



Avaya Solution & Interoperability Test Lab

Application Notes for Symon Enterprise Server with Avaya Call Management System – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Symon Enterprise Server to interoperate with Avaya Call Management System via rt_socket interfaces. The rt_socket interfaces, developed by Avaya Professional Services organization, provide real-time data related to agents, skills, and Vector Directory Numbers.

Information in these Application Notes has been obtained through 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 Symon Enterprise Server (SES) with Avaya Call Management System (CMS).

As an Avaya contact center reporting product, CMS collects and reports contact center data from the ACD feature (Automatic Call Distributor) of Avaya Aura® Communication Manager. Avaya Professional Services has developed a line of adapters called `rt_socket` to facilitate integration of CMS with third party products.

SES is the engine that drives Symon's content management system. SES is responsible for collecting content from various sources, repurposing it according to pre-defined business rules and then distributing the repurposed content to the visual solution endpoints. SES uses internal TCP/IP Collectors to integrate with CMS via `rt_socket` adapters. With the integration, SES can monitor a wide range of real time statistics that are available from CMS. The TCP/IP Collector is a part of SES and is configured via Portal Administrator which runs either on SES or as a remote client. Data received by SES can be viewed using Portal Data Viewer, which is another element of SES.

`Rt_socket` adapters build on CMS custom reports to provide real-time contact center data required by SES. The `rt_socket` adapters developed for Symon and were covered in this compliance test included:

- Agent Performance Interface
- Skill Performance Interface
- VDN Performance Interface

2. General Test Approach and Test Results

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

2.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

On Communication Manager, relevant skills and Vector Directory Number (VDN) objects are configured to be "measured" for CMS. When a call travels through a "measured" object on Communication Manager, the ACD related data is sent to the CMS. CMS sends updates for agents, skills, and VDNs to SES. During the compliance testing data was sent every 5 seconds.

The feature test cases were performed manually. Incoming calls were made to the measured VDNs, skills, 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. Additional call scenarios such as call waiting time longer than service level target, abandoned calls, inbound extension calls to an agent in auxwork or after call work mode, and outbound extension calls from an agent in auxwork or after call work mode were also exercised.

The serviceability test cases were performed manually by disconnecting and reconnecting the LAN cable to the SES server, rebooting the SES server, and by restarting the CMS adapters.

For each field in the tested interfaces, the corresponding CMS custom report was used to validate the accuracy of data generated by CMS and displayed by the Portal Data Viewer of SES.

2.2. Test Results

The Symon Enterprise Server successfully passed the compliance test. All the fields in the three rt_socket interfaces including Agent Performance Interface, Skill Performance Interface, and VDN Performance Interface were verified.

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. CM, CMS, and IP Phones reside in one subnet. SES was installed on a virtual machine on a blade server which resides on a different subnet.

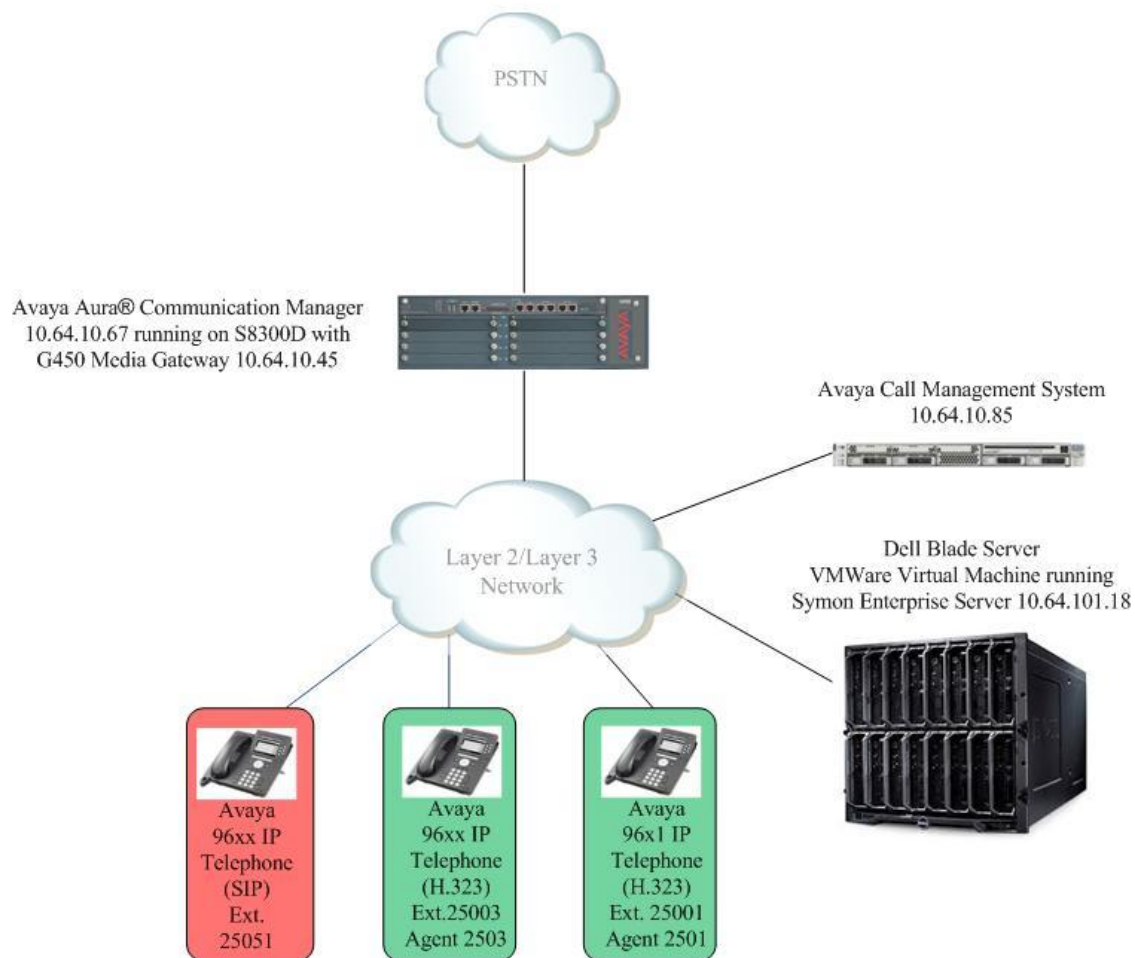


Figure 2: Symon Enterprise Server with CMS Test Configuration

4. Equipment and Software Validated

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

Equipment/Software	Version
Avaya S8300D Server running Avaya Aura® Communication Manager	Release 6.2 SP3 (02.0.823.0-20001)
Avaya G450 Media Gateway MGP MM710 T1 Module	HW 1 FW 31.20.0 HW 04 FW 015
Avaya Call Management System	R16.3
Symon Enterprise Server running under Windows Server 2008 R2 SP1 SYMON Portal Administrator	11.2.3 Series III 11, 2, 5030, 1
Avaya 96xx H.323 IP Telephones	Avaya one-X® Deskphone Release 3.1.1
Avaya 96x1 H.323 IP Telephones	Avaya one-X® Deskphone Release 6.2.2
Avaya 96x0 SIP Telephones	Avaya one-X® Deskphone Release 2.6.6

5. Configure Avaya Aura® Communication Manager

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

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

6. Configure Avaya Call Management System

This section provides the CMS configuration required for supporting SES integration, which includes the following:

- Configure real-time adapter parameters
- Activate the real-time adapter

6.1. Configure Real-time Adapter Parameters

Three `rt_socket` real-time adapters are installed in CMS to support SES integration. The parameters associated with the adapters are described below along with the values assigned shown in the screenshot. It is advised, however, that CMS adapter configuration should only be performed by the Avaya Professional Services organization. Questions about adapter configuration should be directed to the Avaya Professional Services.

HOST:	hostname or IP address of the Symon server. If a hostname is used, the name needs to be added to <code>/etc/hosts</code> file as well.
PORT:	TCP port
ACD:	ACD being monitored
OPTS:	list of options include <code>-E</code> for end of record string and <code>-u</code> for the user representing SES permissions
REPORT:	custom report name for this adapter
MONITOR_LISTS:	objects ids to monitor
REFRESH:	refresh rate

Sessions 1, 2, and 3 in the screenshot below specify the parameter values for the Agent, Skill, and VDN adapters respectively.

```
#
#----- Session 1 -----
HOST1=symon          # the receiving server's host name in /etc/hosts
PORT1=7011           # the receiving server's port
ACD1=3               # ACD being monitored
OPTS1="-E ==EOD== -u cms3" # required for Symon
REPORT1=symon_agent  # respective custom report name
MONITOR_LIST1="1-999" # skills to monitor
REFRESH1=5           # respective report refresh rate
#----- Session 2 -----
HOST2=symon
PORT2=7012
ACD2=3
OPTS2="-E ==EOD== -u cms3" # required for Symon
REPORT2=symon_skill
MONITOR_LIST2="1-999"
REFRESH2=5
#----- Session 3 -----
HOST3=symon
PORT3=7013
ACD3=3
OPTS3="-E ==EOD== -u cms3" # required for Symon
REPORT3=vdnrpt
MONITOR_LIST3="25900" # ignored by vdnrpt
REFRESH3=5
```

6.2. Activate Real-time Adapters

This section describes how to activate the `rt_socket` adapters. Logging in to CMS using an SSH client and proper credentials. Change directory to `/export/home/pserv/rt_socket`. Run the `./menurta` command to access the **Realtime Socket Menu**. From the menu, choose **2** to stop all sessions. Each session corresponds to one real-time interface for CMS.

```

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

Which rt_socket session do you want to stop? [1-32] [all]
stopping rt_socket session: all
Stopping rt_socket session 1, please wait...
Stopping rt_socket session 2, please wait...
Stopping rt_socket session 3, please wait...

Press Enter to return to menu:

```

Once all sessions are stopped, press **Enter** to return to the **RT_Socket menu** screen. Choose **1** from the menu to start all sessions.

```

----- RT_Socket Menu -----
1) Start RT_Socket Interface
2) Stop RT_Socket Interface
3) Check Status
4) Display License Info
5) View Maintenance Log
6) Show Version
7) Change Input Parameters
8) Display Configuration
0) Exit
=====
Choice ==> 1
Which RT_Socket session do you want to start? [1-32] [all]
Starting session 1, please wait...
Starting session 2, please wait...
Starting session 3, please wait...

Press Enter to return to menu:

```

Once all sessions are started, press **Enter** to return to the **RT_Socket menu** screen and then **0** to exit.

7. Configure Symon Enterprise Server

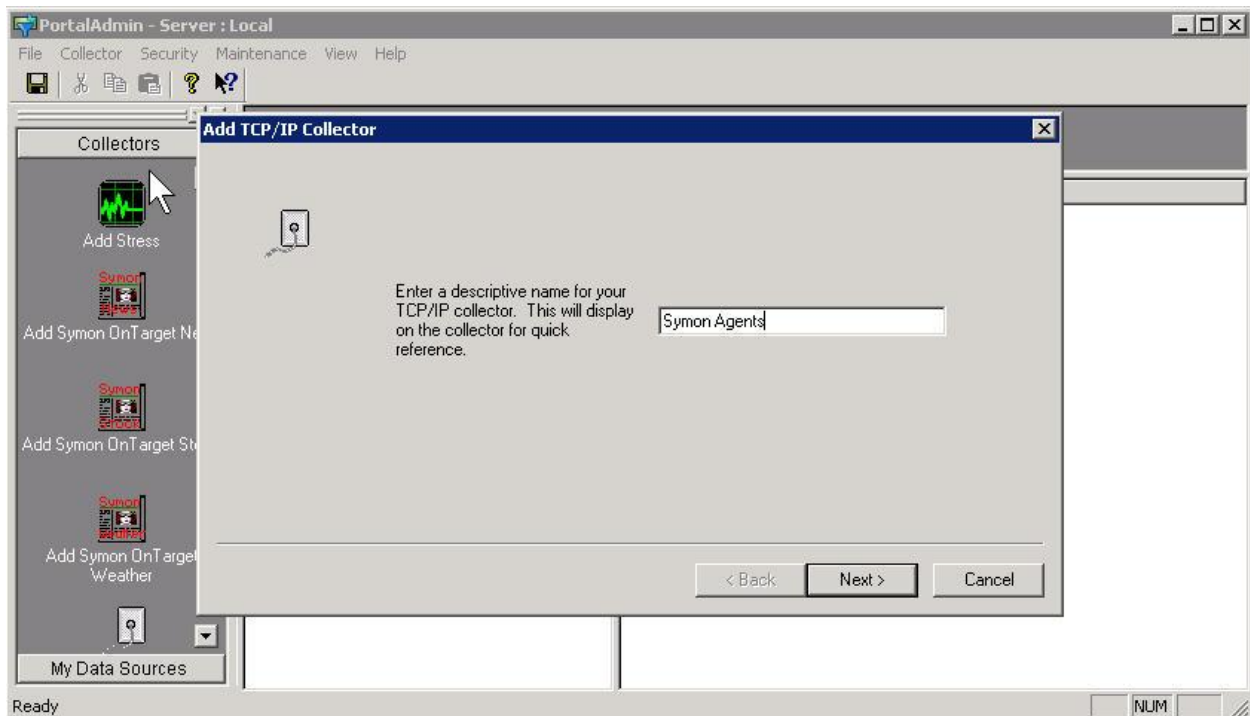
This section describes how to configure SES.

7.1. Launch Symon Portal Administrator

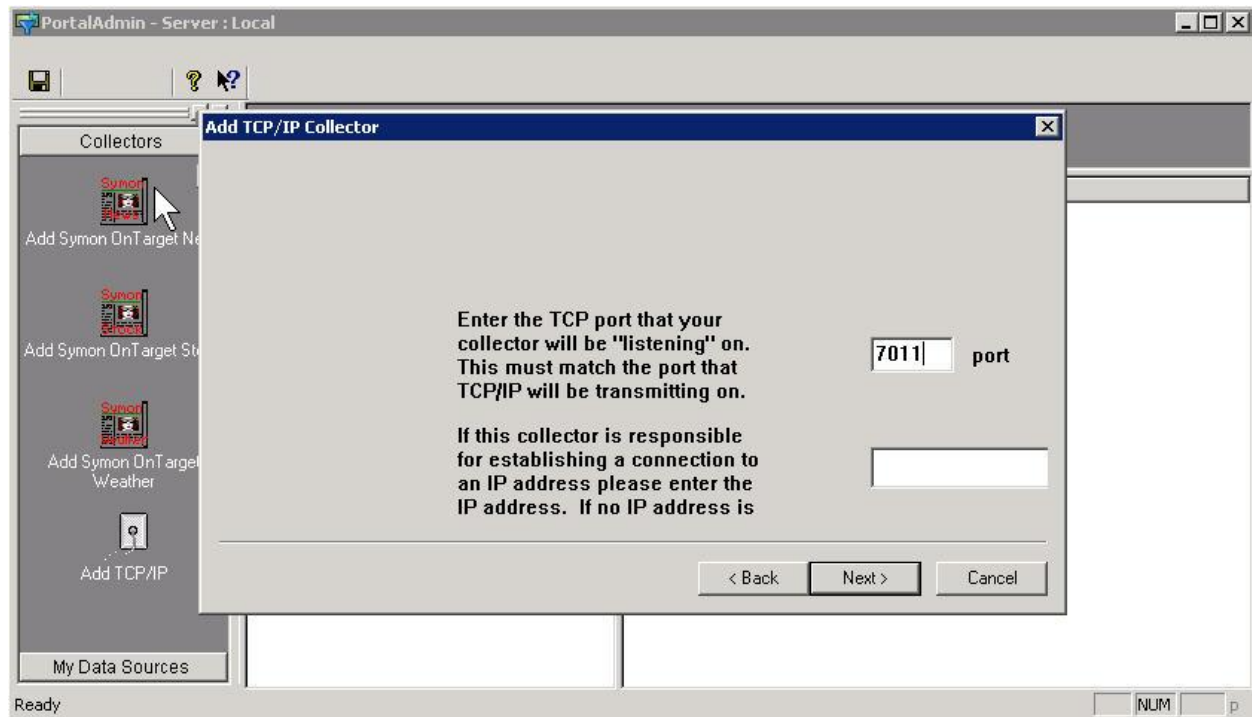
Start **Symon Portal Administrator** by clicking **Start → All Programs → Symon Enterprise Software → Portal Admin**. Log in with proper credentials. The **PortalAdmin – Server : Local** page is displayed (not shown).

7.2. Configure TCP/IP Collector

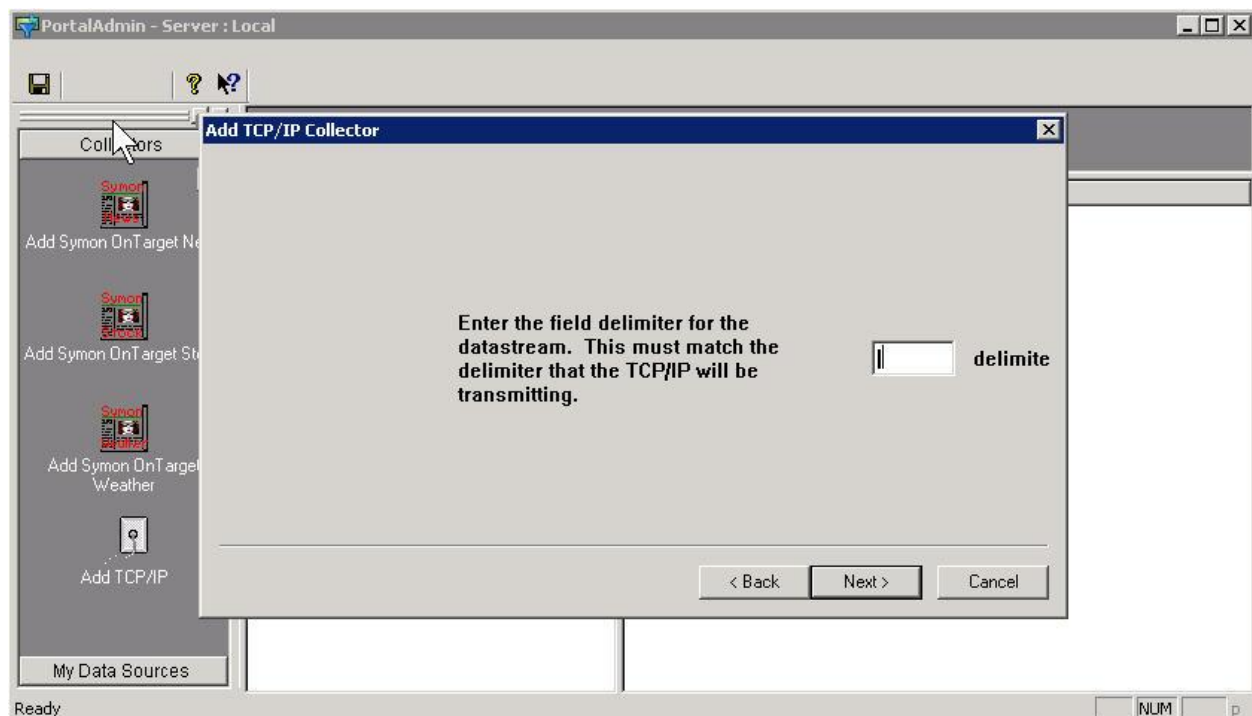
SES uses three data feeds from CMS. Each data feed needs a TCP/IP Collector defined in SES. To create a TCP/IP collector, click the **Add TCP/IP** icon in the **Collectors** section of the left pane. After the **Add TCP/IP Collector** screen pops up, enter the name of the collector, in this case “Symon Agent”, and click **Next**.



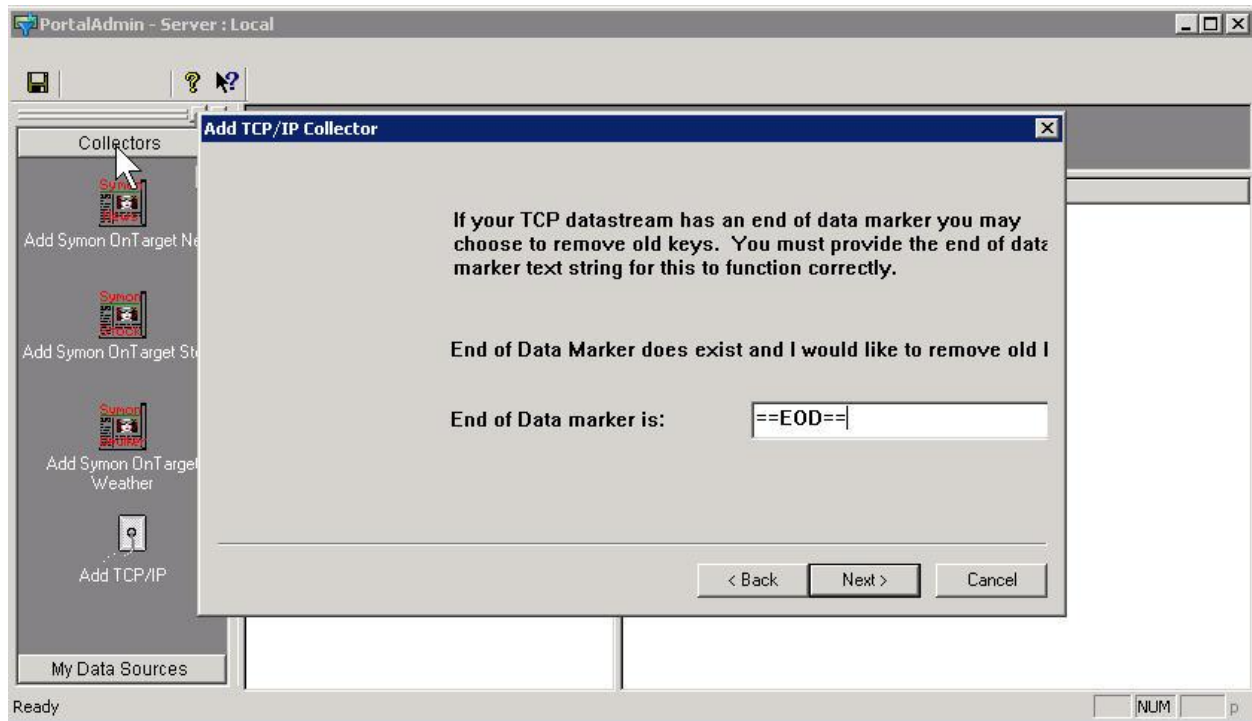
On the next screen enter the port number configured in **Section 6.1** for this adapter and click **Next**.



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



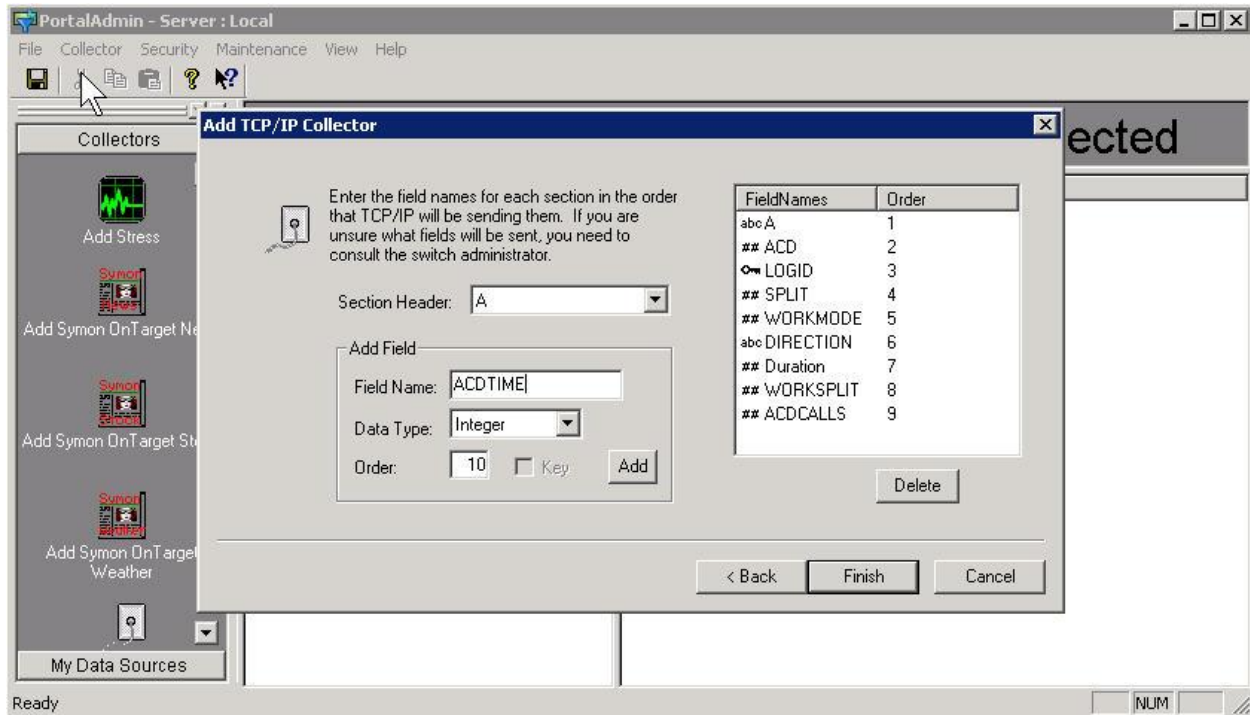
On the next screen enter the **End of Data marker** and click **Next**. In this compliance test “==EOD==” is sent as the **End of Data marker** by the rt_socket adapters.



On the next screen set the **Section Header**. The **Section Header** is the first field in each data record. It will be used to identify a group of fields to be monitored. The three collectors, “Symon Agents”, “Symon Skills”, and “Symon VDN” use “A”, “S”, and “F1” as the section headers respectively. Enter the section header value. Click **Add to List**, then click **Next**.

The screenshot shows the 'PortalAdmin - Server : Local' window. On the left, a sidebar contains a 'Collectors' section with icons for 'Add Symon OnTarget No...', 'Add Symon OnTarget St...', 'Add Symon OnTarget Weather', and 'Add TCP/IP'. Below this is a 'My Data Sources' section. A modal dialog titled 'Add TCP/IP Collector' is open in the center. It contains the text 'Enter section header information. Enter the exact string to search for in the header.' Below this is a text input field labeled 'Enter a section header' and an 'Add to List' button. To the right of the input field is a list box titled 'Sections to Monitor' which contains the letter 'A'. At the bottom of the dialog are three buttons: '< Back', 'Next >', and 'Cancel'. The status bar at the bottom of the window shows 'Ready' on the left and 'NUM p' on the right.

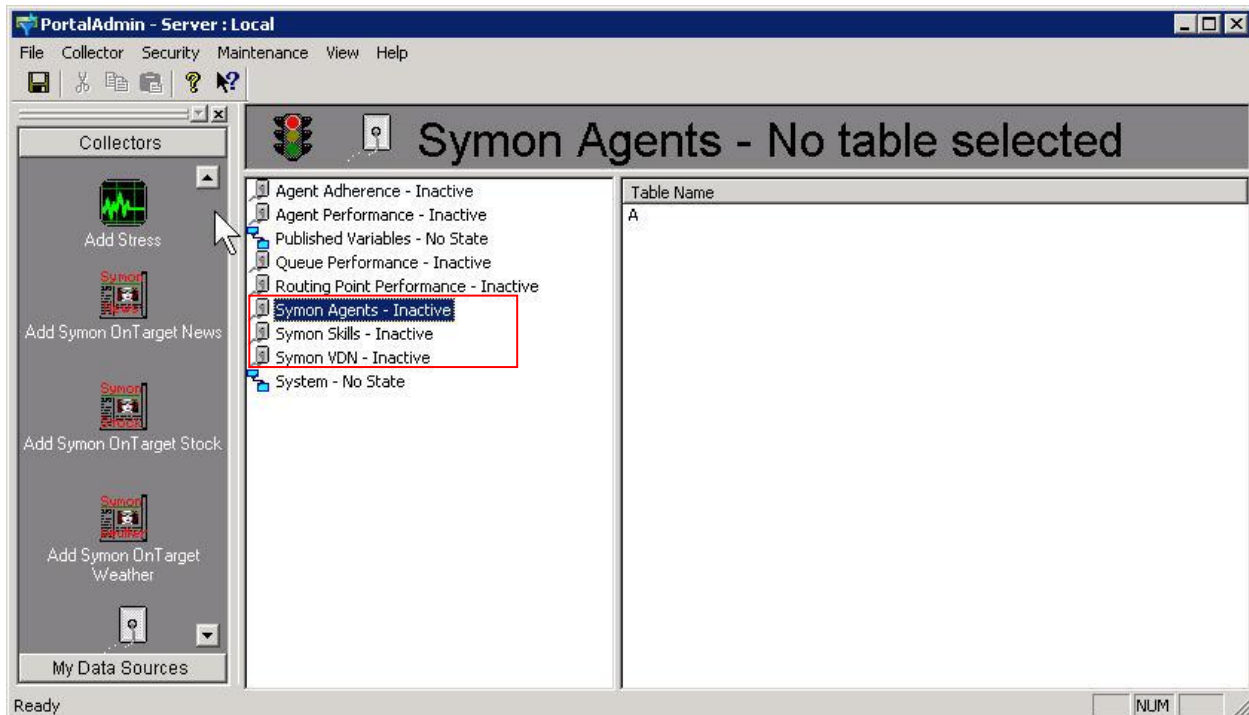
On the next screen add the fields that will be monitored in the section. Select the **Section Header** for this field, enter a **Field Name**, select a **Data Type**, define the **order**, and click **Add**. Repeat this process on the same page until all the fields have been added. The screen below shows a partial list of the fields for “Symon Agents”. Please note that the section header is also defined as the first field in the Section.



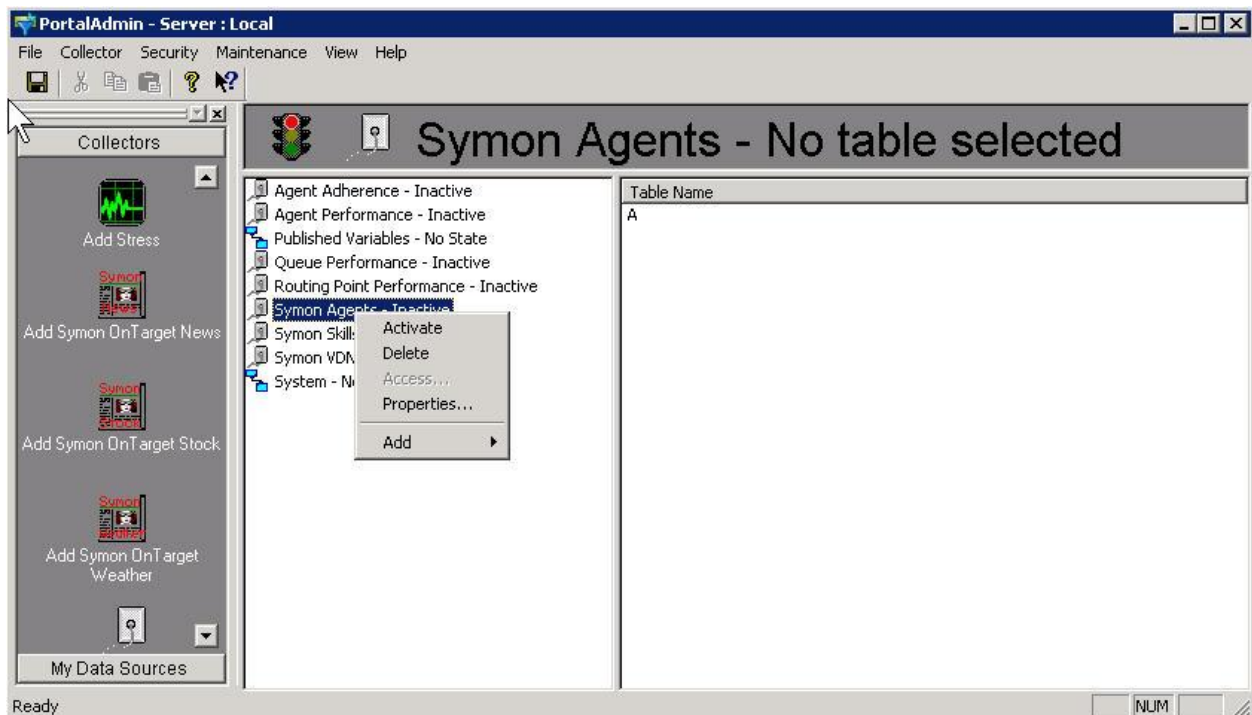
Note: Check the **Key** box if this field will be used by the collector to associate incoming data with this report. At least one key is required for each section. In this case, the **LOGID** field is configured as a key.

Click **Finish**. The newly configured collector will show up in the middle pane with the state being “Inactive”.

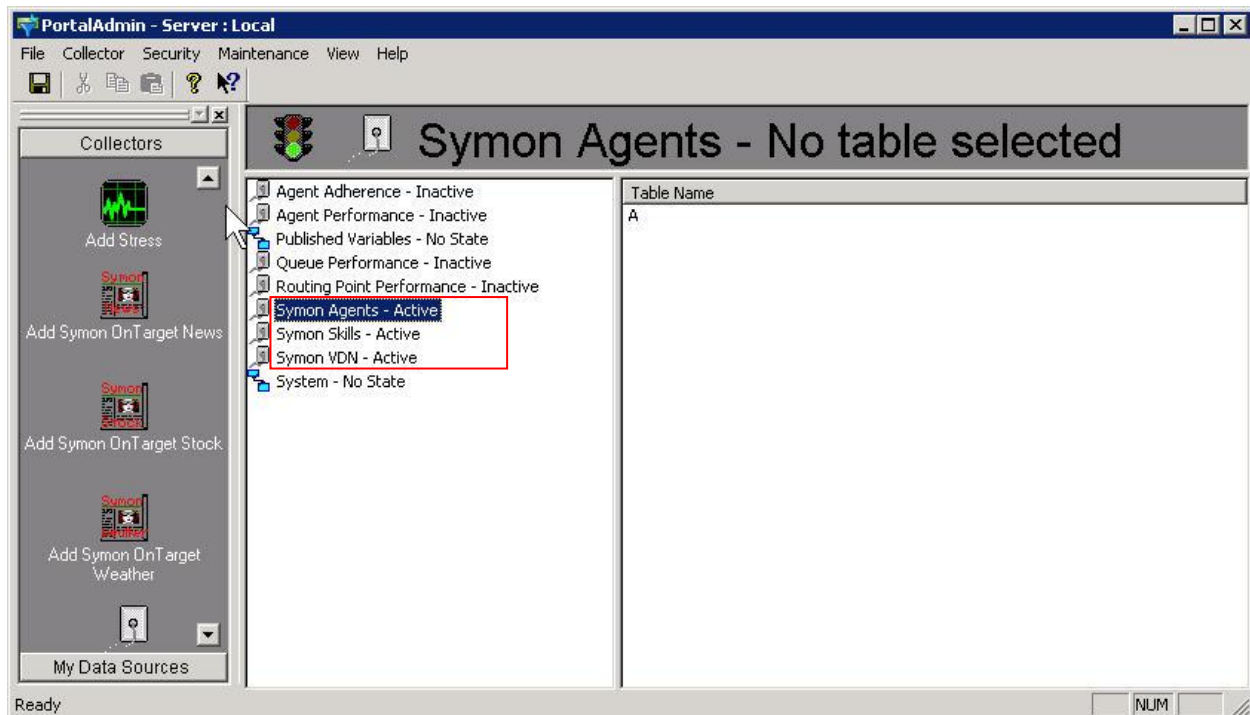
Repeat the process for all the data feeds. The screenshot below shows that three TCP/IP Collectors, “Symon Agents”, “Symon Skills”, and “Symon VDN”, have been added to the system.



Right-click on one of the newly added collectors and select **Activate**.

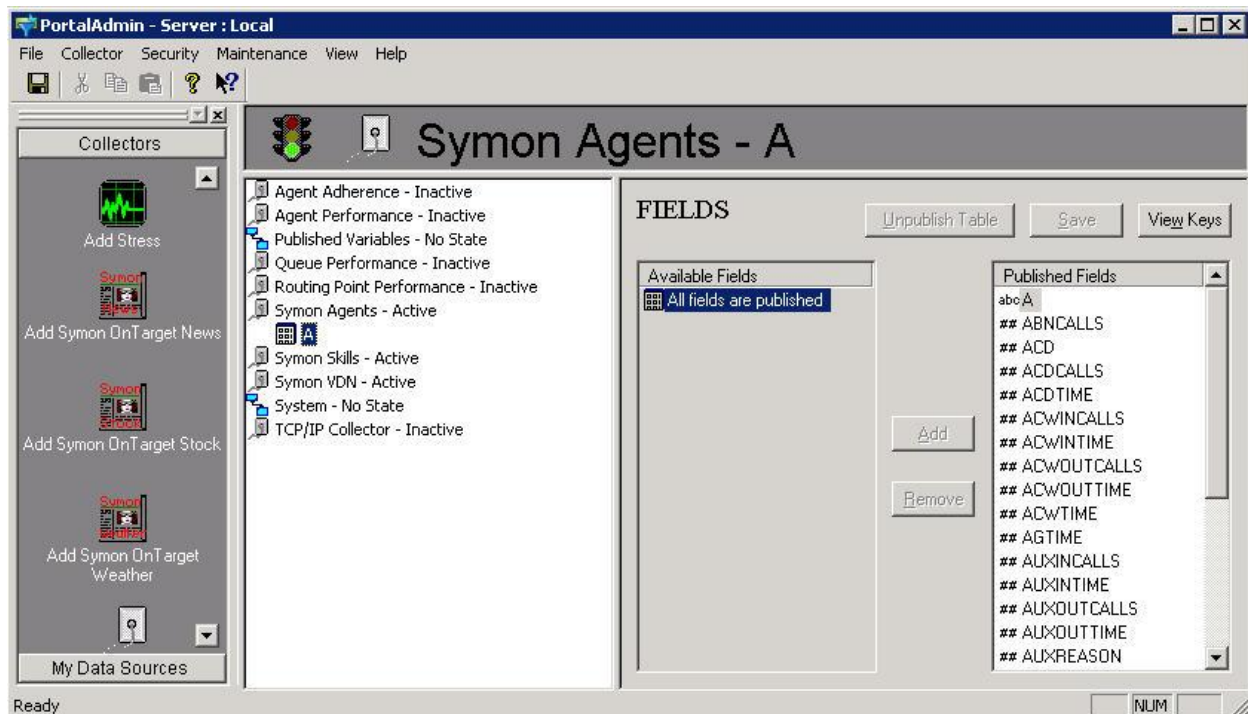


The state will change to **Open** then to **Active**. The screenshot below shows that all three TCP/IP Collectors have been activated.

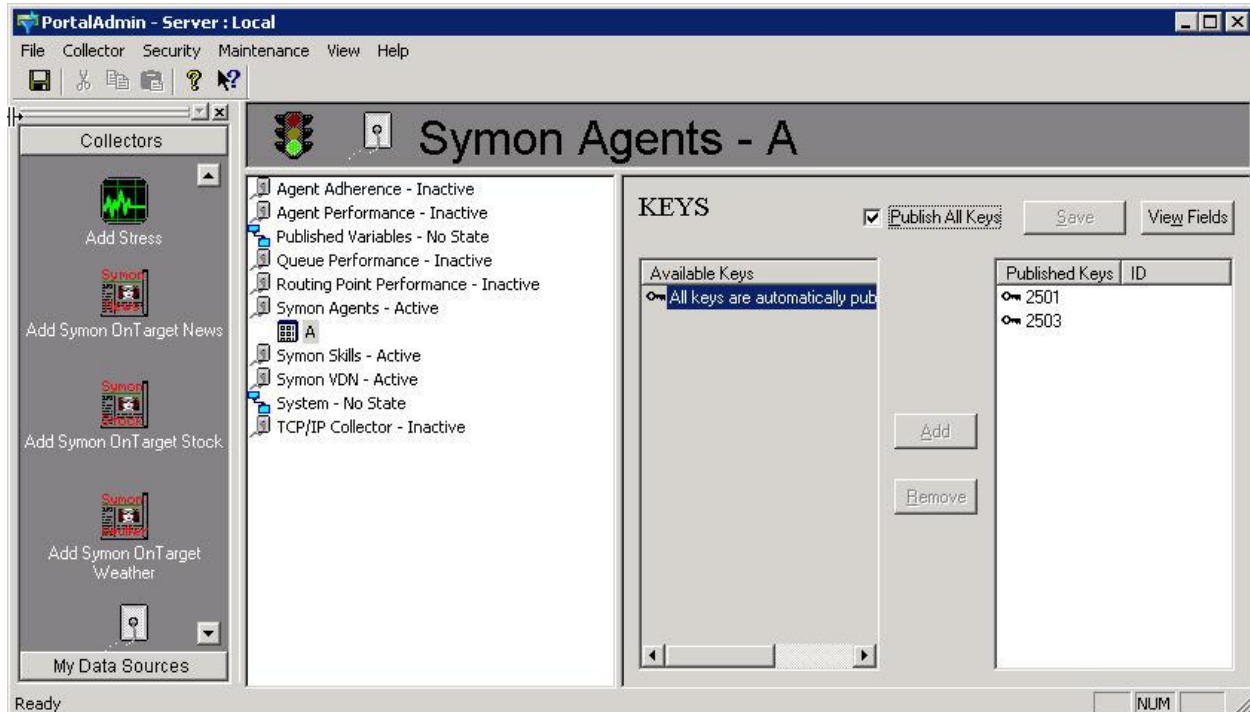


7.3. Publish Keys for TCP/IP Collector

From the list of collectors double click "Symon Agents" collector to show the section header "A". Click the section header. The **FIELDS** window is displayed.



From the **FIELD** window click the **View Keys** button. The **KEYS** window shown below is displayed. Check the **Publish All Keys** box, and click **Save**.



Repeat the steps for "Symon Skills" and "Symon VDN" collectors.

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

8. Verification Steps

This section describes the steps to use to verify proper configuration of CMS and SES.

8.1. Verify CMS Adapters

From the **RT_Socket Menu** screen, choose **3** to check the status of the sessions. Each session corresponds to a `rt_socket` interface to SES. Ensure that all three sessions defined for SES are running.

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

```
Checking status of all configured sessions...  
  
RT_Socket session 1 is running and is connected  
RT_Socket session 2 is running and is connected  
RT_Socket session 3 is running and is connected  
  
Press Enter to return to menu:
```

8.2. Verify Symon Enterprise Server

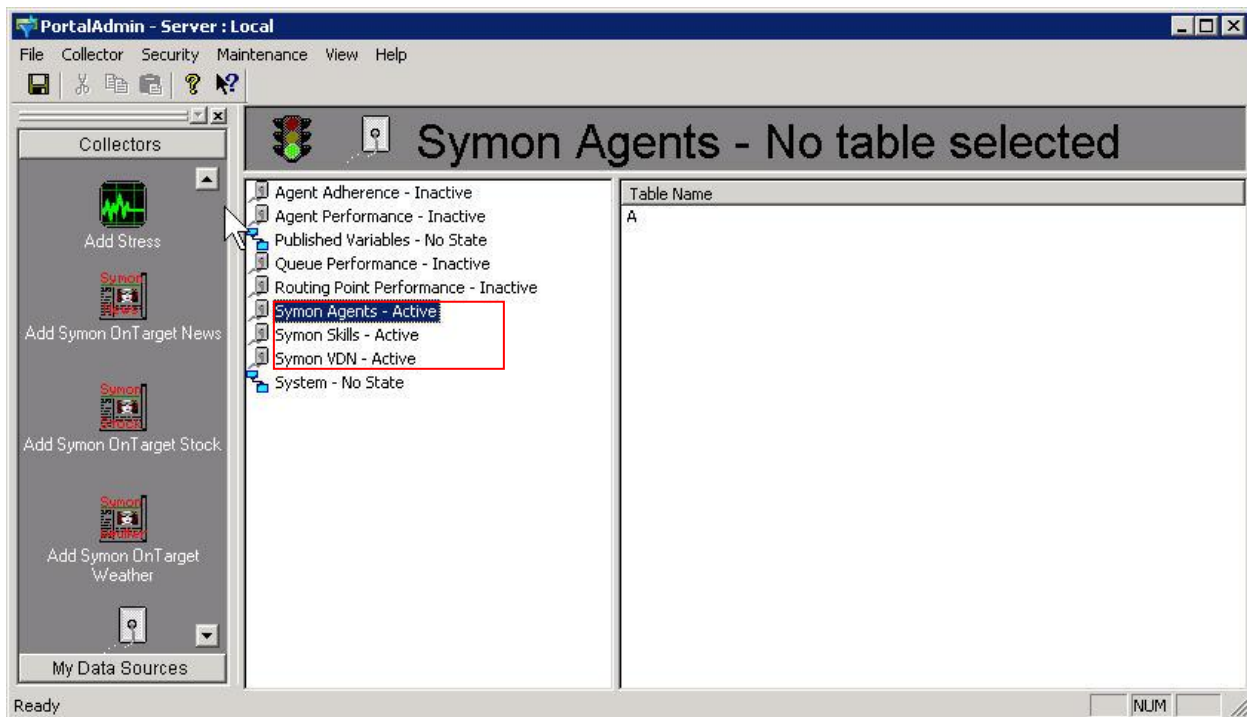
This section describes how to verify proper functionality of SES.

8.2.1. Verify Collector State

The Collectors can have the following states:

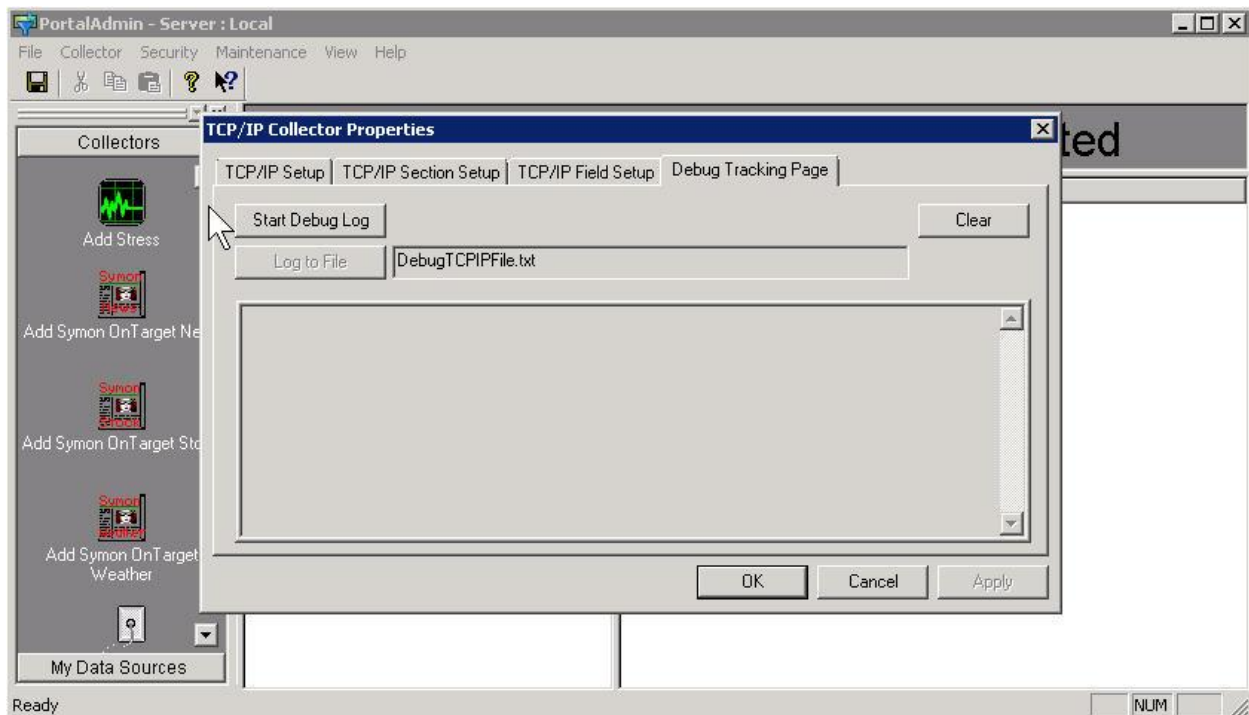
- Inactive – Collector is administratively inactive.
- Open – Collector is administratively active but not receiving data.
- Active - Collector is administratively active and receiving data.
- No State – Collector has no state.

In the middle pane make sure that the three collectors used by this test are in “Active” state.

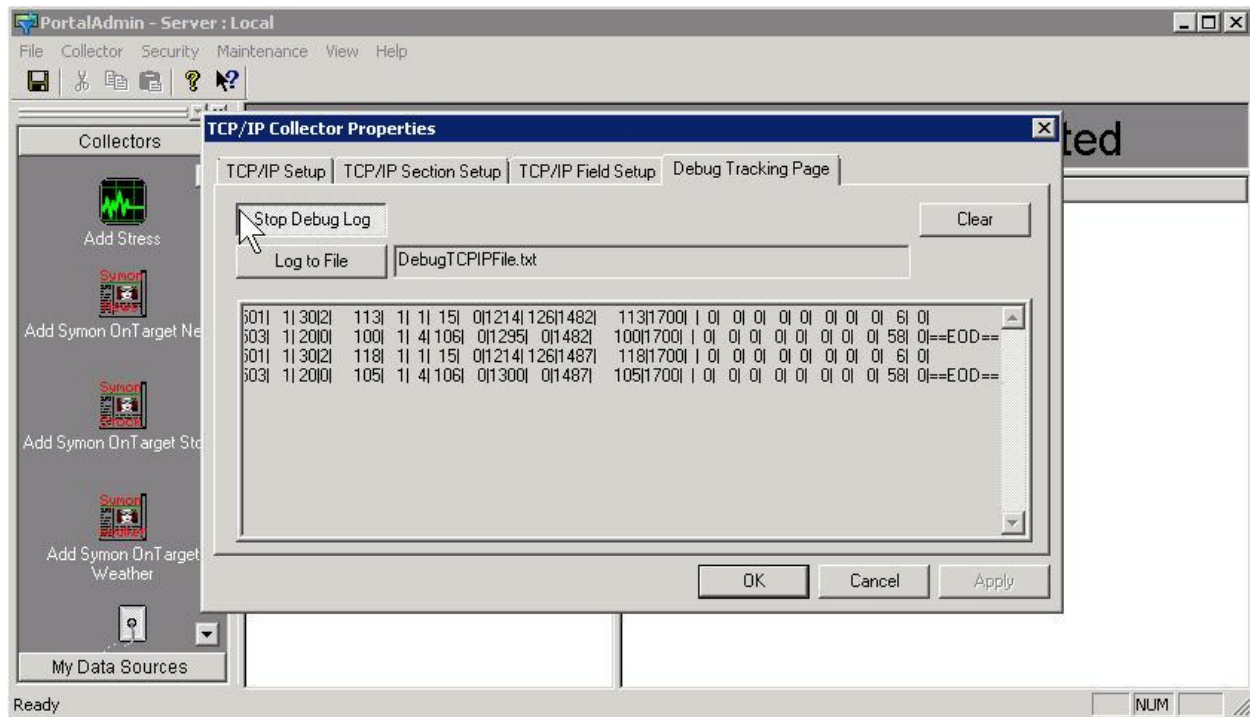


8.2.2. Verify Collector Data Using Debug

Right-click on a collector used for this test (not shown) with an “Active” state and select **Properties**. A window will pop up to ask the user to deactivate the collector if a change is to be made to the collector. Click **OK** to move forward. The **TCP/IP Properties** screen will be displayed. Select the **Debug Tracking Page** tab.



The following example is a snapshot of the **Symon Agent** data. Repeat the process for all three collectors.



Start the **Portal Data Viewer** by clicking **Start → All Programs → Symon Enterprise Software → Portal Data Viewer**. Select a particular collector to view the real-time update of data. Verify that the data is the same as the output of the corresponding CMS custom report.

Portal Data Viewer													
File													
<div> <div>Collectors</div> <div> <div>agentadherence355336193</div> <div>agentperformance355336195</div> <div>pubvars</div> <div>queueperformance355336196</div> <div>routingpointperformance355336197</div> <div>symonagents355336199 <div> <div>Symon Agents</div> <div> <div>symonagents355336199_1</div> <div>symonskills355336201</div> <div> <div>Symon Skills</div> <div> <div>symonskills355336201_s</div> </div> </div> </div> </div> <div>symonvdrn355336202 <div> <div>Symon VDN</div> <div> <div>symonvdrn355336202_f1</div> </div> </div> </div> <div>system <div> <div>System</div> <div> <div>system_ibstate</div> <div>system_systemdata</div> </div> </div> </div> </div> </div> </div>													
ibrefnum	logid	a	acd	split	workmode	direction	duration	worksplt	acdcalls	acctime	holdtime	ti_availtime	
355336199	2501	A	3	1	30	2	19	1	1	15	0	121	
355336199	2503	A	3	1	20	0	6	1	4	106	0	120	

These Application Notes describe the configuration steps required for Symon Enterprise Server 11.2.3 to interoperate with CMS Release 16.3 via custom developed real-time `rt_socket` interfaces. Compliance testing based upon the specified configuration has been completed successfully.

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

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Symon CMS163

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