



Avaya Solution & Interoperability Test Lab

Application Notes for Symon Enterprise Server with Avaya IQ – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Symon Enterprise Server (SES) to interoperate with Avaya IQ via `rt_socket` interfaces. The `rt_socket` interfaces, developed by Avaya Professional Services organization, provide real-time data related to agents, queues, and routing points.

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

The following diagram provides an overview of Symons' products and the integration with the Avaya IQ.

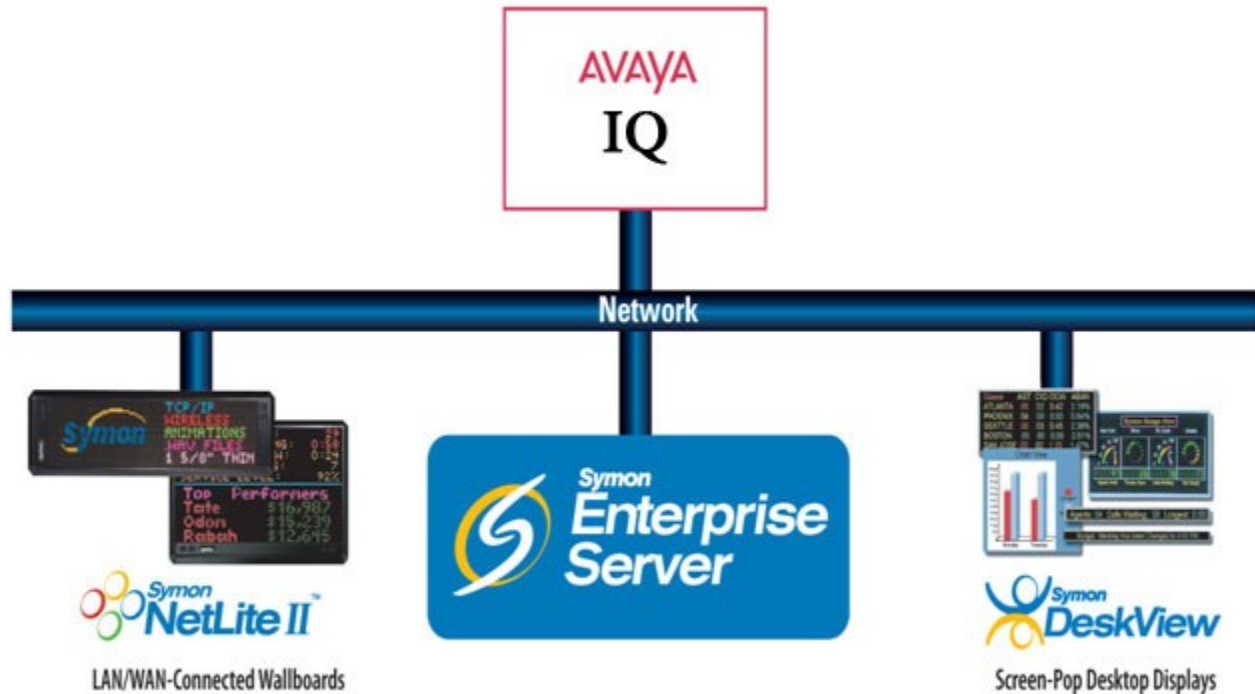


Figure 1: Symon Enterprise Server Integration to Avaya IQ

Symon Enterprise Server (SES) 11.2.1 integrates with an Avaya Aura® Communication Manager (functioning as an Automatic Call Distributor (ACD)) via Avaya IQ. The integration is done using the TCP/IP Collector in the SES and custom adapters on Avaya IQ. SES can monitor a wide range of real time statistics that are available from Avaya IQ. The TCP/IP Collector on SES is configured via Portal Administrator which can run on the SES or as a remote client.

The rt_socket adapters on Avaya IQ, developed by the Avaya Professional Services organization, open custom reports that contain the statistics SES uses for real time monitoring (e.g. wallboard). All statistics received by SES can be viewed using the Portal Data Viewer, a debugging tool provided as part of the SES.

The following rt_socket adapters covered in this compliance test included:

- Agent Adherence Interface
- Agent Performance Interface
- Queue Performance Interface
- Routing Point Performance Interface

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

2. General Test Approach and Test Results

The feature test cases were performed manually. Incoming calls were made to the measured routing points, queues, and agents to generate data to the SES. Manual call control functions such as answer, hold, resume, and disconnect, along with agent work mode changes including login, auto-in, manual-in, after call work, auxwork, and logout were exercised as necessary to populate specific fields in the reports.

The serviceability test cases were performed manually by disconnecting and reconnecting the LAN cable to the SES and by restarting the Avaya IQ adapters.

For each field in the tested interfaces, the displayed data was compared between the Avaya IQ standard reports, the data generated by the Avaya IQ adapters, and the data displayed at the SES.

The data generated by the Avaya IQ adapters was monitored using a utility provided with the rt_socket adapters. SES was monitored using their Portal Data Viewer.

2.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing focused on verifying the accuracy of data collection, processing, and display within the SES.

The serviceability testing focused on verifying the ability of SES to recover from adverse conditions, such as network outage and Avaya IQ adapter out of service.

2.2. Test Results

The Symon Enterprise Server successfully passed the compliance test. All the four rt_socket interfaces including Agent Adherence Interface, Agent Performance Interface, Queue Performance Interface, and Routing Point Performance Interface were verified.

The following observations were made during the compliance test:

- All data sent by the Avaya IQ rt_socket adapters is sent as ASCII text.
- If Symon report fields are configured as integers, they are limited to 4 bytes. If the field value is exceeded, the received data will be mismatched and cause the report to be improperly displayed.

- Occasionally the Avaya IQ rt_socket interface had to be manually restarted after de-activating and re-activating the Symon TCP/IP Collector.
- Activation of SES Debug occasionally crashes Portal Admin and will require a restart of the Portal Admin.

All the fields above refer to the data received by the SES from Avaya IQ.

2.3. Support

Technical support from Symon can be obtained through the following:

- **Phone:** 1 (877) 789-TECH (8324)
- **Email:** support@symon.com

3. Reference Configuration

Figure 2 below shows the compliance testing configuration. The Avaya IQ, Oracle database server for Avaya IQ, Communication Manager, telephones, user PCs and SES all reside in the same network.

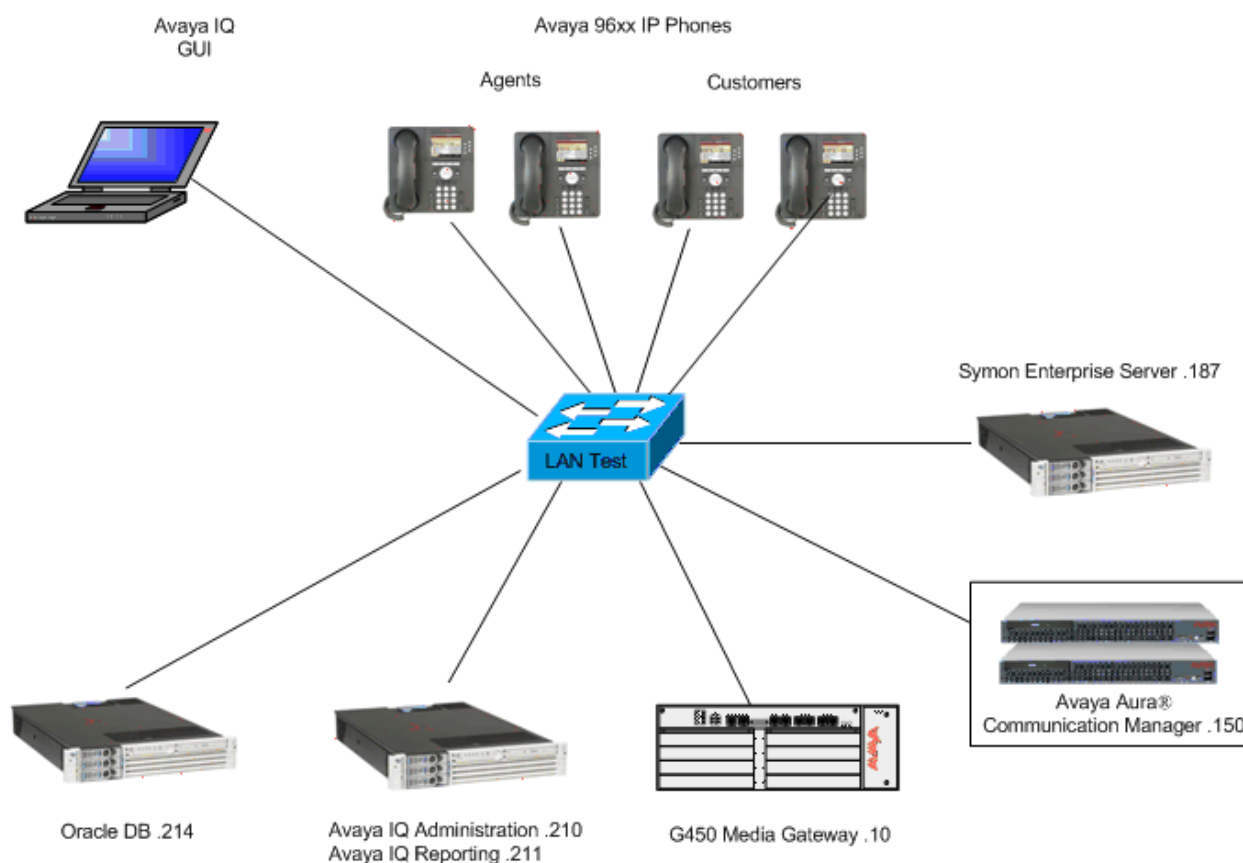


Figure 2: Symon Enterprise Server with Avaya IQ Test Configuration

On the Communication Manager, relevant skills and Vector Directory Number (VDN) objects are configured to be “measured” for Avaya IQ. When a call travels through a “measured” object on Communication Manager, the ACD related data is sent to the Avaya IQ. Avaya IQ sends updates for agents, queues, and routing points to the SES periodically. During the compliance testing data was sent every 5 seconds. The Avaya IQ standard reports and a utility tool included with the Avaya adapter software were used to validate the accuracy of data generated by Avaya IQ and displayed by the SES.

4. Equipment and Software Validated

The following equipment and software were used for the test configuration:

Equipment	Software
IBM 8800 Servers running Avaya Aura® Communication Manager with Software Duplication	Avaya Aura® Communication Manager 6.0.1 with service pack (00.1.510.1-19271)
Avaya G450 Media Gateway	HW 255 FW 31.20.0
IBM System x3650 M2 Avaya IQ server with rt_socket adapters provided by the Avaya Professional Services organization	Avaya IQ 5.1.2.0.77_8019_9444_SP2 Red Hat Enterprise Linux Server release 5.5 (Tikanga) RT_Socket Interface Version 1.0.9h (26 Feb 2011)
IBM System x3550 M2 Oracle Database	Red Hat Enterprise Linux Server release 5.5 Oracle Version 11.1.0.7.0
Symon Enterprise Server	11.2.1
Avaya 9600 H.323 Telephones	Avaya one-X Deskphone Edition S3.110b

5. Configure Avaya Aura® Communication Manager

The detailed administration of contact center objects and connectivity between Communication Manager and Avaya IQ are not the focus of these Application Notes and are not described here. For administration of contact center objects and connectivity to Avaya IQ, refer to the appropriate documentation listed in **Section 11**.

In order for the data of a queue or a routing point to be collected and forwarded to Avaya IQ, the “measured” field on the corresponding skill and VDN forms must be set to “external”. For administration of the “measured” field for a skill and a VDN, refer to the appropriate documentation listed in **Section 11**.

6. Configure Avaya IQ

The administration of Avaya IQ to support its normal functions is not the focus of these Application Notes and is not described here. This section provides the additional configuration as required for supporting Symon Enterprise Server integration, which includes the following:

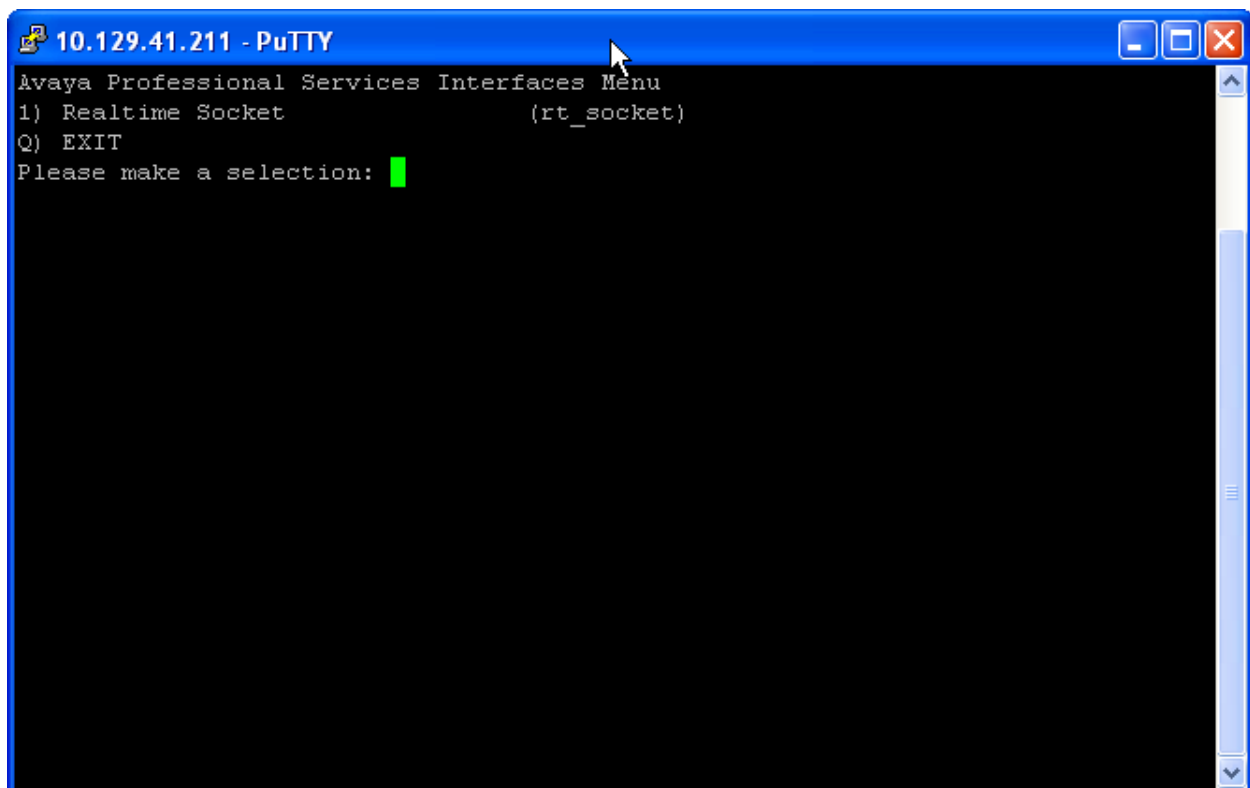
- Activate the real-time socket adapter

6.1. Activate real-time socket Adapter

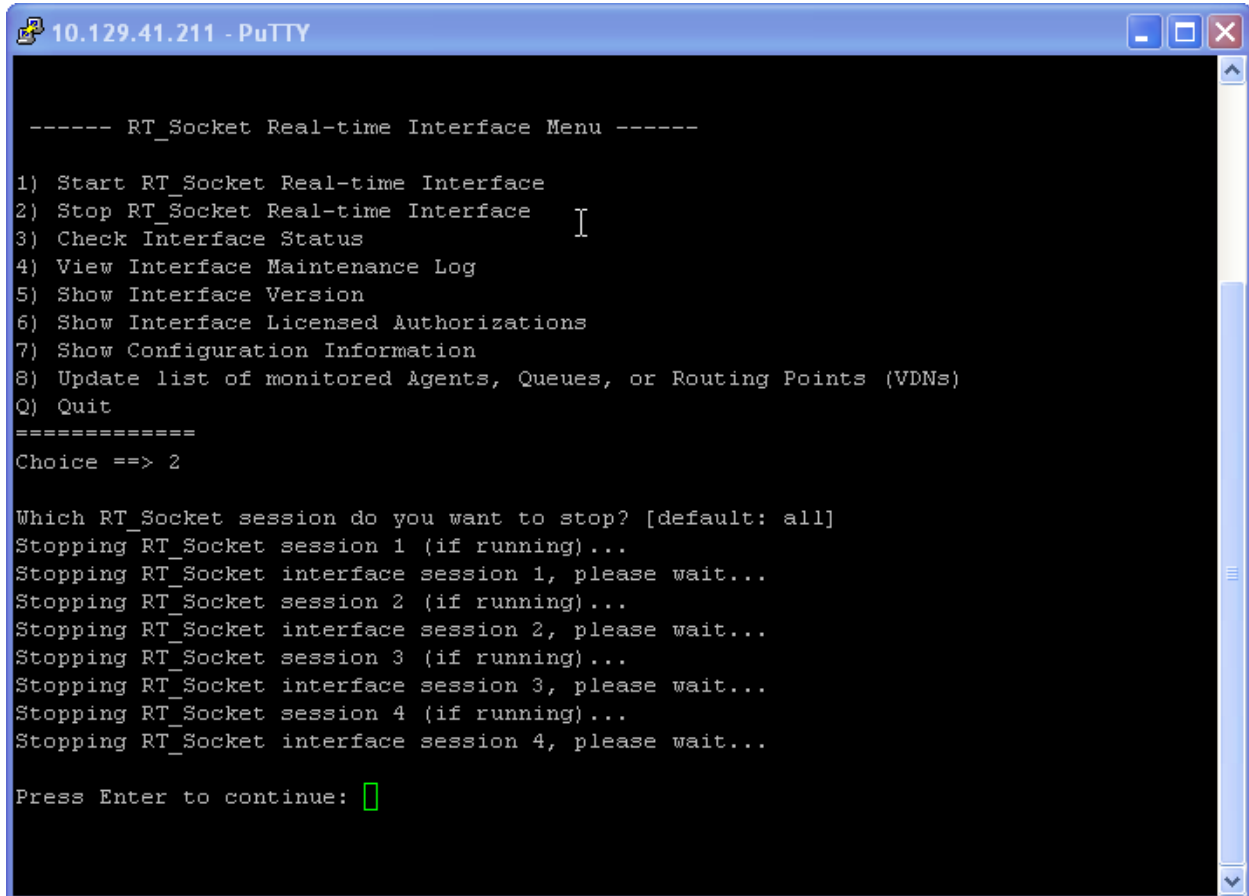
Four `rt_socket` real-time adapters are installed in Avaya IQ to support the SES integration.

Activate adapters:

- Start the APS Interfaces Menu by logging in to Avaya IQ as “psadmin” using an SSH client.
- Select **1** for the Realtime Socket Menu



From the **RT_Socket Real-time Interface Menu** screen, choose **2** and then **all** to stop all of the sessions. Each session corresponds to one real-time interface for an ACD data source.



```
10.129.41.211 - PuTTY

----- RT_Socket Real-time Interface Menu -----

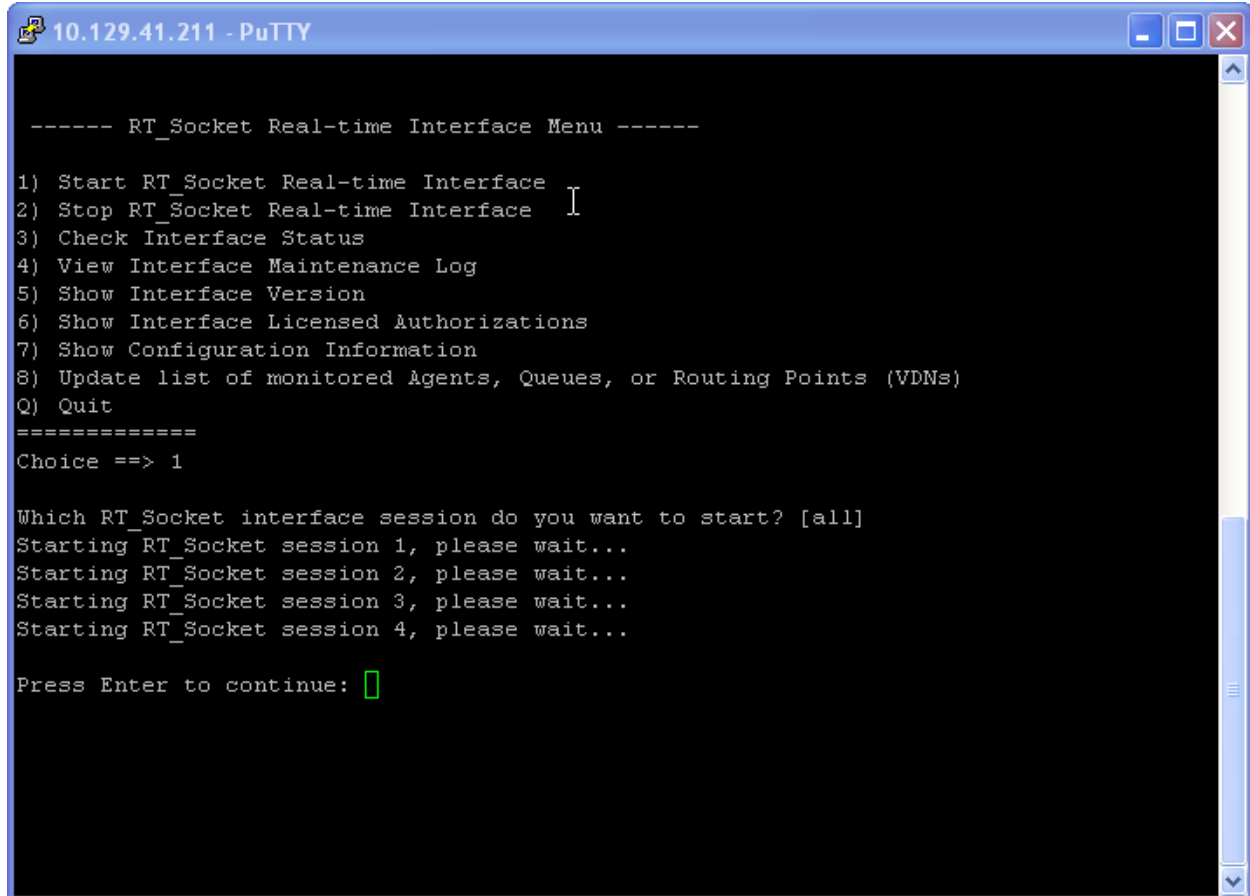
1) Start RT_Socket Real-time Interface
2) Stop RT_Socket Real-time Interface
3) Check Interface Status
4) View Interface Maintenance Log
5) Show Interface Version
6) Show Interface Licensed Authorizations
7) Show Configuration Information
8) Update list of monitored Agents, Queues, or Routing Points (VDNs)
Q) Quit
=====
Choice ==> 2

Which RT_Socket session do you want to stop? [default: all]
Stopping RT_Socket session 1 (if running)...
Stopping RT_Socket interface session 1, please wait...
Stopping RT_Socket session 2 (if running)...
Stopping RT_Socket interface session 2, please wait...
Stopping RT_Socket session 3 (if running)...
Stopping RT_Socket interface session 3, please wait...
Stopping RT_Socket session 4 (if running)...
Stopping RT_Socket interface session 4, please wait...

Press Enter to continue: 
```

Once all the sessions are stopped, press **Enter** to continue.

From the **RT_Socket Real-time Interface Menu** screen, choose **1** and then **all** to start all of the sessions.



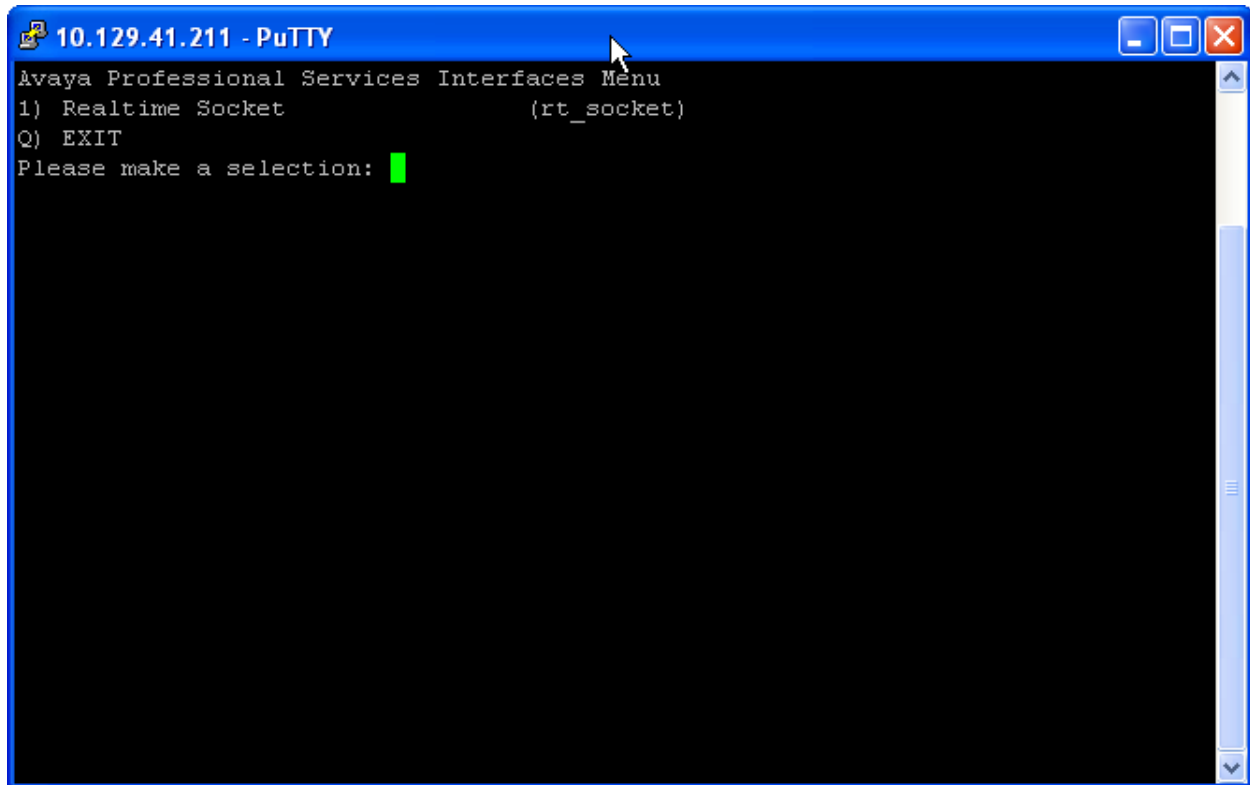
The screenshot shows a PuTTY terminal window titled "10.129.41.211 - PuTTY". The terminal displays the "RT_Socket Real-time Interface Menu" with the following options:

```
----- RT_Socket Real-time Interface Menu -----
1) Start RT_Socket Real-time Interface
2) Stop RT_Socket Real-time Interface
3) Check Interface Status
4) View Interface Maintenance Log
5) Show Interface Version
6) Show Interface Licensed Authorizations
7) Show Configuration Information
8) Update list of monitored Agents, Queues, or Routing Points (VDNs)
Q) Quit
=====
Choice ==> 1

Which RT_Socket interface session do you want to start? [all]
Starting RT_Socket session 1, please wait...
Starting RT_Socket session 2, please wait...
Starting RT_Socket session 3, please wait...
Starting RT_Socket session 4, please wait...

Press Enter to continue: 
```


Once all of the sessions are started, press **Enter** to continue and then **Q** to quit and return to the APS Interfaces Menu.



7. Configure Avaya IQ Adapters

The following parameters are configurable for the Avaya IQ adapters and are customized for each different environment.

- Timezone for the reports
- Sliding window size
- Avaya IQ login/password
- Delimeter
- Data source name
- Report type : agent, queue, or routing point
- IP address and port of the application

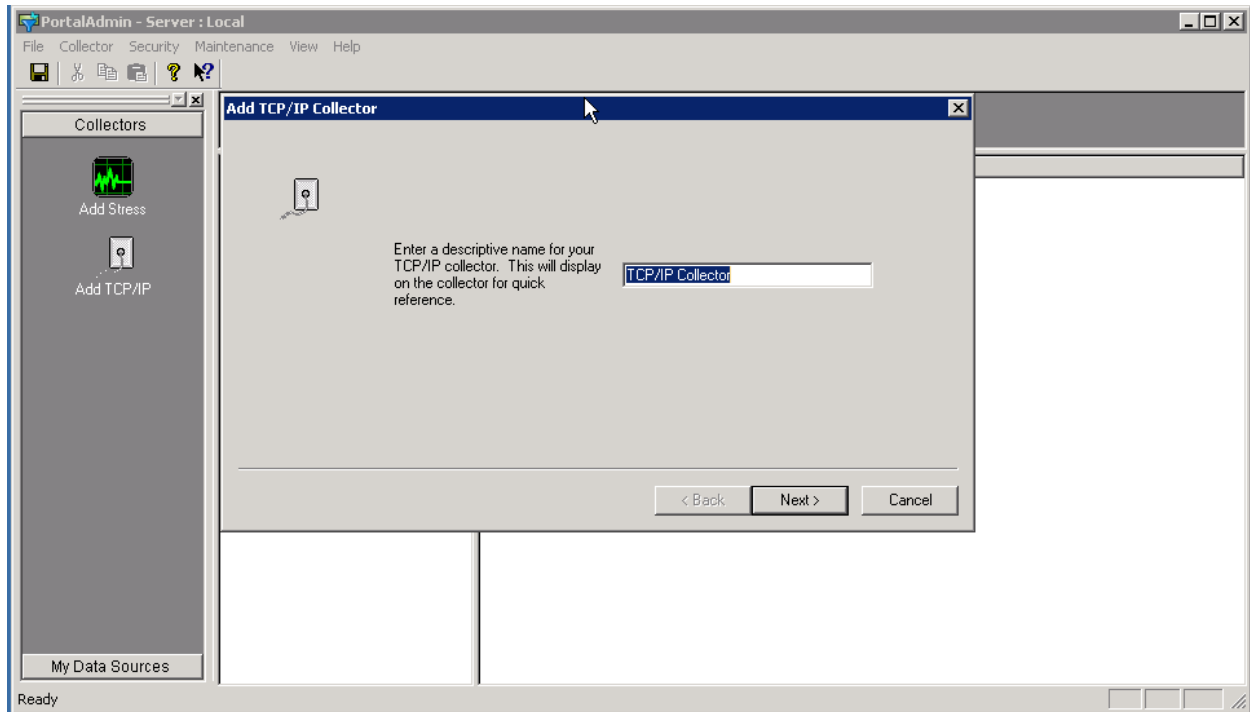
Avaya IQ adapter configuration should only be performed by the Avaya Professional Services organization. Please refer any questions about adapter configuration to Avaya Professional Services.

8. Configure Symon Enterprise Server (SES)

This section describes how to configure the Symon Enterprise Server:

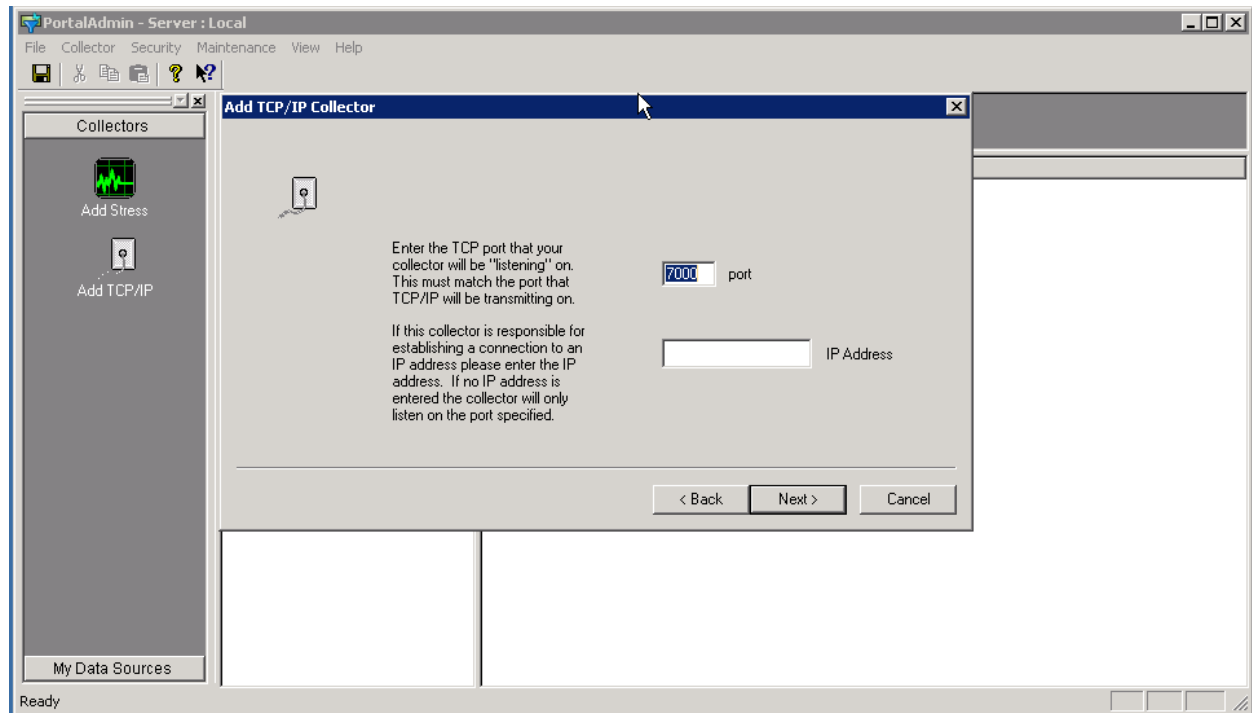
8.1. Configure TCP/IP Collector

Start Portal Administrator by clicking “Start” → “All Programs” → “Symon Enterprise Software” → “Portal Admin”. In Portal Administrator, select the “Add TCP/IP” button to add a TCP/IP Collector. After the “Add TCP/IP Collector” screen pops up, enter the name of the collector and click “Next”.

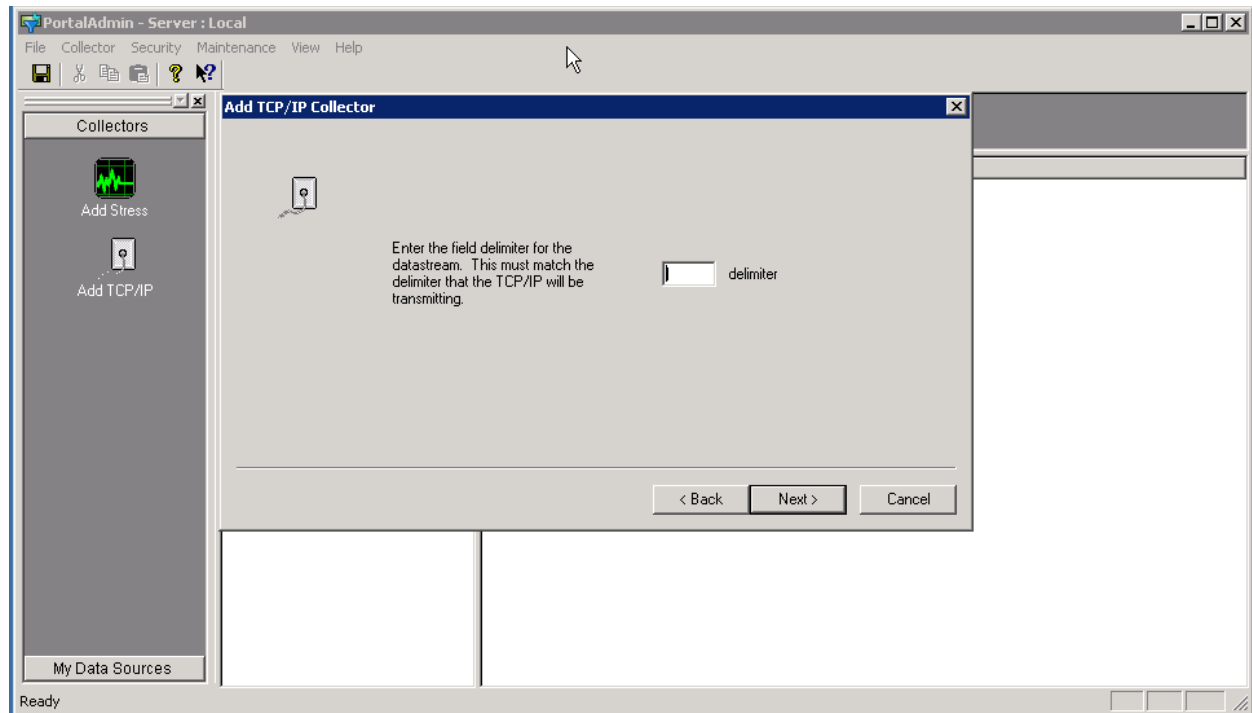


Note: The TCP/IP collector name is arbitrary. The name “TCP/IP Collector” is used in this example.

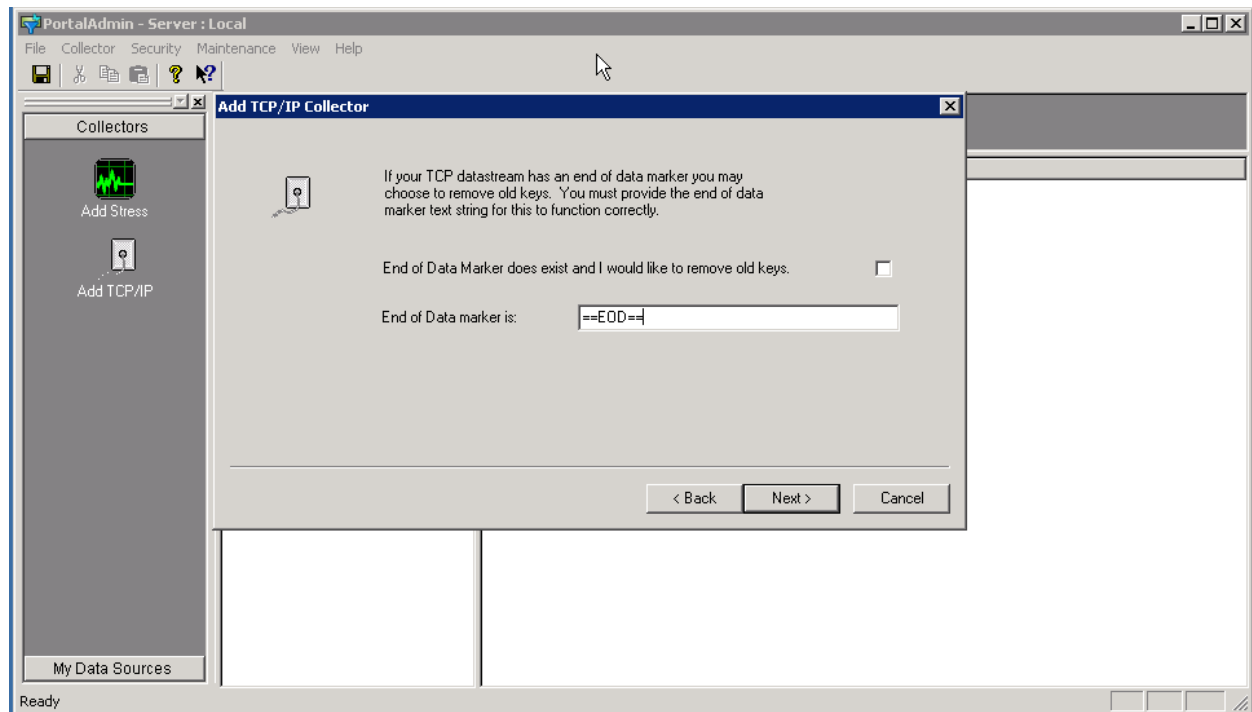
On the next screen enter the port number and click “Next”.



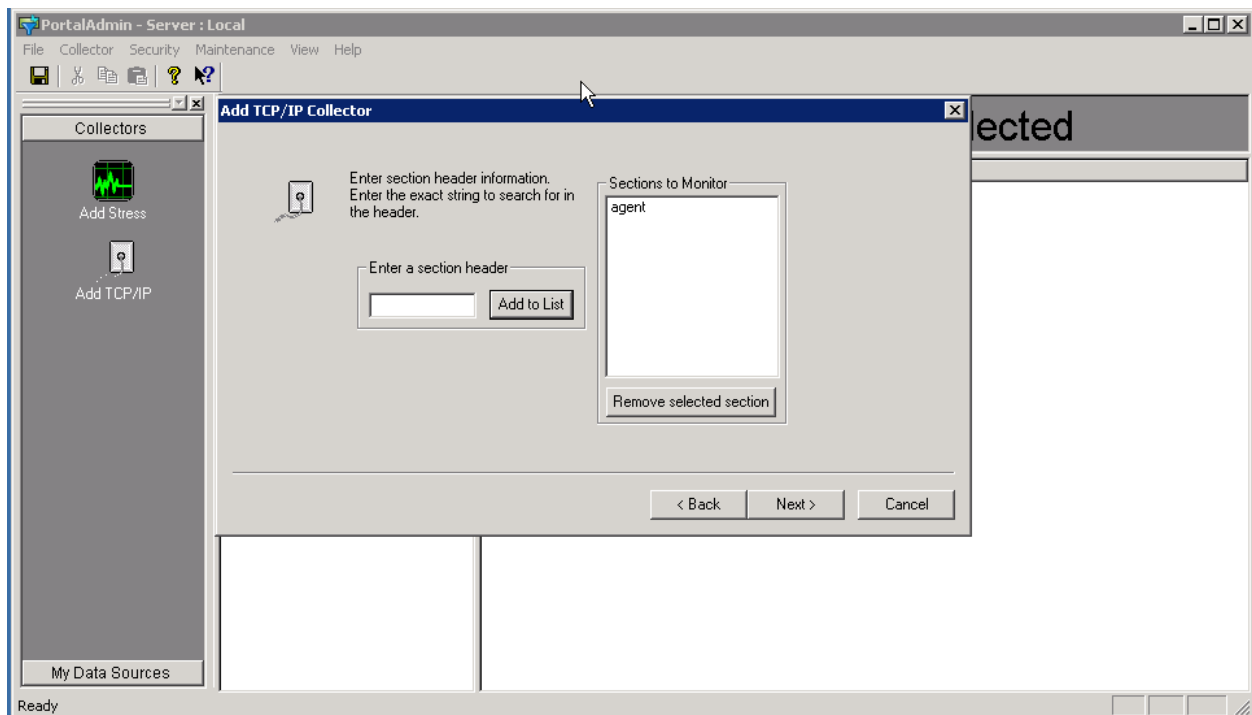
On the next screen enter the delimiter (“|”) and click “Next”.



On the next screen enter the End of Data marker and click “Next”. In this compliance test “==EOD==” is sent as the End of Data marker by the Avaya IQ rt_socket adapters.



On the next screen set the Section Header. This will be used to identify a group of fields to be monitored. Enter the name of the Section Header, click “Add to List”, then click “Next”. In the screenshot below, a section header “agent” has been added.



On the next screen add the fields that will be monitored in the Section. Select the section for this field, enter a Field Name, select a Data Type and define the order, then click “Add”. Repeat this process on the same page until all the fields have been added. The screenshot below shows that a field called “abc” with Data Type “agentid” and Order “1” has been added.

PortalAdmin - Server : Local

File Collector Security Maintenance View Help

Collectors

Add Stress

Add TCP/IP

My Data Sources

Ready

Add TCP/IP Collector

Enter the field names for each section in the order that TCP/IP will be sending them. If you are unsure what fields will be sent, you need to consult the switch administrator.

Section Header: agent

Add Field

Field Name:

Data Type: Text

Order: 2 ☐ Key Add

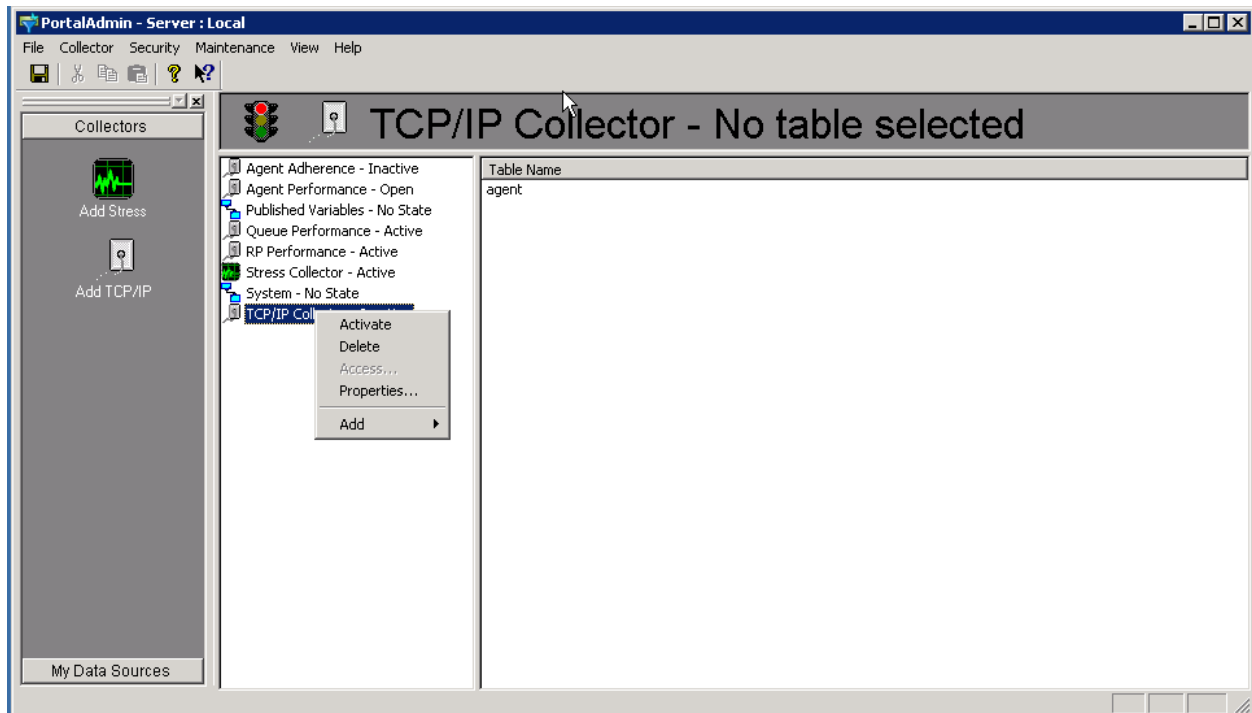
FieldNames	Order
abc agentid	1

Delete

< Back Finish Cancel

Note: Check the Key box if this field will be used by the collector to associate incoming data with this report. At least one key is required for each section.

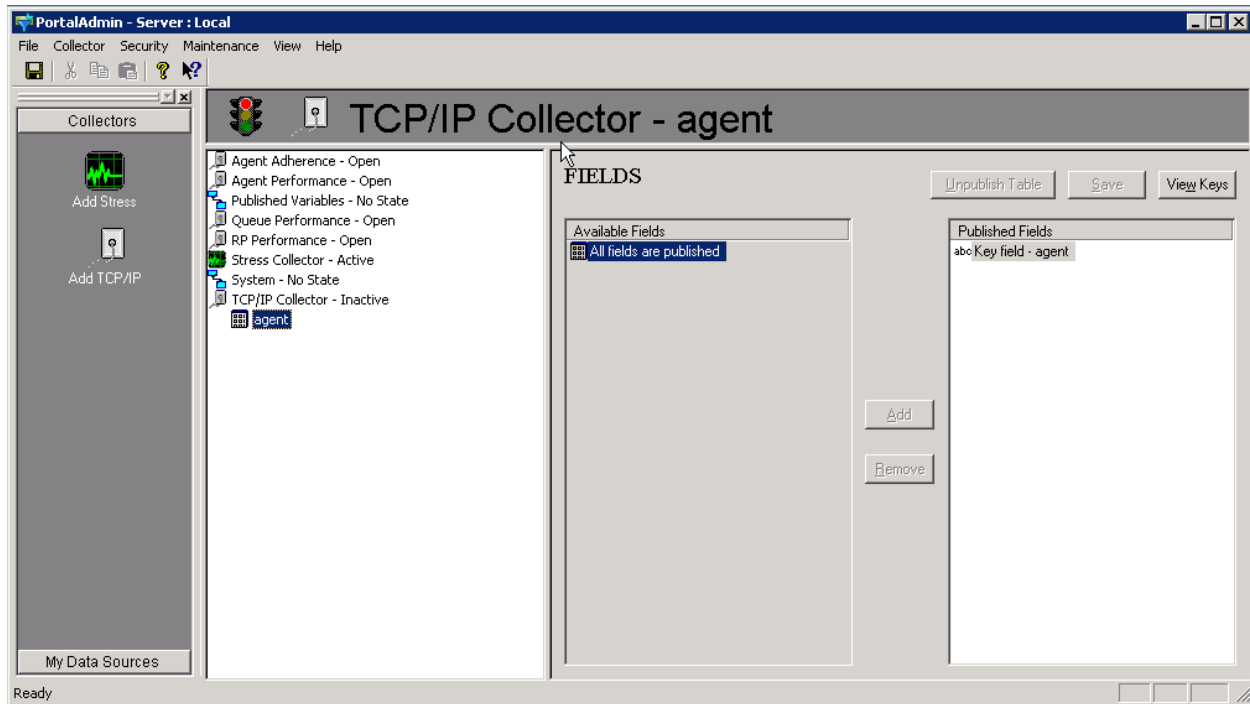
Click “Finish” after all of the fields have been added. The newly configured collector should show up in the pane right of the Collectors bar. Right-click on “TCP/IP Collector” and select “Activate”.



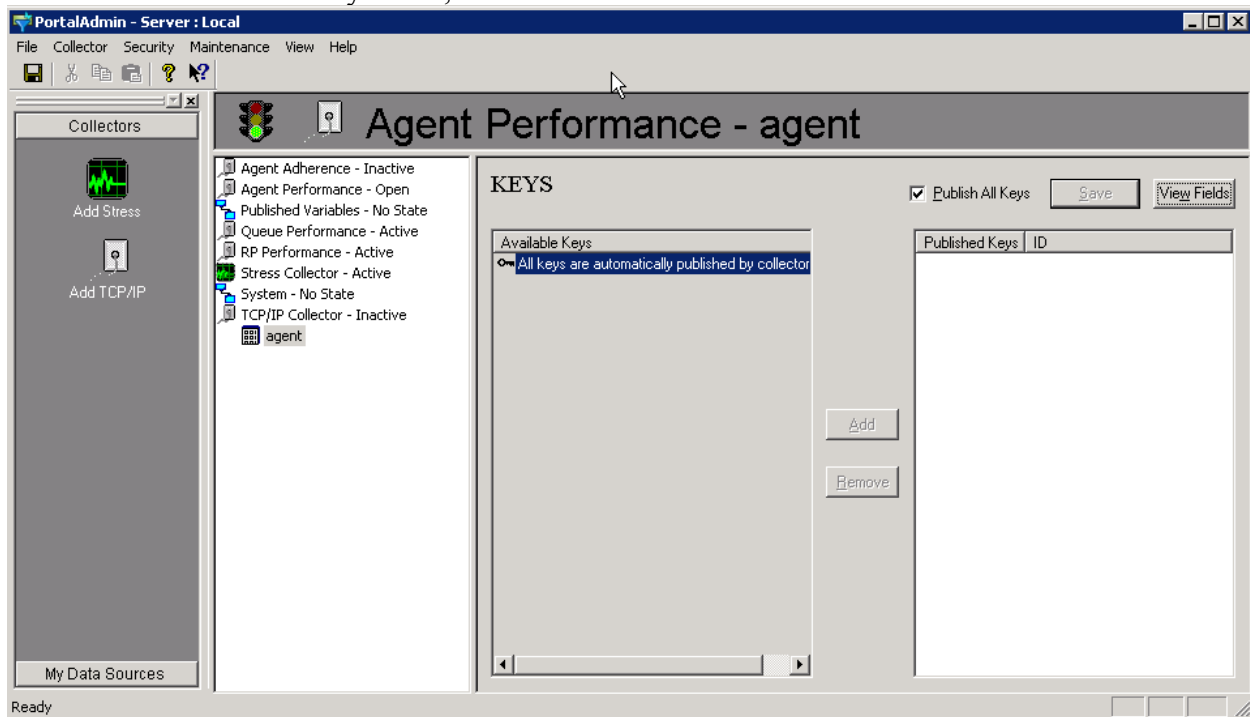
In this compliance test 4 different collectors were configured and verified. See section 9 for verification steps.

8.2. Publish Keys for TCP/IP Collector

Double click the TCP/IP Collector name, highlight a section, and click the "View Keys" button.



Check the "Publish All Keys" box, and click "Save".



Note : All keys are now automatically published by the collector.

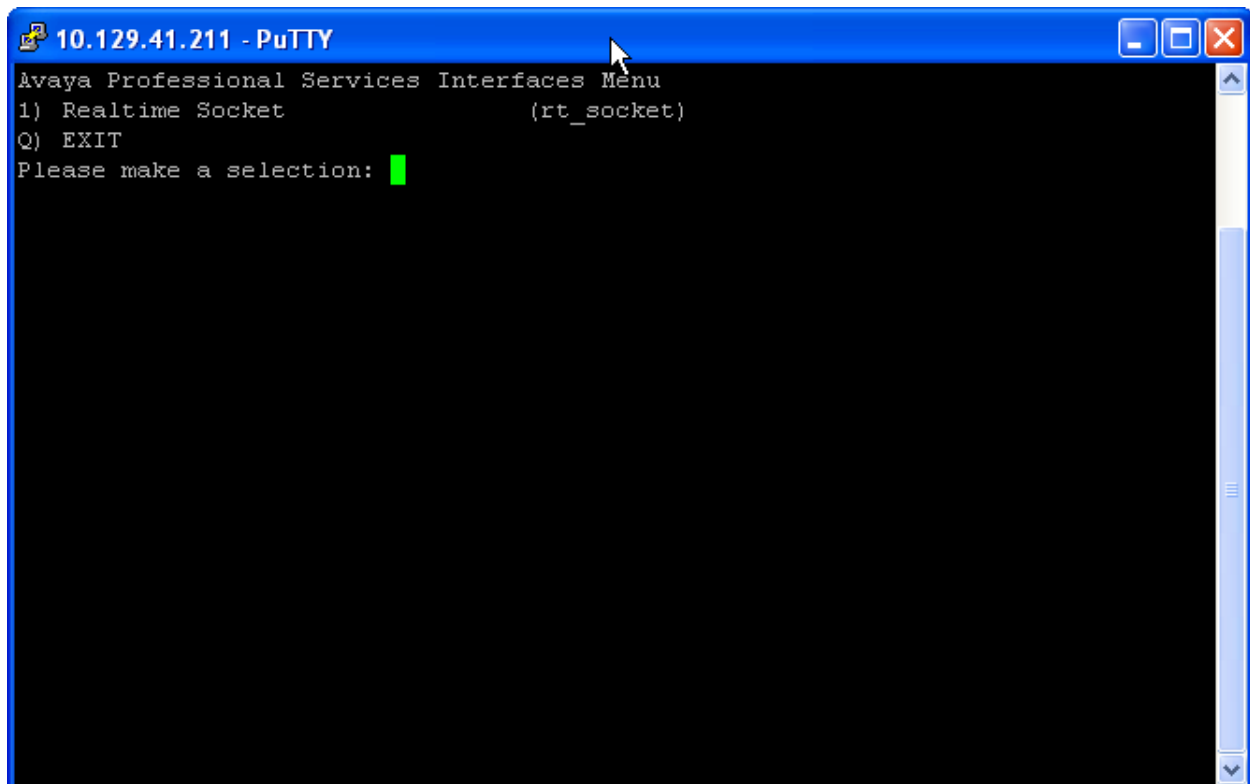
9. Verification Steps

This section describes the steps to use to verify proper configuration of Avaya IQ and the Symon Enterprise Server.

9.1. Verify Avaya IQ Adapters

To verify the real-time interface, start the APS Interfaces Menu by logging in to Avaya IQ as “psadmin” using an SSH client.

Select **1** for the Realtime Socket Menu.



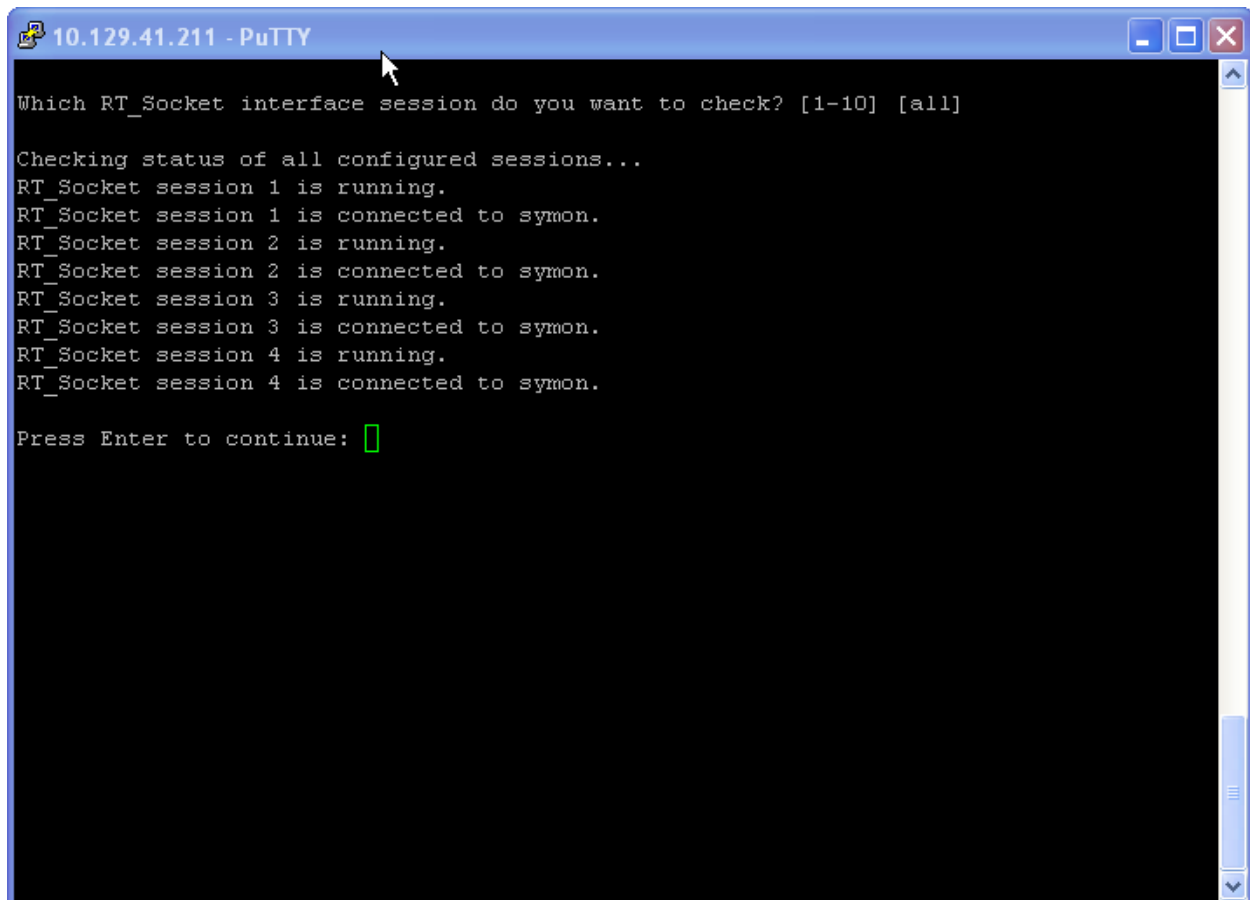
From the **RT_Socket Real-time Interface Menu** screen (not shown), choose **7** to verify that each of the rt_sockets are configured to connect to the SES. Validate the IP address, port, and report for each connection. The screen capture below shows each of the four sessions used in this compliance test.

```
10.129.41.211 - PuTTY
CURRENT CONFIGURATION
PACKAGE: RT_Socket

Session ACD      Dest IP      Port      Report
1                10.129.41.187 6061      rt_socket/agent_adhere
2                10.129.41.187 6062      rt_socket/agent_perf
3                10.129.41.187 6063      rt_socket/queue_perf
4                10.129.41.187 6064      rt_socket/rp_perf

Press Enter to continue: █
```

Press **Enter** to continue, and then from the **RT_Socket Real-time Interface Menu** screen, choose **3** to check the status of the sessions. Each session corresponds to an interface for an ACD data source. Ensure that each session required is running and connected to the Symon Enterprise Server application. The screen capture below shows that the session one through four are running and connected to SES.



The screenshot shows a PuTTY terminal window titled "10.129.41.211 - PuTTY". The terminal output is as follows:

```
Which RT_Socket interface session do you want to check? [1-10] [all]

Checking status of all configured sessions...
RT_Socket session 1 is running.
RT_Socket session 1 is connected to symon.
RT_Socket session 2 is running.
RT_Socket session 2 is connected to symon.
RT_Socket session 3 is running.
RT_Socket session 3 is connected to symon.
RT_Socket session 4 is running.
RT_Socket session 4 is connected to symon.

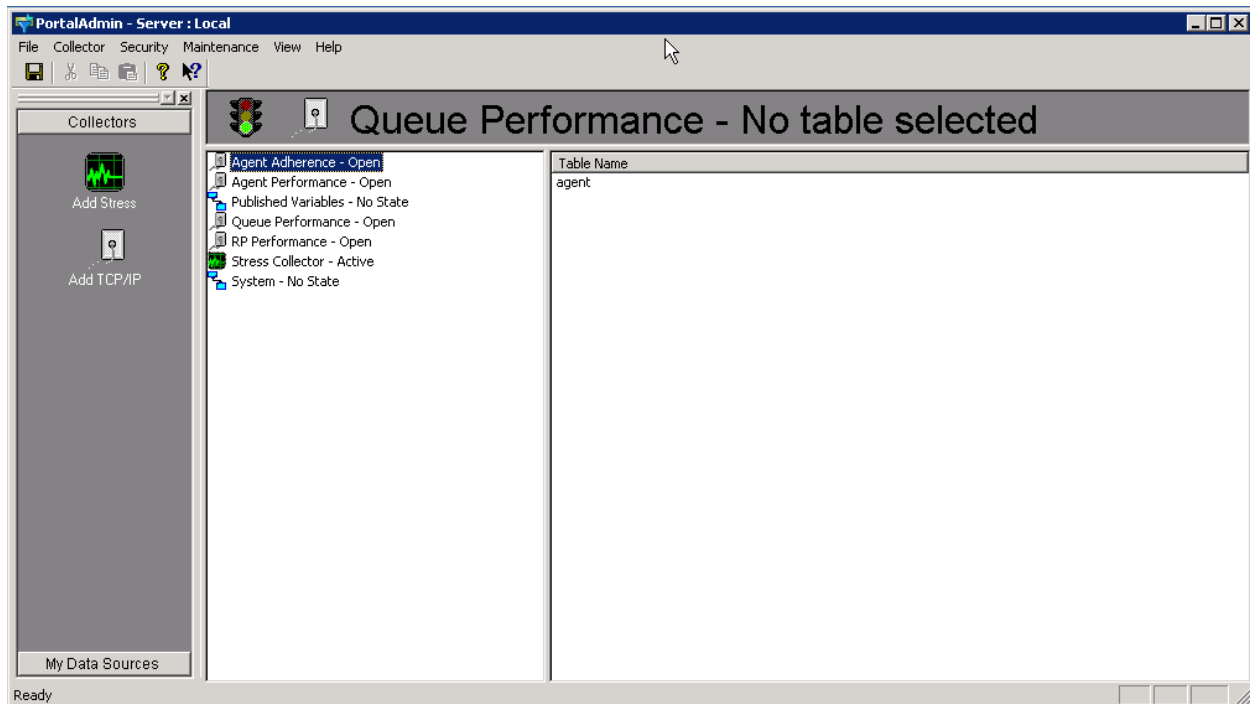
Press Enter to continue: [ ]
```

9.2. Verify Symon Enterprise Server

This section describes how to verify proper functionality of the SES.

9.2.1. Verify Collector State

From Windows select → Start → All Programs → Symon Enterprise Software → Portal Admin



The Collectors can have the following states:

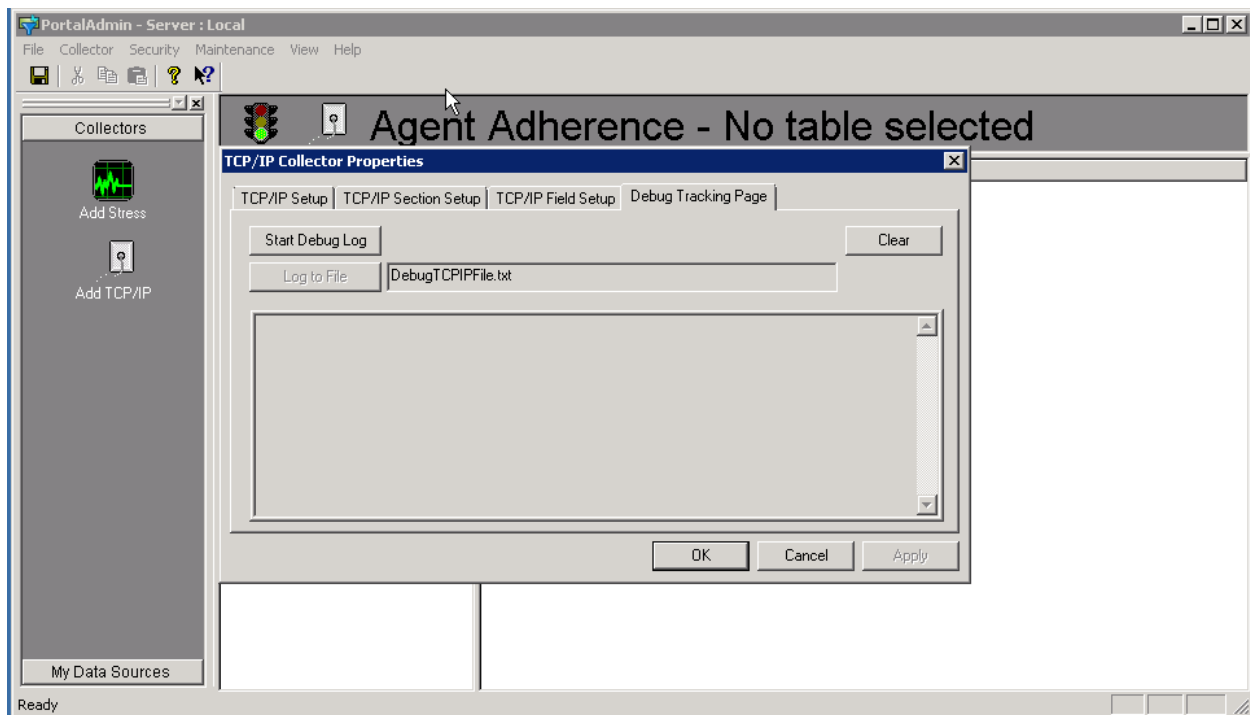
- Inactive – Collector is administratively inactive.
- Open – Collector is administratively active but not receiving data.
- Active - Collector is administratively active and receiving data.
- No State – Collector has no state.

Note: *For proper functionality Collector should be in an Active state.*

9.2.2. Verify Collector Data Using Debug Tracking Page

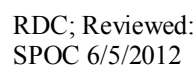
Right-click on the TCP/IP Collector, select “Properties” and click the right-most tab “Debug Tracking Page”.

Click the Start Debug Log button to verify the data coming from Avaya IQ.



The screenshot shows the 'PortalAdmin - Server : Local' application window. The main title bar reads 'Agent Performance - No table selected'. On the left is a sidebar with 'Collectors' and 'My Data Sources' sections. The 'Collectors' section contains icons for 'Add Stress' and 'Add TCP/IP'. The 'My Data Sources' section is currently empty. The main area displays a tree view of system components like 'Ar', 'Pr', 'Q', 'RI', 'St', 'S:', and 'Tc'. Overlaid on top is the 'TCP/IP Collector Properties' dialog box. This dialog has four tabs: 'TCP/IP Setup', 'TCP/IP Section Setup', 'TCP/IP Field Setup', and 'Debug Tracking Page'. The 'Debug Tracking Page' tab is active, showing a 'Stop Debug Log' button, a 'Clear' button, a 'Log to File' button, and a text field containing 'DebugTCPIPFile.txt'. Below these is a large text area displaying debug logs with timestamps and queue identifiers. At the bottom of the dialog are 'OK', 'Cancel', and 'Apply' buttons. The status bar at the very bottom indicates 'Ready'.

Start the Portal Data Viewer by clicking “Start” → “All Programs” → “Symon Enterprise Software” → “Portal Data Viewer”. Open the appropriate folders for viewing data.



9.2.3.1 Verify the Agent Adherence Interface

Use the Symon Portal Data Viewer to monitor for the real-time statistics values.

The screenshot shows the 'Portal Data Viewer - agentadherence269615107_agent' window. The left pane displays a tree view of collectors, with 'agentadherence269615107' selected. The main pane shows a table of adherence data.

ibrefnum	agntid	agent	eid	agentname	state	stateduration	lastupdate
269615107	12141226065	agent	2501	ICC3 Agent 12141226065 (12141226065)	Unknown	3265	2012-04-09 22:39:02
269615107	12141226063	agent	2501	ICC3 Agent 12141226063 (12141226063)	Unknown	3265	2012-04-09 22:39:02
269615107	12141525206	agent	2501	ICC3 Agent 12141525206 (12141525206)	Unknown	3267	2012-04-09 22:39:02
269615107	12141525205	agent	2501	ICC3 Agent 12141525205 (12141525205)	Unknown	3267	2012-04-09 22:39:02
269615107	12141525201	agent	2501	ICC3 Agent 12141525201 (12141525201)	Unknown	3267	2012-04-09 22:39:02
269615107	12141226103	agent	2501	ICC3 Agent 12141226103 (12141226103)	Unknown	3269	2012-04-09 22:39:02
269615107	12141226083	agent	2501	ICC3 Agent 12141226083 (12141226083)	Unknown	3267	2012-04-09 22:39:02
269615107	12141525220	agent	2501	ICC3 Agent 12141525220 (12141525220)	Unknown	3269	2012-04-09 22:39:02
269615107	12141525211	agent	2501	ICC3 Agent 12141525211 (12141525211)	Unknown	3268	2012-04-09 22:39:02
269615107	12141525207	agent	2501	ICC3 Agent 12141525207 (12141525207)	Unknown	3267	2012-04-09 22:39:02
269615107	12141525202	agent	2501	ICC3 Agent 12141525202 (12141525202)	Unknown	3267	2012-04-09 22:39:02
269615107	12141525189	agent	2501	ICC3 Agent 12141525189 (12141525189)	Unknown	3265	2012-04-09 22:39:02
269615107	12141225899	agent	2501	ICC3 Agent 12141225899 (12141225899)	Unknown	3412	2012-04-09 22:39:02
269615107	12141525262	agent	2501	ICC3 Agent 12141525262 (12141525262)	Unknown	3273	2012-04-09 22:39:02
269615107	12141226198	agent	2501	ICC3 Agent 12141226198 (12141226198)	Unknown	3280	2012-04-09 22:39:02
269615107	12141225564	agent	2501	ICC3 Agent 12141225564 (12141225564)	Unknown	3386	2012-04-09 22:39:02
269615107	12141226839	agent	2501	ICC3 Agent 12141226839 (12141226839)	Unknown	3299	2012-04-09 22:39:02
269615107	12141525814	agent	2501	ICC3 Agent 12141525814 (12141525814)	Unknown	3375	2012-04-09 22:39:02
269615107	12141225404	agent	2501	ICC3 Agent 12141225404 (12141225404)	Unknown	3361	2012-04-09 22:39:02
269615107	12121205000	agent	2501	ICC3 Agent 12121205000 (12121205000)	Idle	151	2012-04-09 22:39:02
269615107	12121205001	agent	2501	ICC3 Agent 12121205001 (12121205001)	Idle	149	2012-04-09 22:39:02
269615107	12141226333	agent	2501	ICC3 Agent 12141226333 (12141226333)	Unknown	3304	2012-04-09 22:39:02

9.2.3.2 Verify the Agent Performance Interface

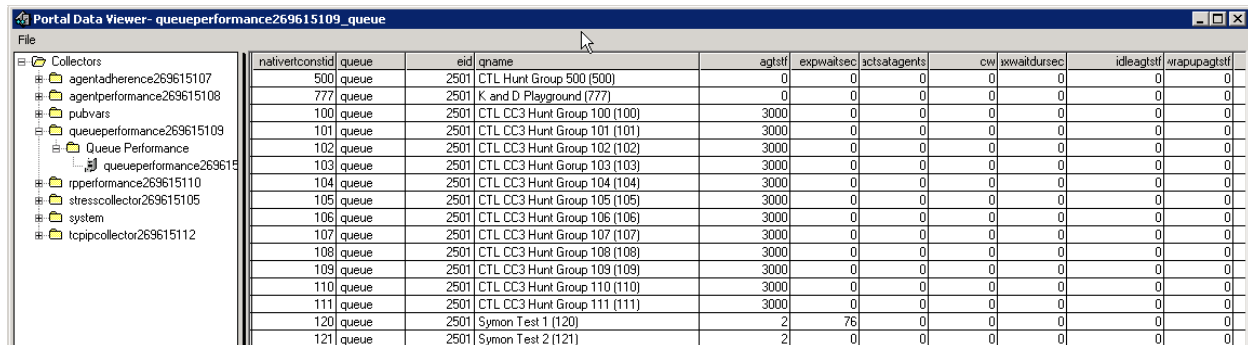
Use the Symon Portal Data Viewer to monitor for the real-time statistics values.

The screenshot shows the 'Portal Data Viewer - agentperformance269615108_agent' window. The left pane displays a tree view of collectors, with 'agentperformance269615108' selected. The main pane shows a table of performance data.

agentid	agent	eid	agentname	agentstate	gentstatedur	queue	extension	interactions	handles	activedursec	actived
12121205000	agent	2501	ICC3 Agent 12121205000 (12121205000)	Idle	1100		13035385000	0	0	0	
12121205001	agent	2501	ICC3 Agent 12121205001 (12121205001)	Idle	1098		13035385001	0	0	0	

9.2.3.3 Verify the Queue Performance Interface

Use the Symon Portal Data Viewer to monitor for the real-time statistics values.

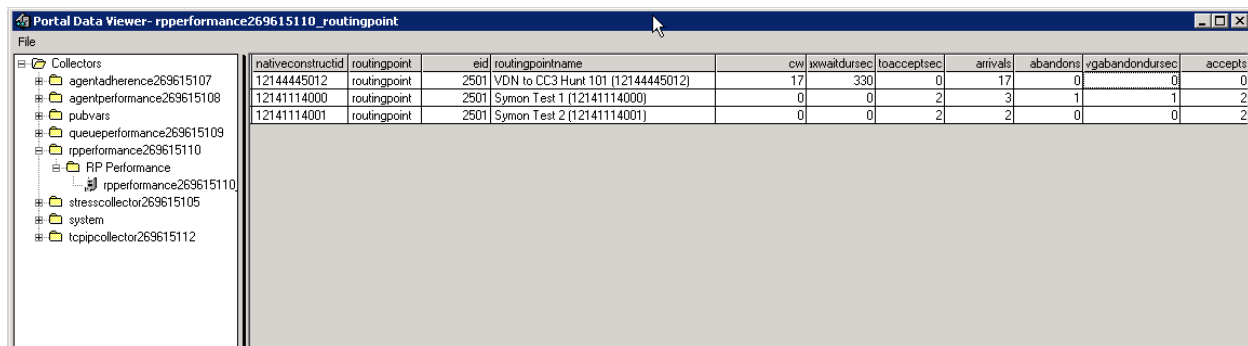


The screenshot shows the 'Portal Data Viewer - queueperformance269615109_queue' window. The left pane lists collectors, with 'queueperformance269615109' expanded to show 'Queue Performance'. The main pane displays a table of queue statistics.

nativeconstid	queue	eid	qname	agtstf	expwaitsec	actsatagents	cw	ixwaitdurec	idleagtstf	wrapagtstf
500	queue	2501	CTL Hunt Group 500 (500)	0	0	0	0	0	0	0
777	queue	2501	K and D Playground (777)	0	0	0	0	0	0	0
100	queue	2501	CTL CC3 Hunt Group 100 (100)	3000	0	0	0	0	0	0
101	queue	2501	CTL CC3 Hunt Group 101 (101)	3000	0	0	0	0	0	0
102	queue	2501	CTL CC3 Hunt Group 102 (102)	3000	0	0	0	0	0	0
103	queue	2501	CTL CC3 Hunt Group 103 (103)	3000	0	0	0	0	0	0
104	queue	2501	CTL CC3 Hunt Group 104 (104)	3000	0	0	0	0	0	0
105	queue	2501	CTL CC3 Hunt Group 105 (105)	3000	0	0	0	0	0	0
106	queue	2501	CTL CC3 Hunt Group 106 (106)	3000	0	0	0	0	0	0
107	queue	2501	CTL CC3 Hunt Group 107 (107)	3000	0	0	0	0	0	0
108	queue	2501	CTL CC3 Hunt Group 108 (108)	3000	0	0	0	0	0	0
109	queue	2501	CTL CC3 Hunt Group 109 (109)	3000	0	0	0	0	0	0
110	queue	2501	CTL CC3 Hunt Group 110 (110)	3000	0	0	0	0	0	0
111	queue	2501	CTL CC3 Hunt Group 111 (111)	3000	0	0	0	0	0	0
120	queue	2501	Symon Test 1 (120)	2	76	0	0	0	0	0
121	queue	2501	Symon Test 2 (121)	2	0	0	0	0	0	0

9.2.3.4 Verify the Routing Point Performance Interface

Use the Symon Portal Data Viewer to monitor for the real-time statistics values.



The screenshot shows the 'Portal Data Viewer - rpperformance269615110_routingpoint' window. The left pane lists collectors, with 'rpperformance269615110' expanded to show 'RP Performance'. The main pane displays a table of routing point statistics.

nativeconstructid	routingpoint	eid	routingpointname	cw	ixwaitdurec	toacceptsec	arrivals	abandons	vgabandondurec	accepts
12144445012	routingpoint	2501	VDN to CC3 Hunt 101 (12144445012)	17	330	0	17	0	0	0
12141114000	routingpoint	2501	Symon Test 1 (12141114000)	0	0	2	3	1	1	2
12141114001	routingpoint	2501	Symon Test 2 (12141114001)	0	0	2	2	0	0	2

10. Conclusion

These Application Notes describe the configuration steps required for Symon Enterprise Server 11.2.1 to interoperate with Avaya IQ Release 5.1.2 via custom developed real-time rt_socket interfaces. Compliance testing that was based upon the specified configuration has been completed successfully.

11. Additional References

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

- [1] *Administering Avaya Aura® Communication Manager*, June 2010, Release 6.0, Issue 6.0, Document Number 03-300509, available at <http://support.avaya.com>.
- [2] *Avaya IQ Standard Reports, Release 5.1*, November 2010, available at <http://support.avaya.com>
- [3] *Avaya IQ Administration, Release 5.1*, March 2011, available at <http://support.avaya.com>
- [4] *Symon*-<http://support.symon.com>

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