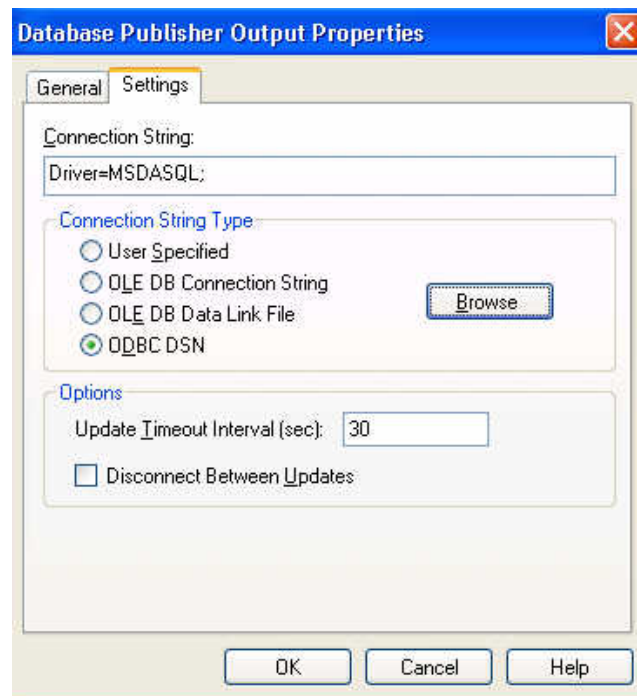


The **Database Publisher Output Properties** screen is displayed next. Select the **General** tab, and enter a descriptive name in the **Name** field.



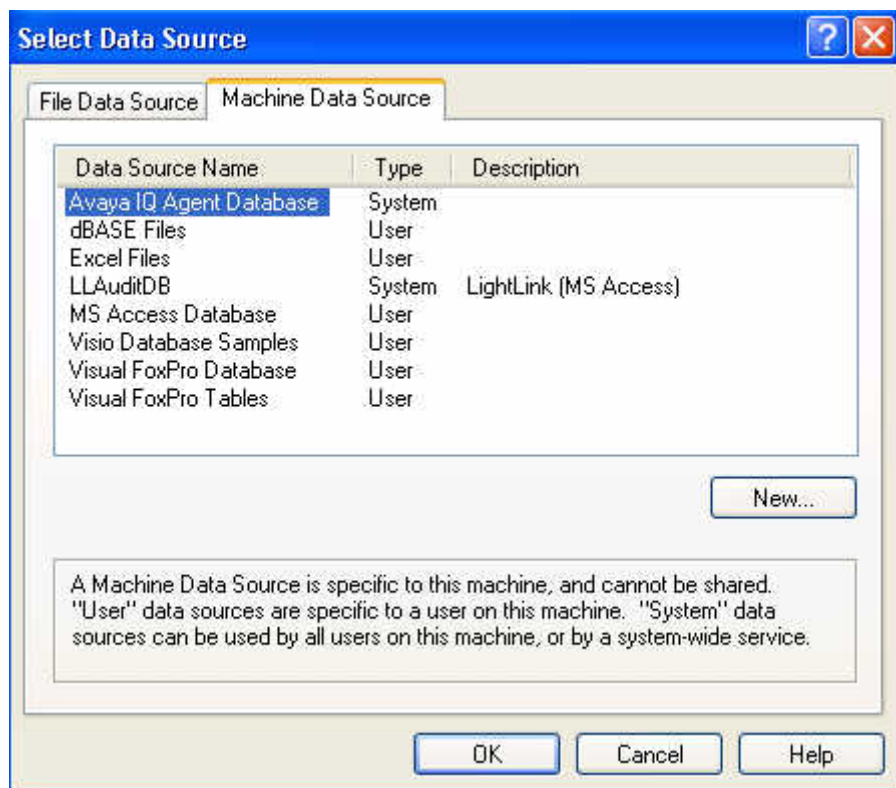
The screenshot shows the 'Database Publisher Output Properties' dialog box with the 'General' tab selected. The 'Name' field contains 'Avaya Database Publisher'. The 'Server ID' is set to '1' and the 'Preferred ID' is set to '3'. Under the 'Remote' section, the 'Host' dropdown menu is set to 'ipeterson-2'. At the bottom are 'OK', 'Cancel', and 'Help' buttons.

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 screenshot shows the 'Database Publisher Output Properties' dialog box with the 'Settings' tab selected. The 'Connection String' field contains 'Driver=MSDASQL;'. In the 'Connection String Type' section, the 'ODBC DSN' radio button is selected. A 'Browse' button is visible next to the radio buttons. In the 'Options' section, the 'Update Timeout Interval (sec)' is set to '30' and the 'Disconnect Between Updates' checkbox is unchecked. At the bottom are 'OK', 'Cancel', and 'Help' buttons.

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 appropriate login credentials if required. Click **OK**.



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

The screenshot shows the 'Database Publisher Output Properties' dialog box with the 'Settings' tab selected. The 'Connection String' field contains 'DSN=Avaya IQ Agent Database;DBQ=C:\Program Files\Inova Solut'. The 'Connection String Type' section has four radio buttons: 'User Specified', 'OLE DB Connection String', 'OLE DB Data Link File', and 'ODBC DSN', with 'ODBC DSN' selected. A 'Browse' button is next to the 'OLE DB Data Link File' option. The 'Options' section has a text box for 'Update Timeout Interval (sec)' set to '30' and a checkbox for 'Disconnect Between Updates' which is unchecked. At the bottom are 'OK', 'Cancel', and 'Help' buttons.

Database Publisher Output Properties

General Settings

Connection String:
DSN=Avaya IQ Agent Database;DBQ=C:\Program Files\Inova Solut

Connection String Type

☐ User Specified
☐ OLE DB Connection String
☐ OLE DB Data Link File
☒ ODBC DSN

Browse

Options

Update Timeout Interval (sec): 30

☐ Disconnect Between Updates

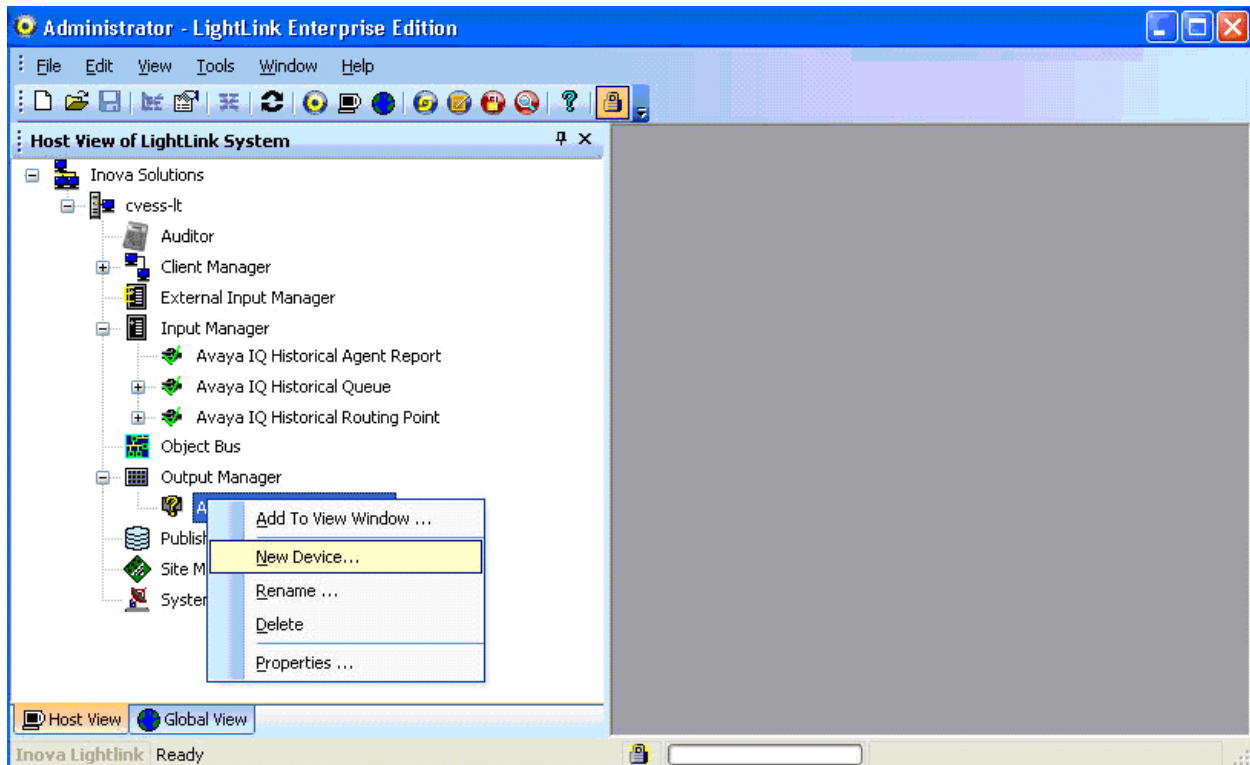
OK Cancel Help

6.3.4 Administer Database Updater

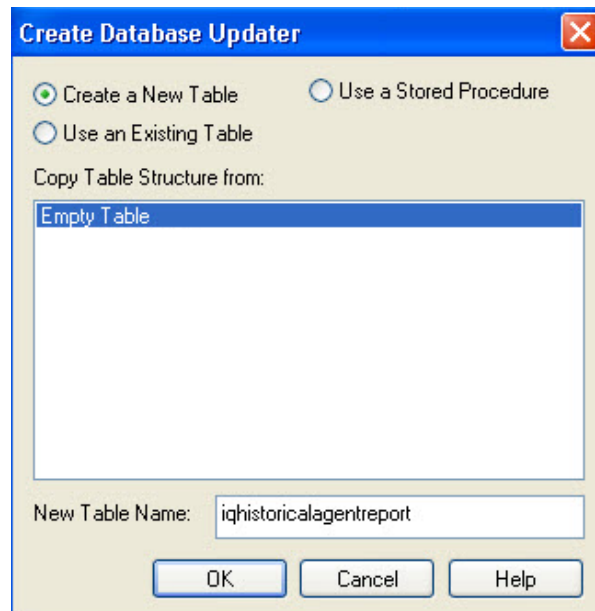
This section covers administration of the database updater for the Agent and Agent Aux Reports.

6.3.4.1 Administer Database Updater for Agent Report

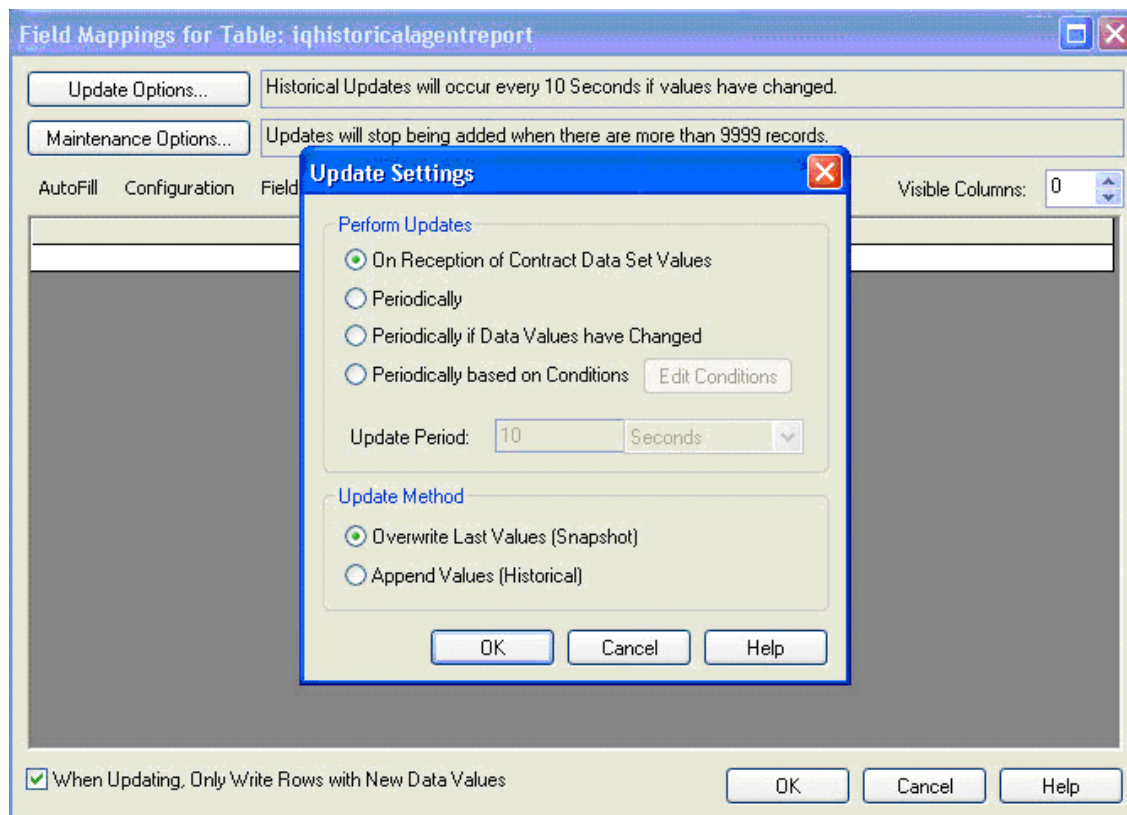
From the **Administrator** screen, expand **Output Manager**. Right-click on the newly created **Avaya Database Publisher** and select **New Device** from the pop-up menu to create a database updater for the new database output device.



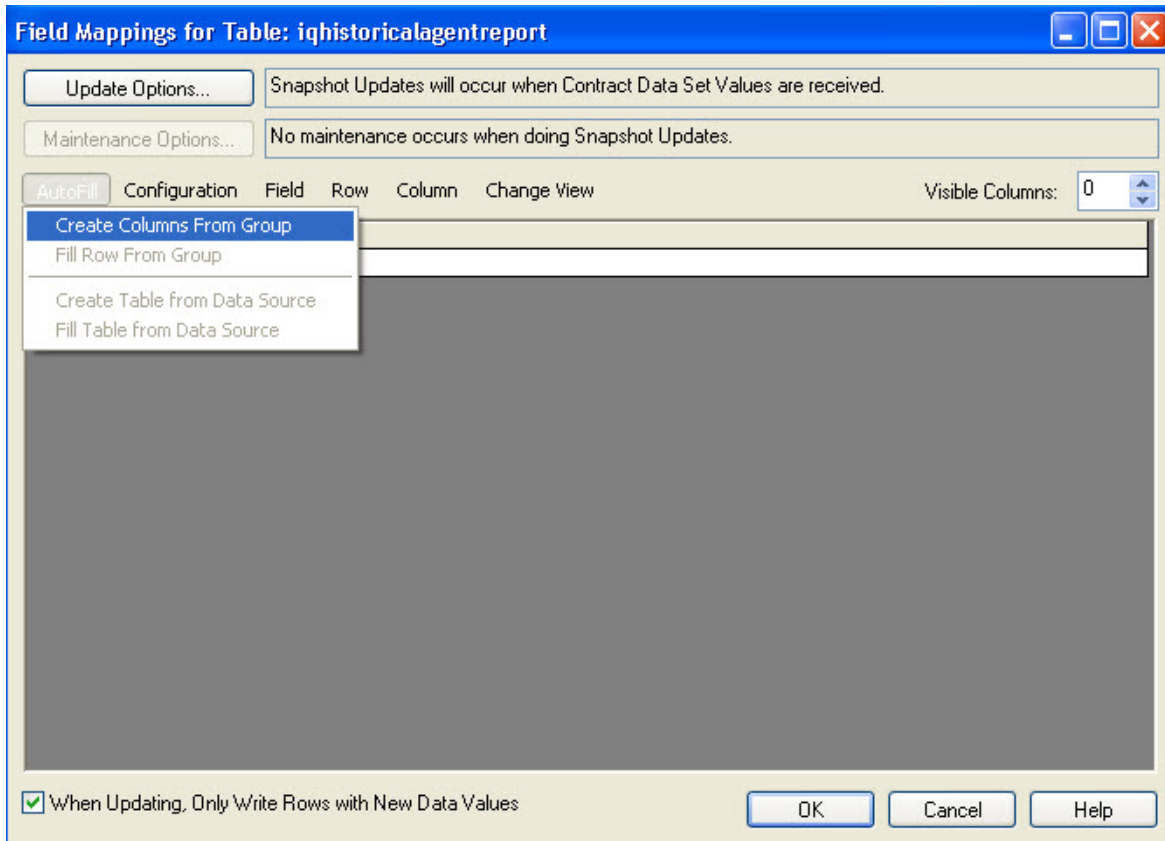
The **Create Database Updater** screen is displayed. Select the radio button for **Create a New Table**, and enter “iqhistoricalagentreport” for the **New Table Name**. Click **OK**.



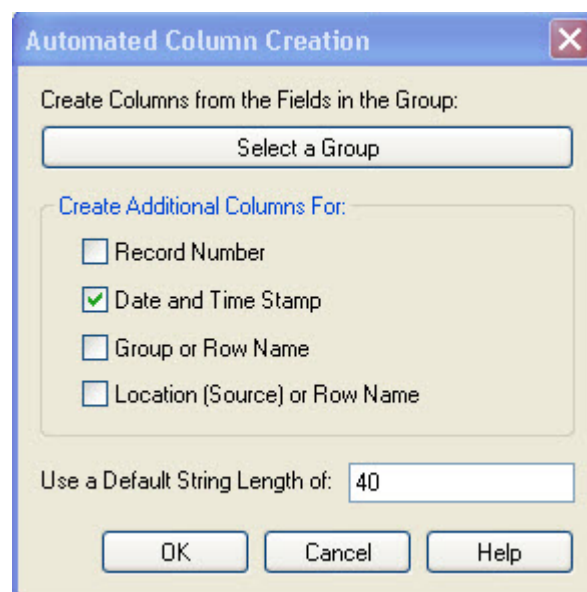
The **Field Mappings for Table** screen is displayed with the table name. Click **Update Options**, and in the **Update Settings** screen, select the options shown in the screen below. Click **OK**.



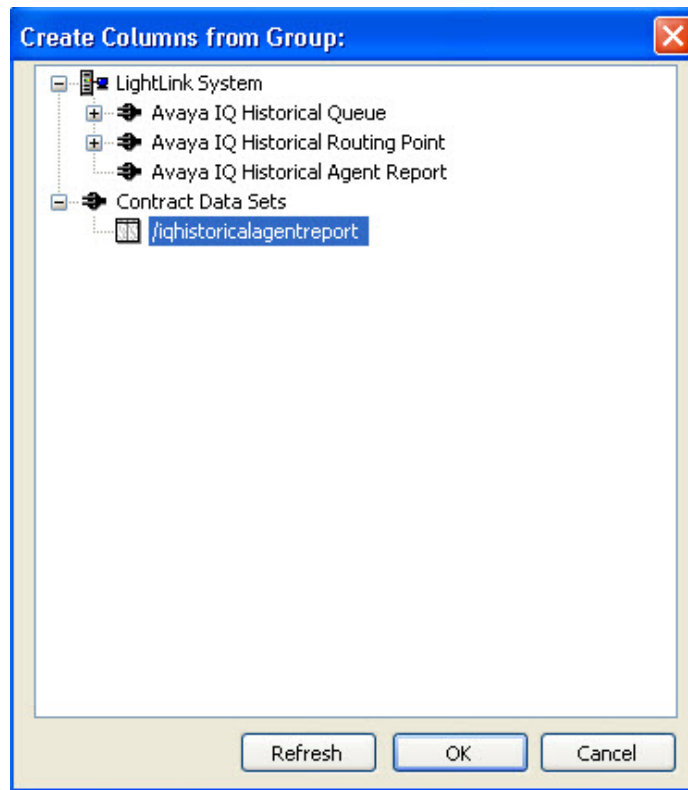
From the **Field Mappings for Table** screen, click on the **AutoFill** menu option and select the **Create Columns From Group** in the pop-up menu.



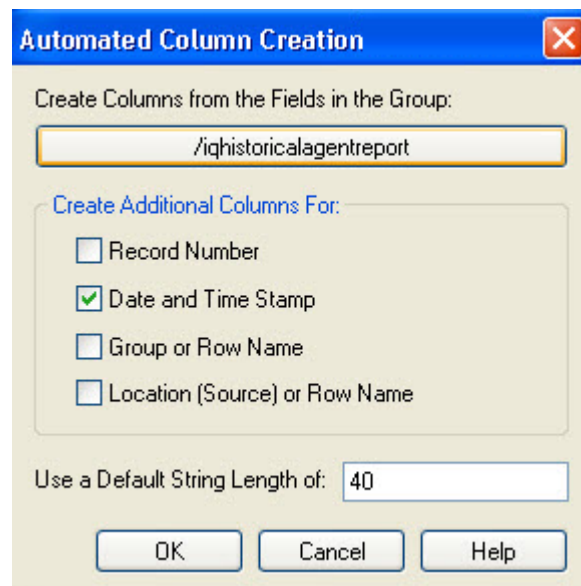
The **Automated Column Creation** screen is displayed on top of the **Field Mappings for Table** screen. Update the options as shown below and then click **Select a Group**.



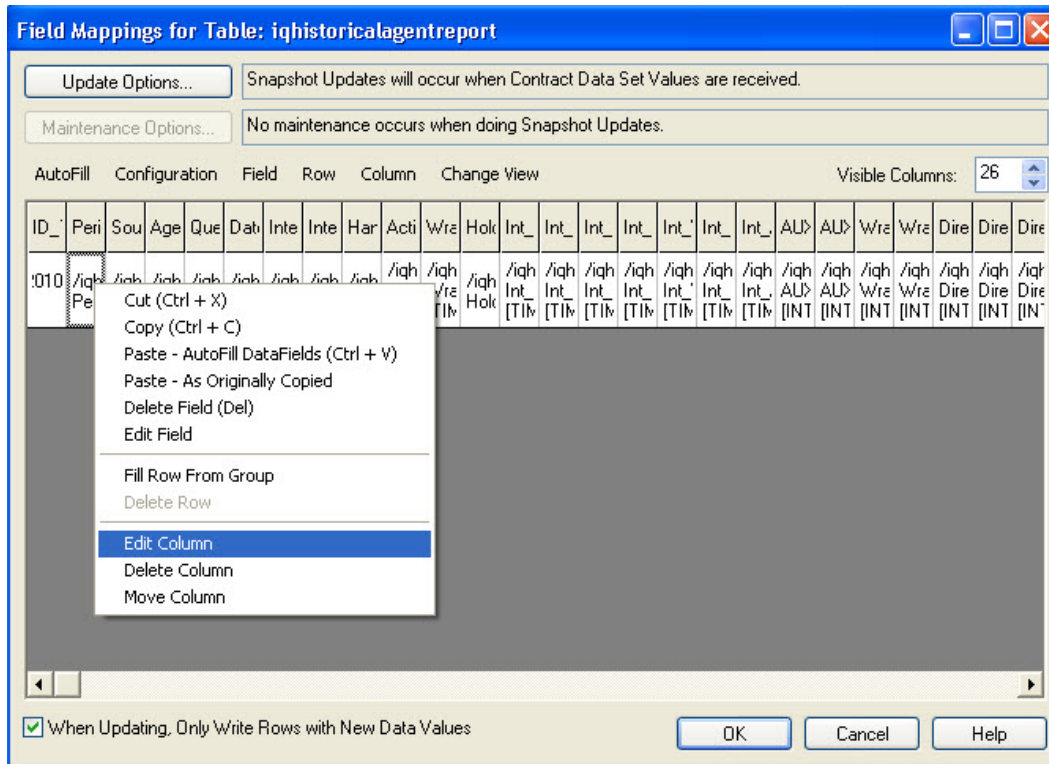
The **Create Columns from Group** screen is displayed next. Expand **Contract Data Sets** and select “/iqhistoricalagentreport” as shown below. Click **OK**.



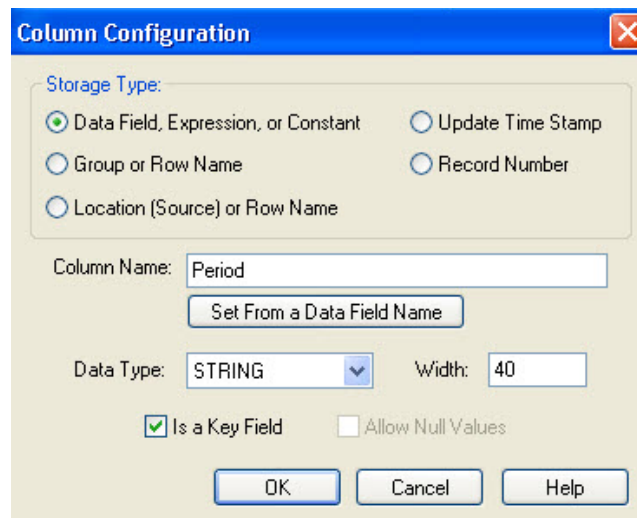
Click **OK** in the **Automated Column Creation** screen.



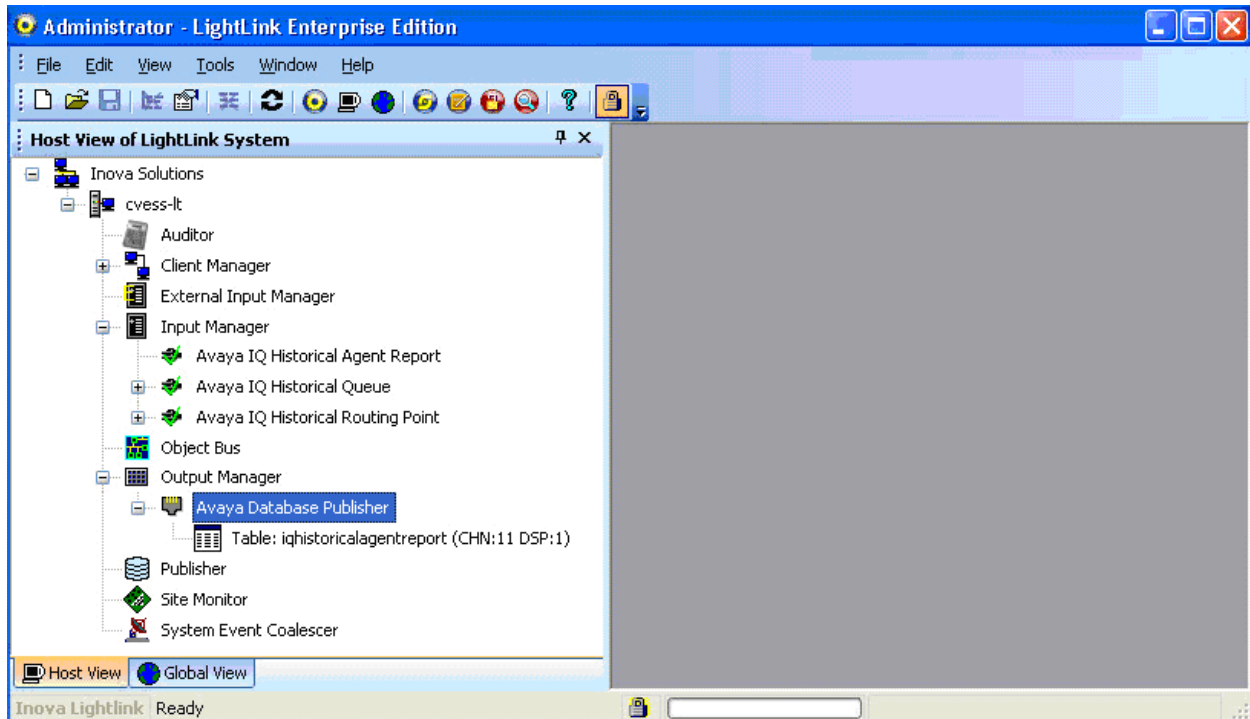
The **Field Mappings for Table** screen is updated with the columns for the database as shown below. Select the **Period** column and right-click to select **Edit Column** from the pop-up menu.



The **Column Configuration** screen is displayed on top of the **Field Mappings for Table** screen. Select the **Is a Key Field** checkbox. Repeat this step for the **Source_EID** and **Agent_ID** and **Queue_ID** fields. Together, these fields comprise the key for each database row.

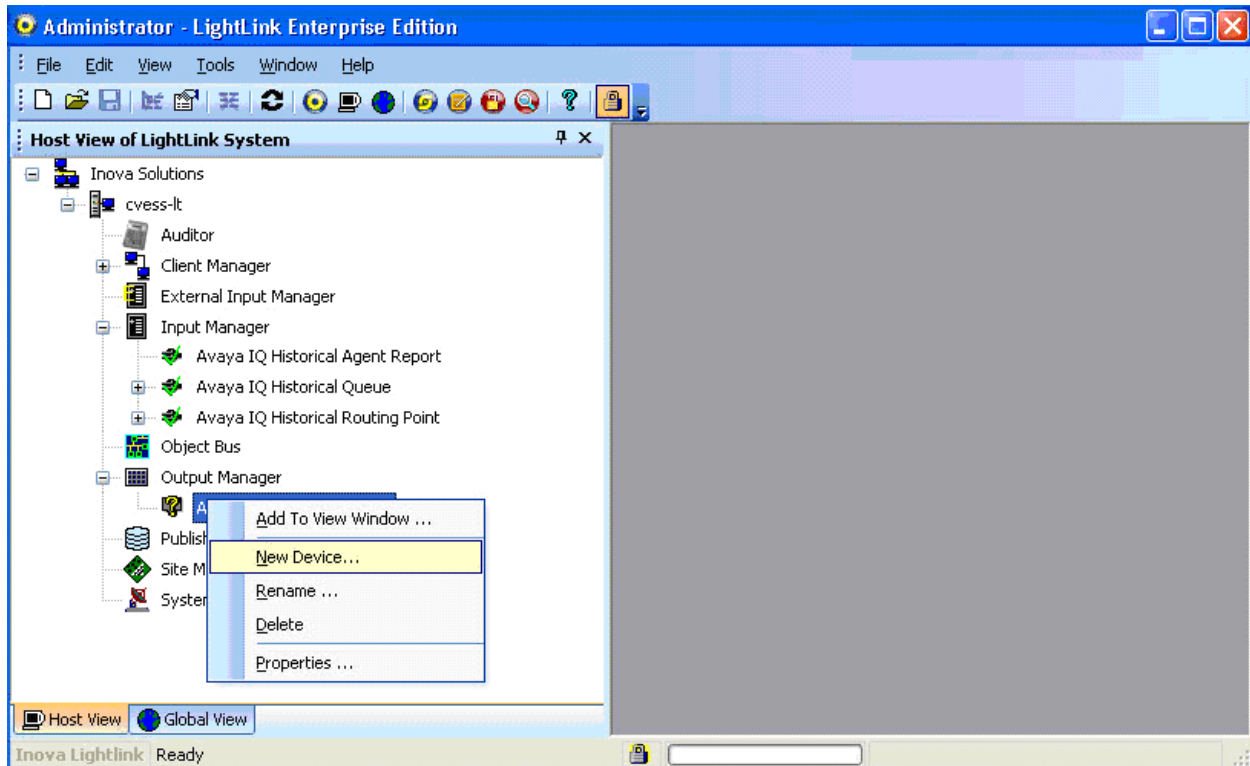


The **Administrator** screen will now display the “iqhistoricalagentreport” table in the left pane. In addition, a green checkmark will be displayed by the Agent data source under **Input Manager** in the **Administrator** screen to indicate that the data source is ready to accept a connection from Avaya IQ.

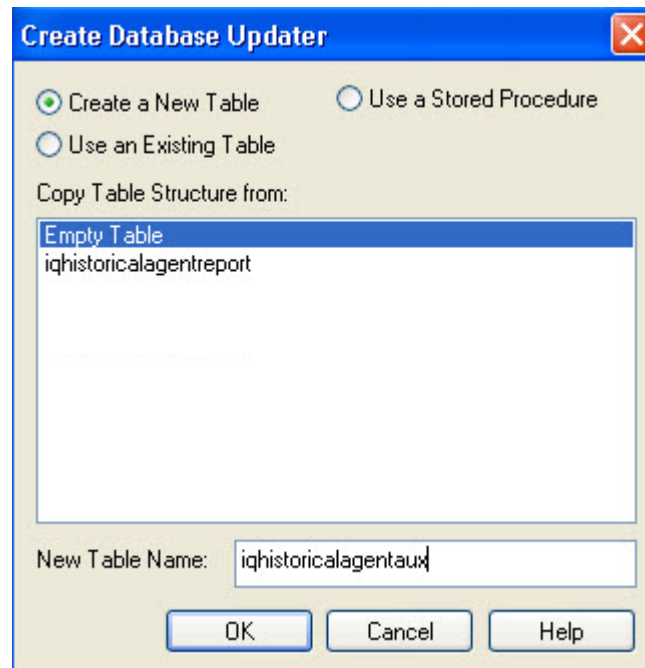


6.3.4.2 Administer Database Updater for Agent Aux Report

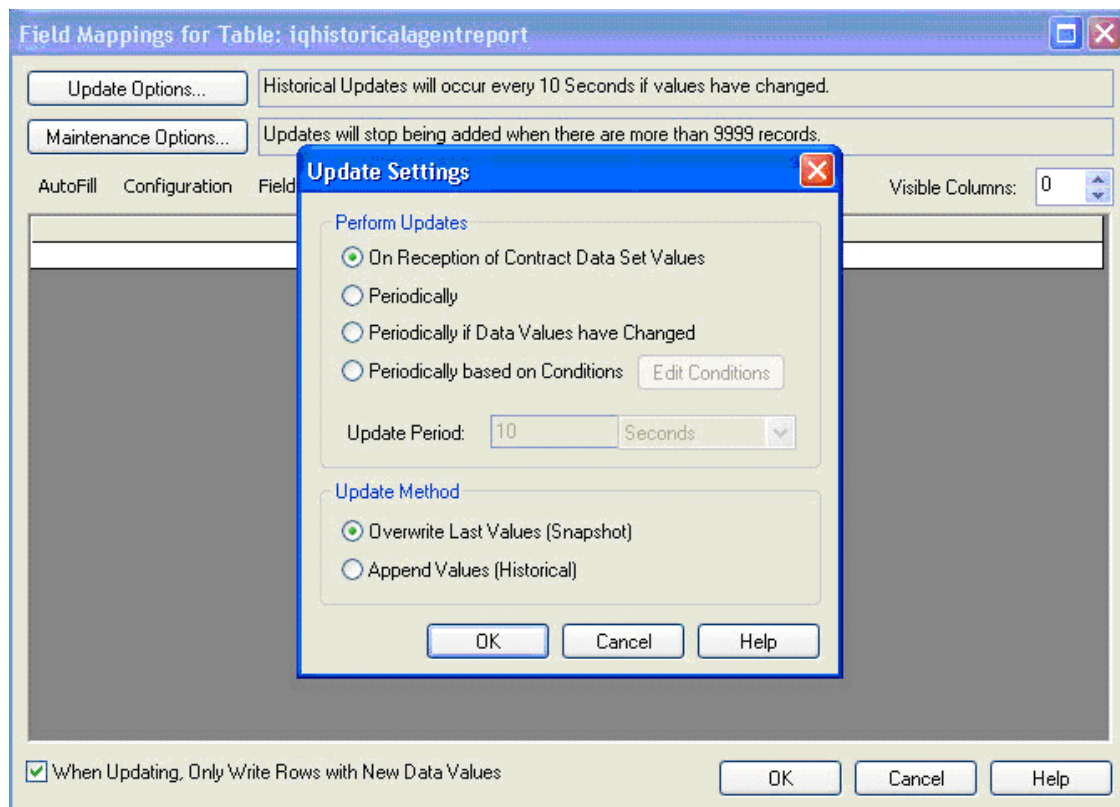
From the **Administrator** screen, expand **Output Manager**. Right-click on the newly created **Avaya Database Publisher** and select **New Device** from the pop-up menu to create a database updater for the new database output device.



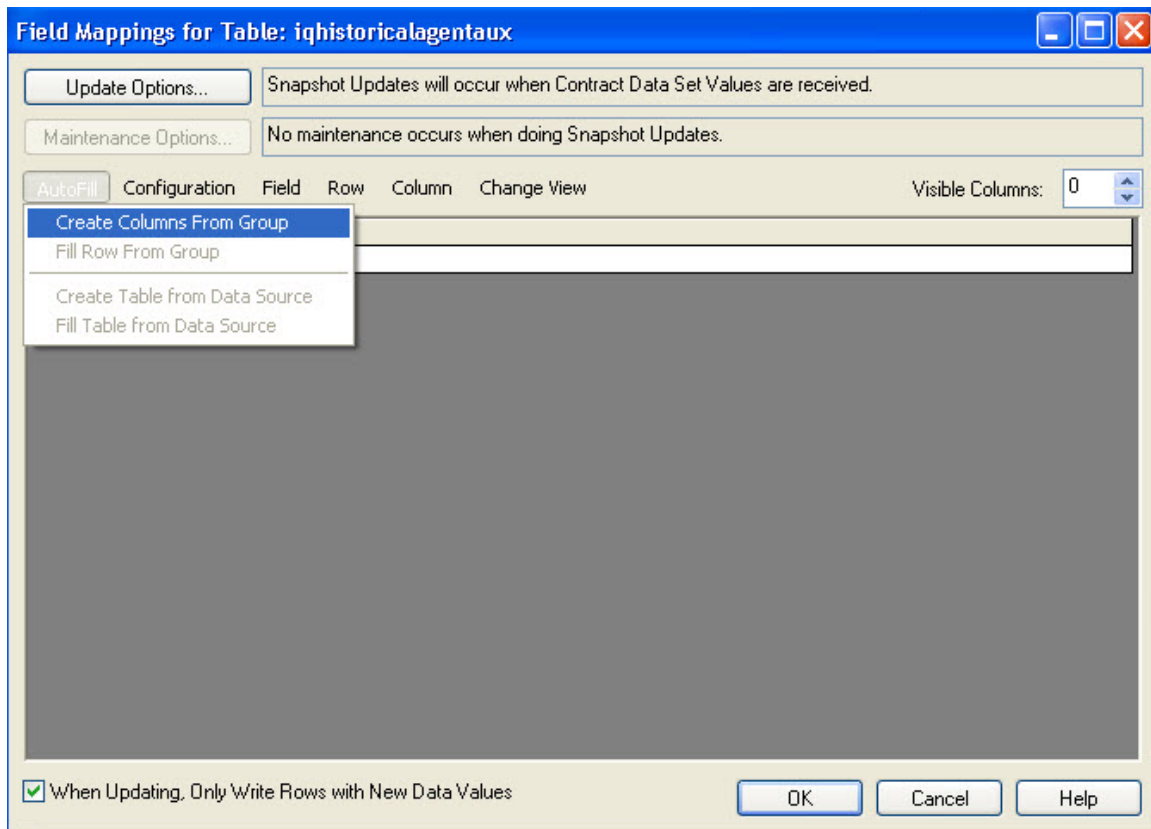
The **Create Database Updater** screen is displayed. Select the radio button for **Create a New Table**, and enter “iqhistoricalagentaux” for the **New Table Name**. Click **OK**.



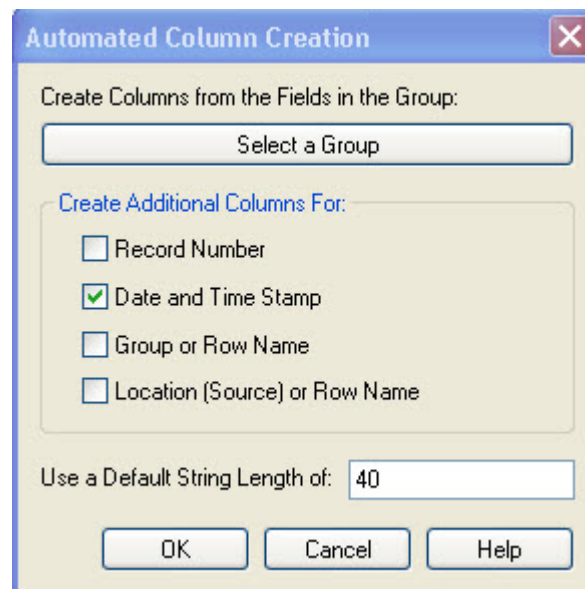
In the **Update Settings** screen, select the options shown in the screen below. Click **OK**.



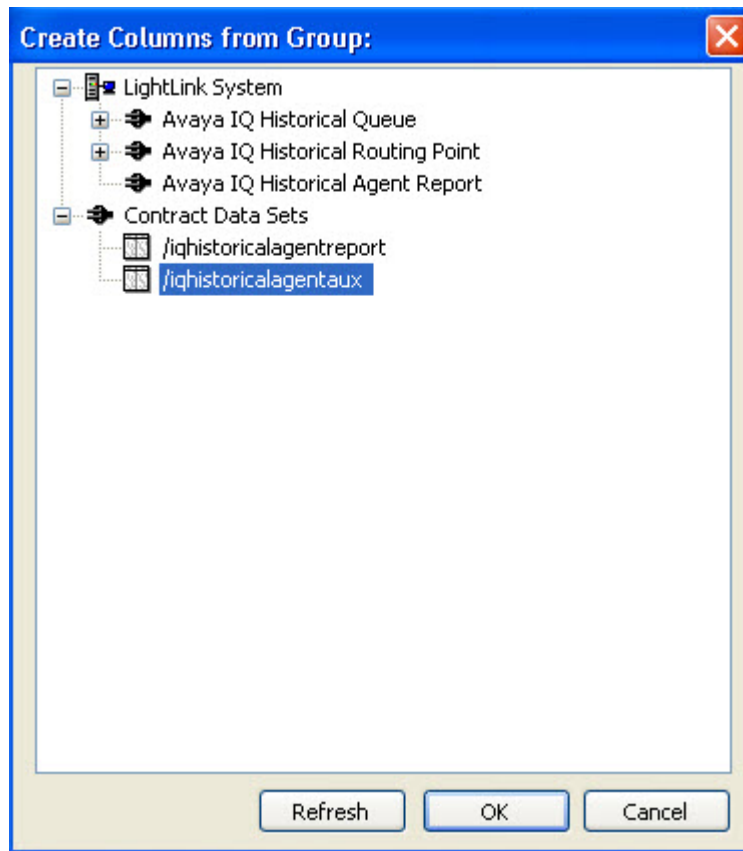
The **Field Mappings for Table** screen is displayed next and filled in with the table name. Click on the **AutoFill** menu option and select the **Create Columns From Group** in the pop-up menu.



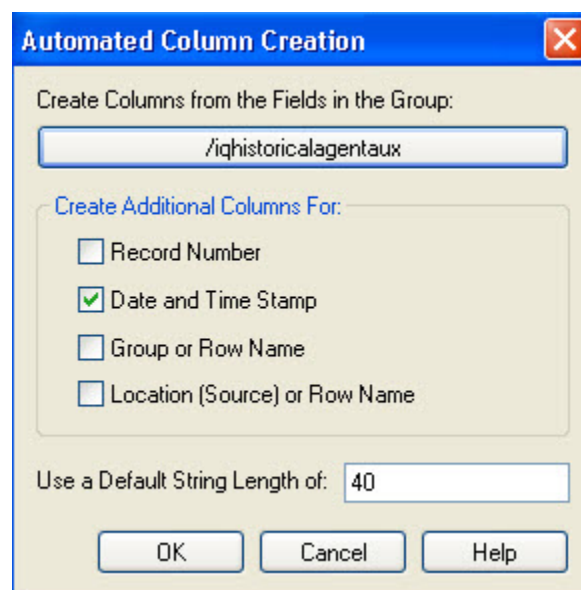
The **Automated Column Creation** screen is displayed on top of the **Field Mappings for Table** screen. Update the options as shown below and then click **Select a Group**.



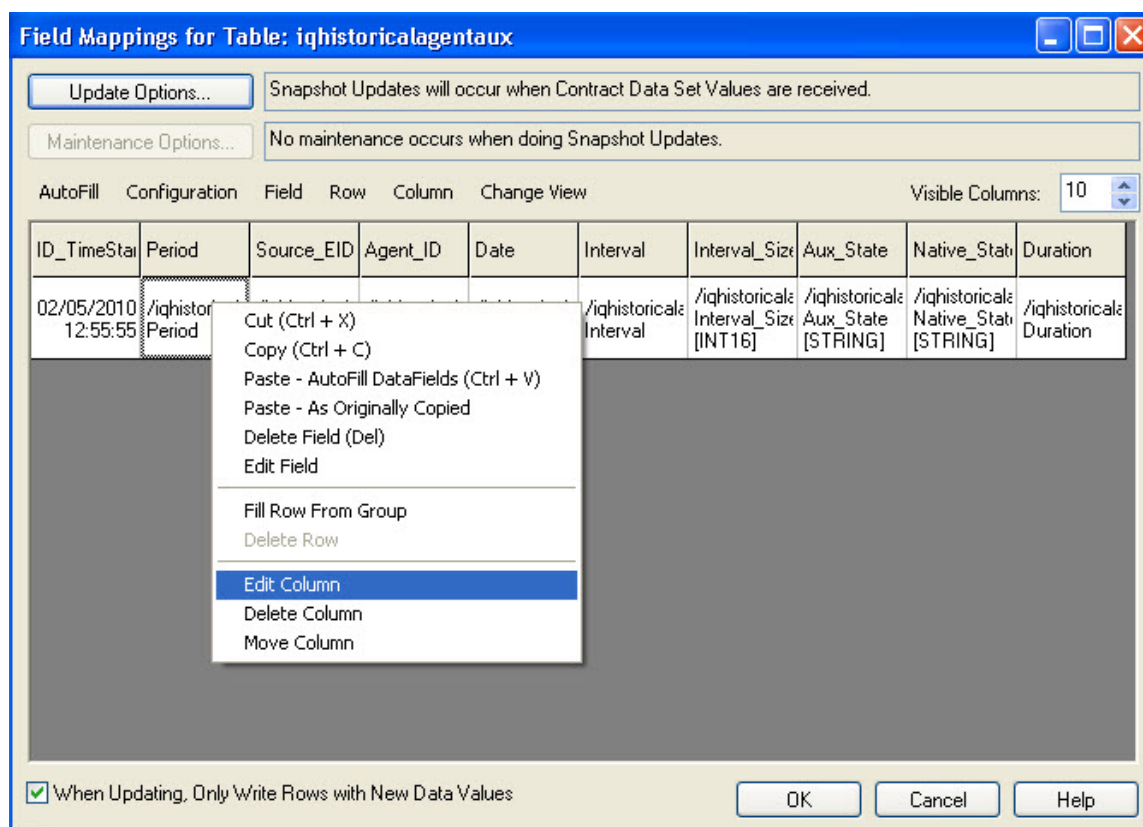
The **Create Columns from Group** screen is displayed next. Expand **Contract Data Sets** and select “/iqhistoricalagentaux” as shown below. Click **OK**.



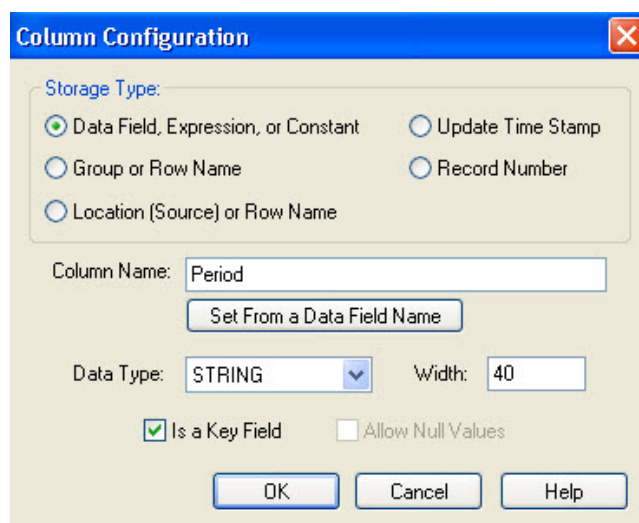
Click **OK** in the **Automated Column Creation** screen.



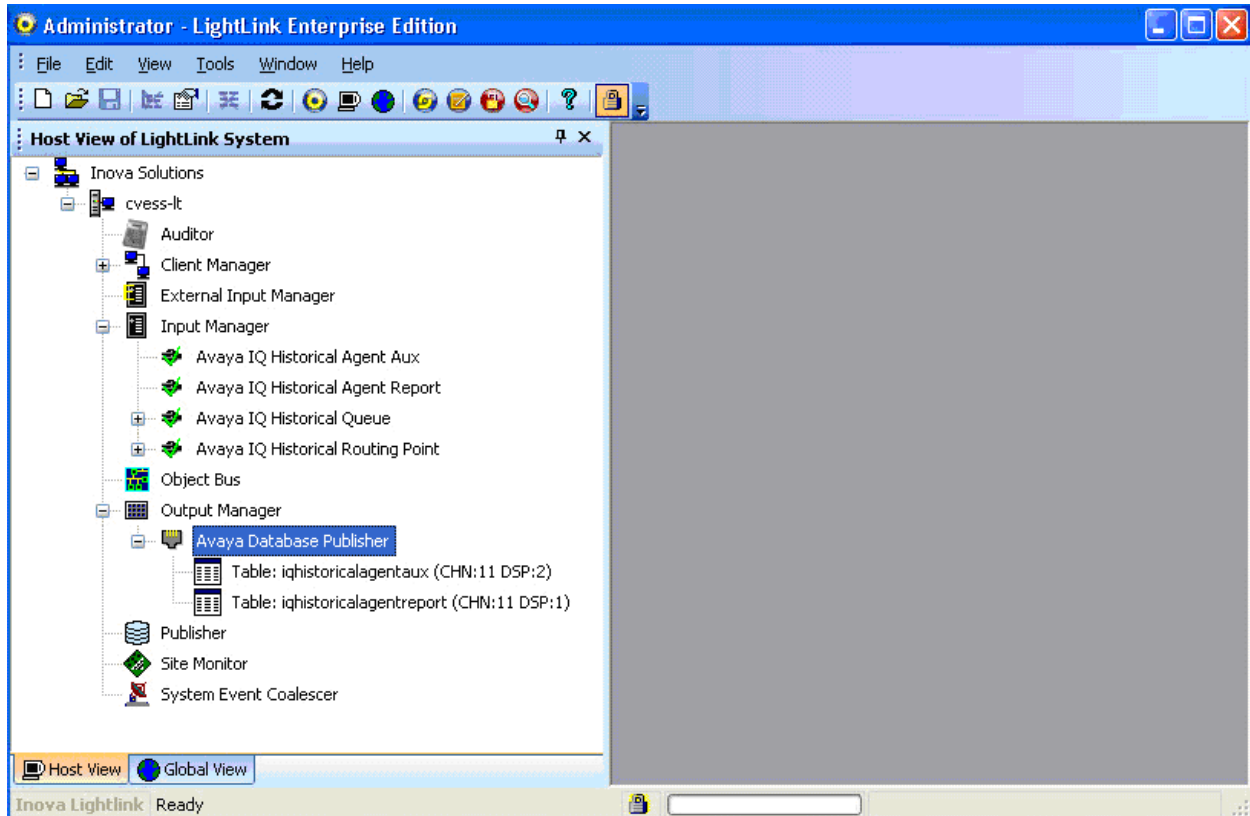
The **Field Mappings for Table** screen is updated with the columns for the database as shown below. Select the **Period** column and right-click to select **Edit Column** from the pop-up menu.



The **Column Configuration** screen is displayed on top of the **Field Mappings for Table** screen. Select the **Is a Key Field** checkbox. Repeat this step for the **Source_EID** and **Agent_ID**, **Aux_State**, and **Native_State_ID** fields. Together, these fields comprise the key for each database row.



The **Administrator** screen will now display the “iqhistoricalagentaux” table in the left pane. In addition, a green checkmark will be displayed by the Agent Aux data source under **Input Manager** in the **Administrator** screen to indicate that the data source is ready to accept a connection from Avaya IQ.



7 General Test Approach and Test Results

The interoperability compliance test included feature and serviceability testing. The feature testing focused on verifying that Inova LightLink can receive, parse and display historical data from Avaya IQ, including Queue (Split/Skill), Routing Point (VDN), and Agent data.

The feature test cases were performed manually. Incoming calls were made to the monitored Queues and Routing Points to enable data streams to be sent to LightLink. Various agent state changes were made to populate specific fields in the Agent reports.

The serviceability testing focused on verifying the ability of Inova LightLink to receive data after toggling the status of the historical interface and to receive historical data recovered for a specific date and time interval.

The verification of all tests included checking the accuracy and proper display of historical data at the LightLink server.

All test cases passed.

8 Verification Steps

This section provides the tests that can be performed to verify proper configuration of Avaya Aura™ Communication Manager, Avaya IQ, and Inova LightLink.

8.1 Verify Avaya Aura™ 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 4.5**. 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: 1
Link Type: ethernet
Message Buffer Number: 0

Last Failure: Far end sent disconnect messag
At: 01/25/10 15:26
```

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 IQ server from **Section 4.4**. Verify that the **Link Status** is “connected”, and that the **Service State** is “in-service/active”, as shown below.

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

Link Number: 1
Link Status: connected
Link Type: ethernet

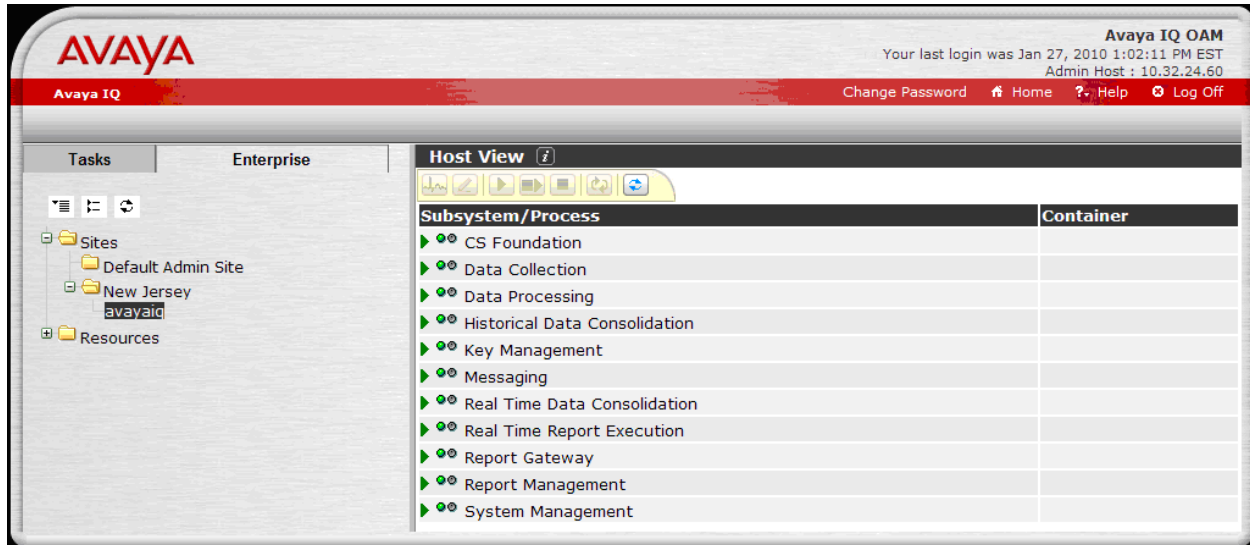
Service Port Location: 01A0417

Service State: in-service/active
Node Name: clancrm
Source IP Address: 10.32.24.20/24

Broadcast Address: 10.32.24.255
Physical Address: 00:04:0d:4a:ef:9c
Enabled? yes
Maintenance Busy? no
Active Channels: 2
```

8.2 Verify Avaya IQ

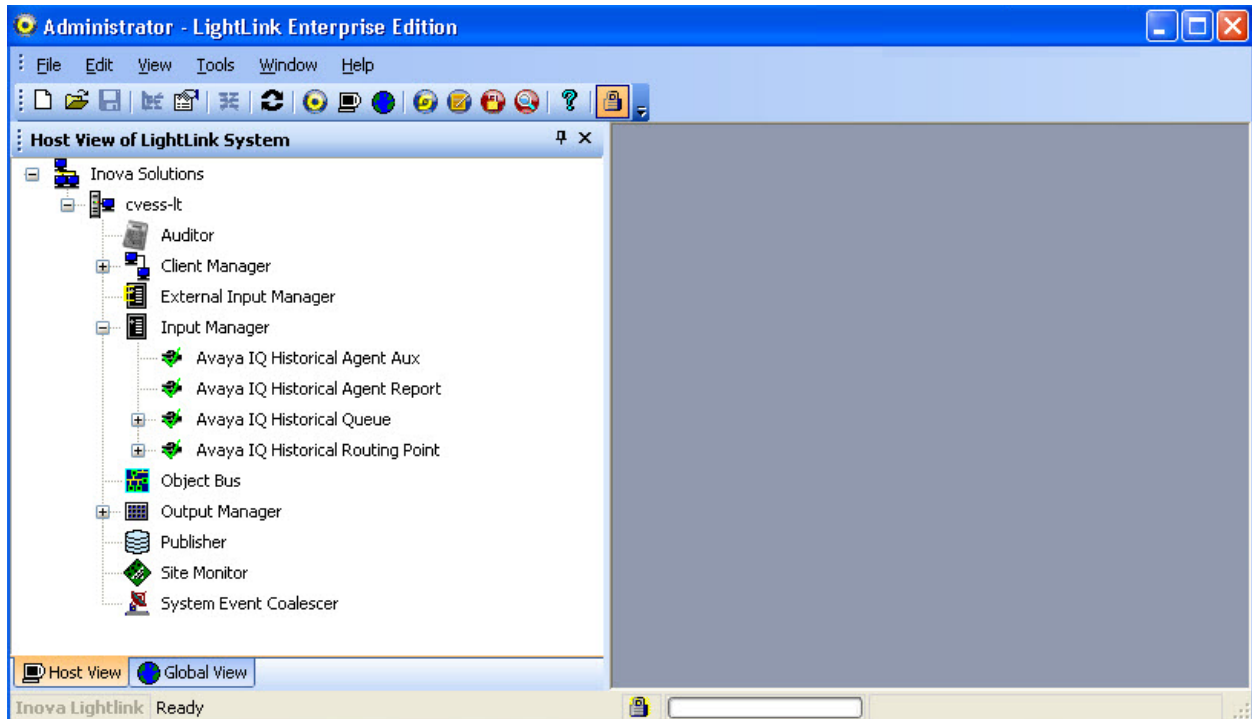
From an Internet browser, access the Avaya IQ OAM Interface by entering `https://<IP Addr>:28443/CS-OAM` as the URL. Log in with the proper credentials. From the OAM interface, select the **Enterprise** tab in the left pane and navigate to Sites→Default Admin Site→<site name> to display the status of all the Avaya IQ processes. Ensure that all the processes have been started as indicated by a green LED besides each process as shown in the figure below.



To verify that the session that the Inova historical interface is turned on, access the Inova historical interface menu as shown in **Section 5.1**.

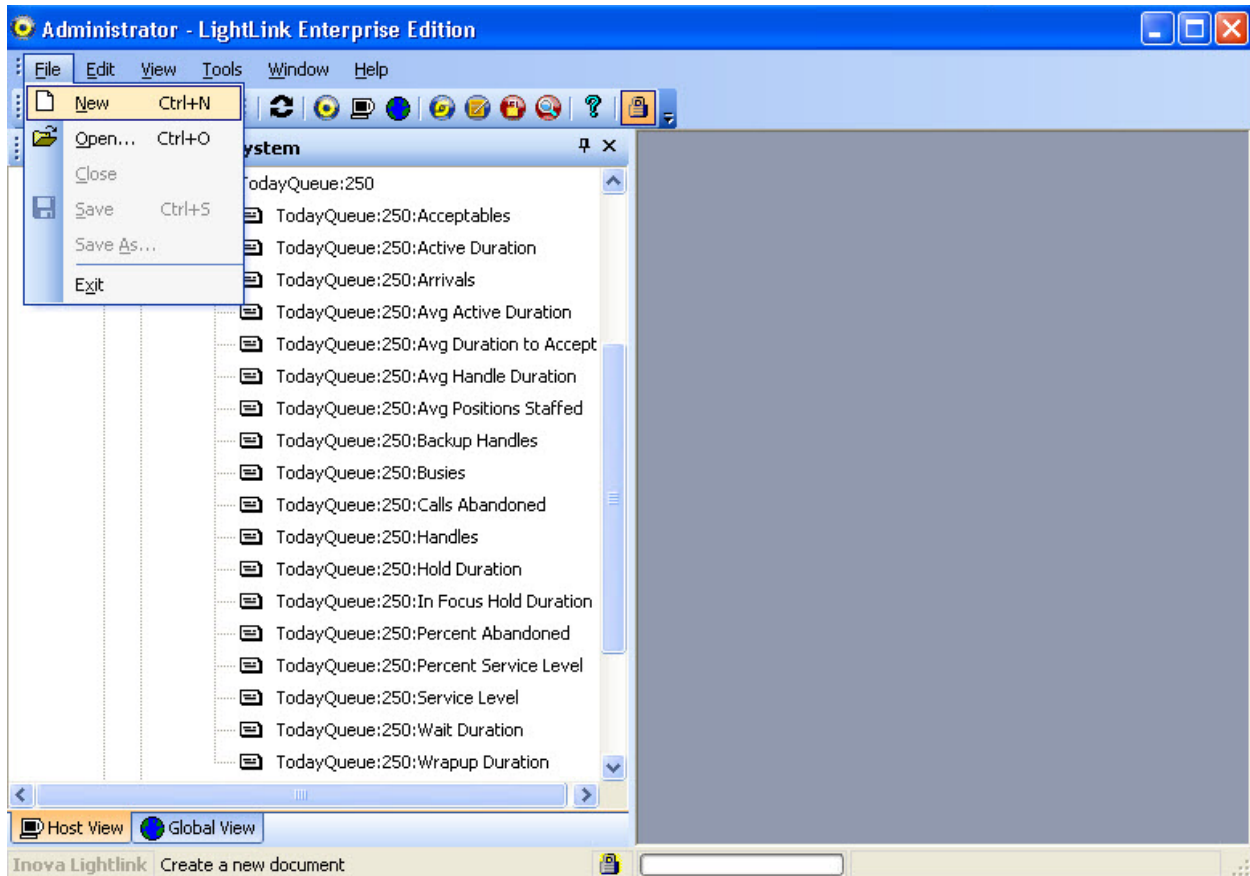
8.3 Verify Inova LightLink

From the **Administrator** screen, verify that **Avaya IQ Historical Queue**, **Avaya IQ Historical Routing Point**, **Avaya IQ Historical Agent**, and **Avaya IQ Historical Agent Aux** 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.

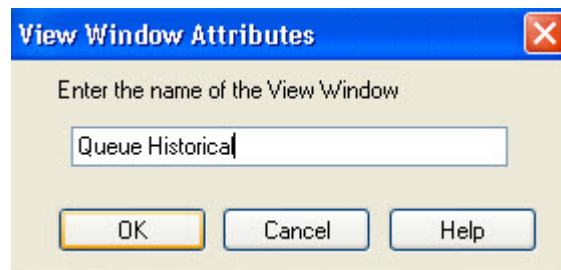


8.3.1 Verify Historical Queue Data

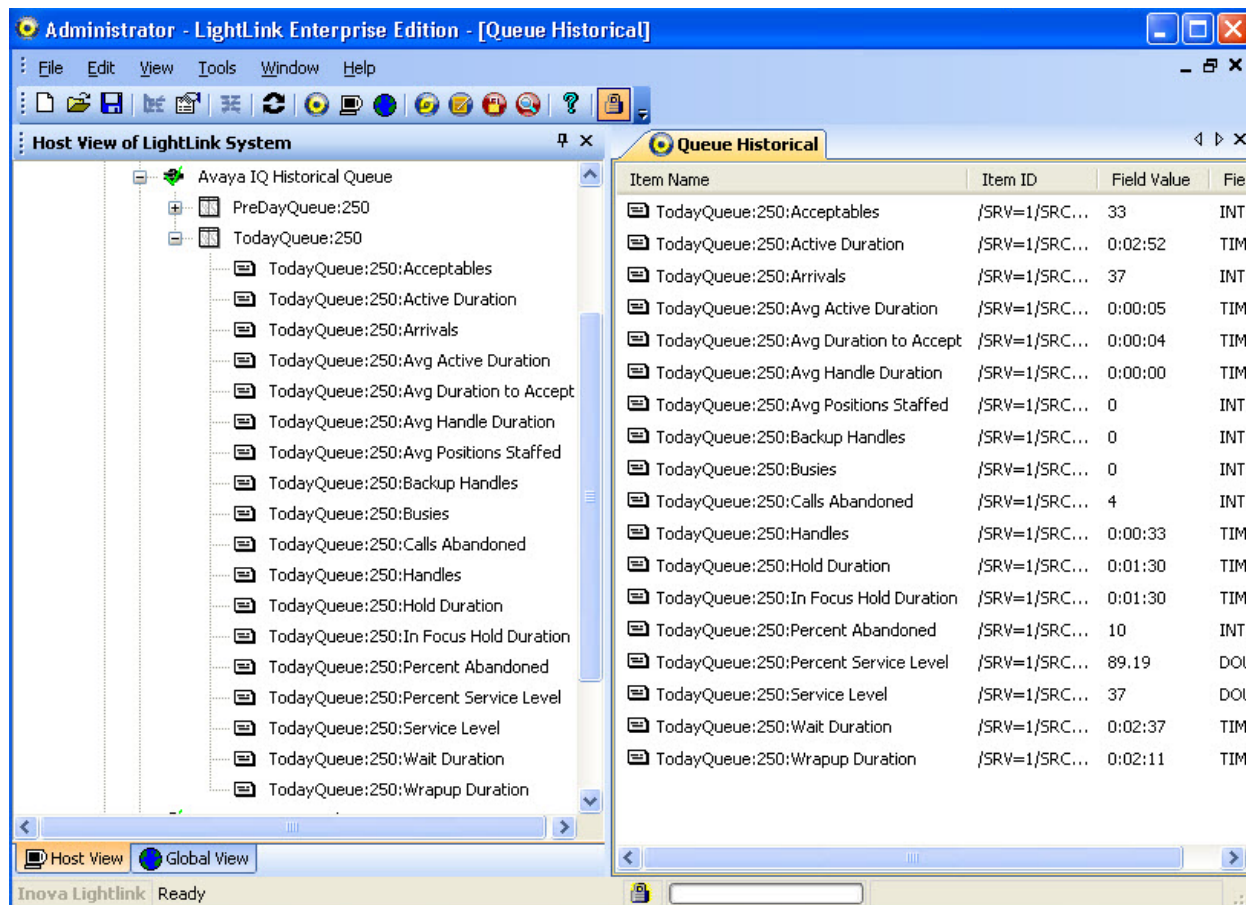
From the **Administrator** screen, navigate to **Avaya IQ Historical Queue** under **Input Manager**. There are three Queue reports: **PreDay**, **PreInt**, and **Today**. Expand one of the Queue reports, such as **TodayQueue:250**, where “250” is the queue of interest. A list of fields that can be viewed from the Queue data streams is displayed in the left pane. Initially, the right pane will be empty as shown below. Click on **File** from the menu options bar, 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**.



To populate the right pane with Queue data, select the fields under **TodayQueue:250** in the left pane and then click and drag data fields from the left pane into the new **QueueHistorical** window in the right pane. Data values from the data stream will then be displayed in the right pane as shown in the Administrator screen below.



8.3.2 Verify Historical Routing Point Data

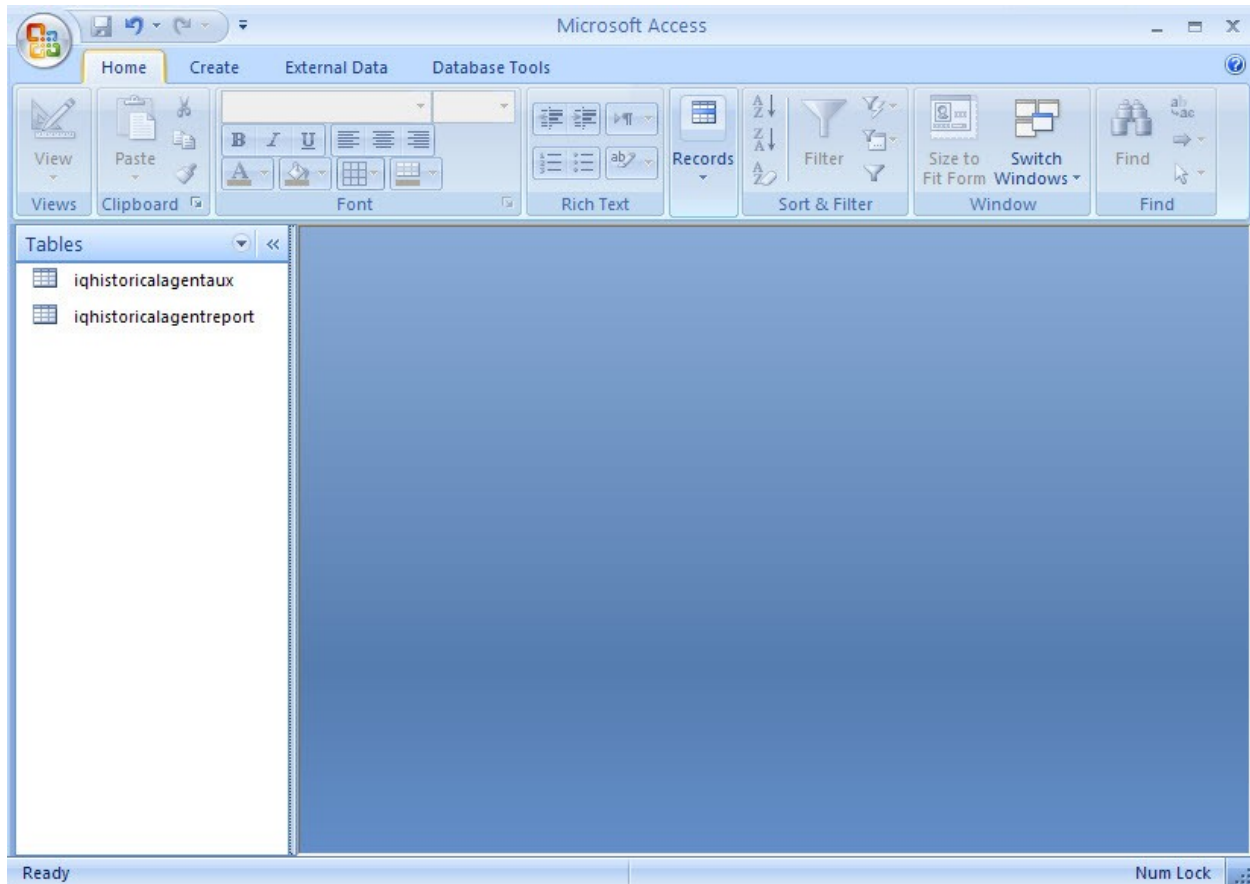
From the **Administrator** screen, navigate to **Avaya IQ Historical Routing Point** under **Input Manager**. Expand one of the routing point reports, such as **TodayRoutingPoint:75000**, where “75000” is the routing point of interest. A list of fields that can be viewed from the Routing Point data streams is displayed in the left pane. Follow the steps described in **Section 8.3.1** to populate the right pane with routing point data. The screen below shows a sample routing point report.

The screenshot shows the 'Administrator - LightLink Enterprise Edition - [Routing Point Historical]' window. The left pane, titled 'Host View of LightLink System', displays a tree structure under 'Avaya IQ Historical Routing Point'. The 'TodayRoutingPoint:75000' folder is expanded, showing a list of fields including 'Acceptables', 'Active Duration', 'Arrivals', 'Avg Duration to Accept', 'Avg Handle Duration', 'Backup Handles', 'Busies', 'Busies plus Cancels', 'Calls Abandoned', 'Cancels', 'Direct Interactions', 'Handles', 'Hold Duration', 'Outflows', 'Percent Service Level', 'Service Level', 'Wait Duration', and 'Wrapup Duration'. The right pane, titled 'Routing Point Historical', displays a table with the following data:

Item Name	Item ID	Field Value	
TodayRoutingPoint:75000:Acceptables	/SRV=...	23	II
TodayRoutingPoint:75000:Active Duration	/SRV=...	0:01:37	T
TodayRoutingPoint:75000:Arrivals	/SRV=...	27	II
TodayRoutingPoint:75000:Avg Duration to Accept	/SRV=...	0:00:06	T
TodayRoutingPoint:75000:Avg Handle Duration	/SRV=...	0:00:11	T
TodayRoutingPoint:75000:Backup Handles	/SRV=...	0	II
TodayRoutingPoint:75000:Busies	/SRV=...	0	II
TodayRoutingPoint:75000:Busies plus Cancels	/SRV=...	0	II
TodayRoutingPoint:75000:Calls Abandoned	/SRV=...	3	II
TodayRoutingPoint:75000:Cancels	/SRV=...	0	II
TodayRoutingPoint:75000:Direct Interactions	/SRV=...	0	II
TodayRoutingPoint:75000:Handles	/SRV=...	24	II
TodayRoutingPoint:75000:Hold Duration	/SRV=...	0:01:30	T
TodayRoutingPoint:75000:Outflows	/SRV=...	0	II
TodayRoutingPoint:75000:Percent Service Level	/SRV=...	85.19	C
TodayRoutingPoint:75000:Service Level	/SRV=...	27	C
TodayRoutingPoint:75000:Wait Duration	/SRV=...	0:02:58	T
TodayRoutingPoint:75000:Wrapup Duration	/SRV=...	0:01:23	T

8.3.3 Verify Historical Agent and Agent Aux Data

From the LightLink server, navigate to the database table used for storing the Agent and Agent Aux data in Microsoft Access. Double-click on the “iqhistoricalagentaux” database table to view the Agent Aux data received by LightLink from Avaya IQ.



The Agent Aux data is displayed as shown in the screen below.

Period	Source_EID	Agent_ID	Date	Interval	Interval_Size	Aux_State	Native
PreDay	2501	76301	2/5/2010	0	1440	Auxiliary-Login	_AgtAuxilie
PreDay	2501	76302	2/5/2010	0	1440	3	3
PreDay	2501	76302	2/5/2010	0	1440	4	4
PreDay	2501	76302	2/5/2010	0	1440	5	5
PreDay	2501	76302	2/5/2010	0	1440	Auxiliary-Login	_AgtAuxilie
PreInt	2501	76301	2/5/2010	660	30	Auxiliary-Login	_AgtAuxilie
PreInt	2501	76302	2/5/2010	660	30	6	6
PreInt	2501	76302	2/5/2010	660	30	7	7
PreInt	2501	76302	2/5/2010	660	30	Auxiliary-Login	_AgtAuxilie
PreInt	2501	76302	2/5/2010	660	30	In Wrap-up No Conta	_AgtWrapu
PreInt	2501	76302	2/5/2010	660	30	Lunch	3
Today	2501	76301	2/5/2010	0	1440	Auxiliary-Login	_AgtAuxilie
Today	2501	76302	2/5/2010	0	1440	4	4
Today	2501	76302	2/5/2010	0	1440	5	5
Today	2501	76302	2/5/2010	0	1440	6	6
Today	2501	76302	2/5/2010	0	1440	7	7
Today	2501	76302	2/5/2010	0	1440	Auxiliary-Login	_AgtAuxilie
Today	2501	76302	2/5/2010	0	1440	In Wrap-up No Conta	_AgtWrapu
Today	2501	76302	2/5/2010	0	1440	Lunch	3

Select “iqhistoricalagentreport” to view the Agent data.

ID_TimeStar	Period	Source_EID	Agent_ID	Queue_ID	Date	Interval	Interval_Size
10 12:17:29 PM	PreDay	0	76302	0	2/4/2010	0	1440
10 12:17:30 PM	PreDay	0	76304	0	2/4/2010	0	1440
10 10:59:50 AM	PreDay	2501	76301	0	2/5/2010	0	1440
10 10:59:50 AM	PreDay	2501	76301	250	2/5/2010	0	1440
10 10:59:50 AM	PreDay	2501	76302	0	2/5/2010	0	1440
10 10:59:50 AM	PreDay	2501	76302	250	2/5/2010	0	1440
10 10:59:50 AM	PreDay	2501	76304	0	2/5/2010	0	1440
10 12:17:30 PM	PreInt	0	76301	0	2/5/2010	690	30
10 12:17:30 PM	PreInt	0	76302	0	2/5/2010	690	30
10 12:17:30 PM	PreInt	0	76304	0	2/5/2010	690	30
10 12:17:30 PM	Today	2501	76301	0	2/5/2010	0	1440
10 12:17:30 PM	Today	2501	76301	250	2/5/2010	0	1440
10 12:17:30 PM	Today	2501	76302	0	2/5/2010	0	1440
10 12:17:30 PM	Today	2501	76302	250	2/5/2010	0	1440
10 12:17:30 PM	Today	2501	76304	0	2/5/2010	0	1440

9 Conclusion

These Application Notes describe the configuration steps required to integrate Inova LightLink with Avaya IQ using the Inova historical interface to capture ACD call center data from Avaya Aura™ Communication Manager. 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*, Document 03-300509, Issue 5.0, Release 5.2, May 2009, available at <http://support.avaya.com>.
- [2] *Avaya IQ Overview*, Release 5.0, September 2009, available at <http://support.avaya.com>.
- [3] *Administering Avaya IQ*, Release 5.0, September 2009, available at <http://support.avaya.com>.
- [4] *Inova LightLink Middleware Installation Instructions*, available at <http://www.inova-support.com>.

11 Appendix – Sample Historical Reports

This section presents sample historical reports containing queue, routing point, agent, and agent aux data.

Sample Queue Report (filename: 1.queue):

Type | Source EID | Queue ID | Date | Interval | Interval Size | Abandons | % Abandons |
Acceptables | Handles | Active Dur. Seconds | Wrap-up Dur. Seconds | Wait Dur. Seconds |
Busies | Arrivals | Hold Dur. Seconds | In Focus Hold Dur. Seconds | Service Level | Backup
Handles | Avg. Dur. to Accept Seconds. | Avg. Handle Dur. Seconds | % in Service Level | Avg
Positions Staffed | Avg. Active Dur. Seconds

```
PreDay|2501|250|01/26/2010|00:00|1440|10|31|21|22|00:01:01|00:50:06|00:02:10|0|32|00:00:10|00:00:10|32|0|00:00:04|0|65.62|0|00:00:02
PreDay|2501|80|01/26/2010|00:00|1440|1|20|4|4|00:00:11|00:00:18|00:00:26|0|5|00:00:00|00:00:00|5|0|00:00:04|0|80.00|0|00:00:02
PreInt|2501|250|01/27/2010|13:00|30|2|20|8|8|00:00:23|00:00:17|00:00:19|0|10|00:00:00|00:00:00|10|0|00:00:01|0|80.00|0|00:00:02
PreInt|2501|260|01/27/2010|13:00|30|0|0|1|1|00:00:27|00:00:00|00:00:11|0|2|00:00:00|00:00:00|2|0|00:00:01|0|50.00|0|00:00:27
Today|2501|250|01/27/2010|00:00|1440|9|21|31|32|00:03:47|00:01:02|00:02:12|0|41|00:00:43|00:00:43|41|0|00:00:02|0|75.61|0|00:00:07
Today|2501|260|01/27/2010|00:00|1440|0|0|1|1|00:00:27|00:00:00|00:00:11|0|2|00:00:00|00:00:00|2|0|00:00:01|0|50.00|0|00:00:27
Today|2501|80|01/27/2010|00:00|1440|0|0|1|1|00:00:06|00:00:04|00:00:02|0|1|00:00:00|00:00:00|1|0|00:00:02|0|100.00|0|00:00:06
```

Sample Routing Point Report (Filename: 2.rp):

Type | Source EID | Routing Point ID | Date | Interval | Interval Size |
Abandons | Acceptables | Handles | Active Dur. Seconds | Wrap-up Dur. Seconds |
Wait Dur. Seconds | Busies | Arrivals | Outflows | Hold Dur. Seconds |
Service Level | Avg. Dur. to Accept Seconds | Avg. Handle Dur. Seconds | % in
Service Level | Busies + Cancels | Direct Interactions | Backup Handles |
Cancels

```
PreDay|2501|28900|01/26/2010|00:00|1440|1|4|4|00:00:11|00:00:18|00:00:26|0|5|0|00:00:00|5|00:00:04|00:00:07|80.00|0|0|0|0
PreDay|2501|75000|01/26/2010|00:00|1440|10|21|22|00:01:01|00:50:06|00:03:14|0|32|0|00:00:10|32|00:00:06|00:02:19|65.62|0|0|0|0
PreInt|2501|75000|01/27/2010|13:00|30|2|4|4|00:00:05|00:00:17|00:00:29|2|8|0|00:00:00|8|00:00:03|00:00:05|50.00|2|0|0|0
PreInt|2501|75100|01/27/2010|13:00|30|0|2|2|00:00:32|00:00:00|00:00:17|0|2|0|00:00:00|2|00:00:08|00:00:16|100.00|0|0|0|0
Today|2501|28900|01/27/2010|00:00|1440|0|1|1|00:00:06|00:00:04|00:00:02|0|1|0|00:00:00|1|00:00:02|00:00:10|100.00|0|0|0|0
Today|2501|75000|01/27/2010|00:00|1440|9|26|27|00:03:19|00:01:02|00:03:33|7|45|0|00:00:43|45|00:00:04|00:00:11|57.78|9|0|0|2
Today|2501|75100|01/27/2010|00:00|1440|0|2|2|00:00:32|00:00:00|00:00:17|0|2|0|00:00:00|2|00:00:08|00:00:16|100.00|0|0|0|0
```

Sample Agent Report (Filename: 3.agent):

Type | Source EID | Agent ID | Queue ID | Date | Interval | Interval Size | Handles | Active Dur. Seconds | Wrap-up Dur. Seconds | Hold Dur. Seconds | Interval Staffed Dur. Seconds | Interval Idle Dur. Seconds | Occupied Dur. Seconds | Interval Not-Occupied Dur. Seconds | Interval Working Aux. Dur. Seconds | Interval Non-Working Aux. Dur. Seconds | Interval Alert Dur. Seconds | Aux. Inbound Interactions | Aux. Outbound Interactions | Wrap-up Inbound Interactions | Wrap-up Outbound Interactions | Direct Interactions | Direct Active Dur. Seconds | Direct Wrap-ups

```
PreDay|2501|76301|250|01/26/2010|00:00|1440|9|00:00:21|00:00:00|00:00:00|12:22:39|12:2
0:28|00:02:11|12:20:28|00:00:00|00:00:00|00:01:50|0|0|0|0|0|0|00:00:00|0
PreDay|2501|76302|250|01/26/2010|00:00|1440|13|00:00:40|00:50:06|00:00:10|24:00:00|23:
08:43|00:51:17|23:08:43|00:00:00|00:00:00|00:00:20|0|0|0|0|0|0|00:00:00|0
PreDay|2501|76501|80|01/26/2010|00:00|1440|4|00:00:11|00:00:18|00:00:00|01:32:14|01:30
:46|00:00:46|01:30:46|00:00:00|00:00:00|00:00:42|00:00:17|0|0|0|0|0|0|00:00:00|0
PreInt|2501|76301|0|01/27/2010|13:00|30|3|00:00:13|00:00:00|00:00:00|00:05:31|00:04:49
|00:00:38|00:04:49|00:00:00|00:00:04|00:00:09|0|0|0|0|0|3|00:00:13|0
PreInt|2501|76301|250|01/27/2010|13:00|30|4|00:00:14|00:00:00|00:00:00|00:05:31|00:04:
49|00:00:38|00:04:49|00:00:00|00:00:04|00:00:09|0|0|0|0|0|3|00:00:13|0
PreInt|2501|76302|0|01/27/2010|13:00|30|5|00:00:28|00:00:00|00:00:00|00:30:00|00:28:41
|00:01:19|00:28:41|00:00:00|00:00:00|00:00:11|0|0|0|0|0|1|00:00:10|0
PreInt|2501|76302|250|01/27/2010|13:00|30|4|00:00:09|00:00:17|00:00:00|00:30:00|00:28:
41|00:01:19|00:28:41|00:00:00|00:00:00|00:00:11|0|0|0|0|0|0|00:00:00|0
PreInt|2501|76304|260|01/27/2010|13:00|30|1|00:00:27|00:00:00|00:00:00|00:00:54|00:00:
20|00:00:30|00:00:20|00:00:00|00:00:04|00:00:01|0|0|0|0|0|0|00:00:00|0
Today|2501|76301|0|01/27/2010|00:00|1440|3|00:00:13|00:00:00|00:00:00|00:05:31|00:04:4
9|00:00:38|00:04:49|00:00:00|00:00:04|00:00:09|0|0|0|0|0|3|00:00:13|0
Today|2501|76301|250|01/27/2010|00:00|1440|4|00:00:14|00:00:00|00:00:00|00:05:31|00:04
:49|00:00:38|00:04:49|00:00:00|00:00:04|00:00:09|0|0|0|0|0|3|00:00:13|0
Today|2501|76302|0|01/27/2010|00:00|1440|6|00:00:38|00:00:00|00:00:00|13:30:00|13:21:5
7|00:08:03|13:21:57|00:00:00|00:00:00|00:01:36|0|0|0|0|0|2|00:00:20|0
Today|2501|76302|250|01/27/2010|00:00|1440|26|00:03:31|00:01:02|00:00:43|13:30:00|13:2
1:57|00:08:03|13:21:57|00:00:00|00:00:00|00:01:36|0|0|0|0|0|1|00:00:10|0
Today|2501|76304|250|01/27/2010|00:00|1440|2|00:00:02|00:00:00|00:00:00|00:05:14|00:04
:07|00:00:45|00:04:07|00:00:00|00:00:22|00:00:09|0|0|0|0|0|0|00:00:00|0
Today|2501|76304|260|01/27/2010|00:00|1440|1|00:00:27|00:00:00|00:00:00|00:05:14|00:04
:07|00:00:45|00:04:07|00:00:00|00:00:22|00:00:09|0|0|0|0|0|0|00:00:00|0
Today|2501|76501|80|01/27/2010|00:00|1440|1|00:00:06|00:00:04|00:00:00|00:12:01|00:11:
25|00:00:12|00:11:25|00:00:00|00:00:24|00:00:02|0|0|0|0|0|0|00:00:00|0
```

Sample Agent Aux Report (Filename: 4.aux):

Type | Source EID | Agent ID | Date | Interval | Interval Size | Aux. State | Native State ID | Dur. Seconds

```
PreDay|2501|76501|01/26/2010|00:00|1440|Auxiliary-Login|_AgtAuxiliaryLogin_|00:00:32
PreDay|2501|76501|01/26/2010|00:00|1440|1|1|00:00:10
PreInt|2501|76301|01/27/2010|13:00|30|Auxiliary-Login|_AgtAuxiliaryLogin_|00:00:04
PreInt|2501|76304|01/27/2010|13:00|30|Auxiliary-Login|_AgtAuxiliaryLogin_|00:00:04
Today|2501|76301|01/27/2010|00:00|1440|Auxiliary-Login|_AgtAuxiliaryLogin_|00:00:04
Today|2501|76501|01/27/2010|00:00|1440|1|1|00:00:09
Today|2501|76501|01/27/2010|00:00|1440|Auxiliary-Login|_AgtAuxiliaryLogin_|00:00:15
Today|2501|76304|01/27/2010|00:00|1440|Auxiliary-Login|_AgtAuxiliaryLogin_|00:00:22
```

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