



Avaya Solution & Interoperability Test Lab

Application Notes for Resource Software International Shadow CMS with Avaya IP Office Server Edition - Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Resource Software International Shadow CMS to interoperate with Avaya IP Office Server Edition 9.1. Resource Software International Shadow CMS is a reporting solution that uses the Station Message Detail Recording records from Avaya IP Office to track phone calls and produce detailed reports.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as the observations noted in **Section 2.2**, to ensure that their own use cases are adequately covered by this scope and results.

Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

These Application Notes describe the configuration steps required for Resource Software International (RSI) Shadow CMS to interoperate with Avaya IP Office Server Edition solution release 9.1.

RSI Shadow CMS is a reporting solution that uses the Station Message Detail Recording (SMDR) records from Avaya IP Office to track phone calls and produce detailed reports.

Avaya IP Office Server Edition solution consists of a primary Linux Server Edition and a 500V2 expansion. Both systems are linked by IP Office Line IP trunks that can enable voice networking across these trunks to form a multi-site network. Each system in the solution automatically learns each other's extension numbers and user names. This allows calls between systems and support for a range of internal call features.

2. General Test Approach and Test Results

The feature test cases were performed manually. Different types of calls were made along with different actions initiated from the user telephones, to verify proper parsing and displaying of received SMDR data by Shadow CMS.

The serviceability test cases were performed manually by disconnecting and reconnecting the Ethernet connection to Shadow CMS. The test results and observations are listed in **Section 2.2**.

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.

The feature testing focused on verifying the proper parsing and displaying of SMDR data by Shadow CMS for call scenarios including internal, voicemail, inbound PSTN, outbound PSTN, hold, reconnect, transfer, conference, park, forward, and account codes. The verification included Chronological Detail and Account Code Detail reports that were generated from the received SMDR data.

The serviceability testing focused on verifying the ability of Shadow CMS to recover from adverse conditions, such as disconnecting/reconnecting the Ethernet connection to Shadow CMS.

2.2. Test Results

All test cases were executed and verified. There are some observations below from the compliance testing:

- IP Office release 9.1 introduced changes in the SMDR logger related to IP Office Small Community Network (SCN). Four fields 31, 32, 33, and 34 in the SMDR log identify calls made through the IP Office Line IP trunks in SCN solution, but the current version of RSI Shadow CMS application does not use these 4 fields to associate calls made through the IP Office Line IP trunk. Therefore, Shadow CMS generates report on calls across a SCN solution by reporting on each SCN node individually. For example consider the case of an outbound PSTN call initiated from a user in the IPO Server Edition Linux server going through the IP Office Line and exiting through the PRI trunk in the IPO 500V2 expansion to PSTN. This is one outbound external call but Shadow CMS reports it as two outbound external calls: one call record in the IPO Server Edition Linux server and another call record in the 500V2 expansion.
- Shadow CMS is able to collect Party1Device and Party2Device, show it correctly in the database calls table and optionally show it in the Comment field of report.

2.3. Support

Technical support on Shadow CMS can be obtained through the following:

- Phone: (800) 891-6014
- Email: support@telecost.com
- Web: www.telecost.com

3. Reference Configuration

Figure 1 illustrates the setup used to verify the RSI Shadow CMS solution with Avaya IP Office Server Edition solution. One Shadow CMS application is installed and deployed on a Windows Server 2012 R2 Standard running on VMware machine. Avaya IP Office Server Edition solution consists of a primary Linux Server Edition and a 500V2 expansion. Simulated PSTN was connected to Avaya IP Office 500V2 expansion via ISDN/T1 trunk. Avaya IP deskphones, Avaya Communicator for Windows softphone, digital and analogue phones were used to register to both the Server Edition and the 500V2 expansion to make calls between these systems.

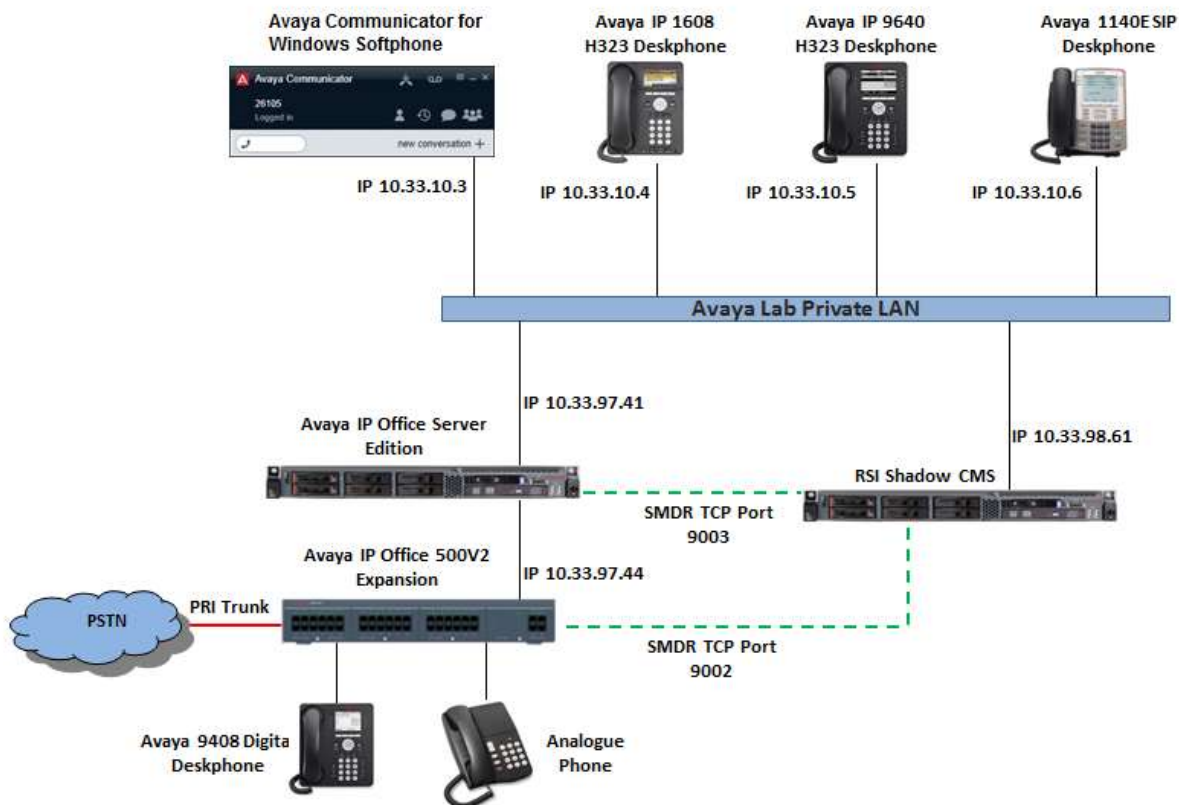


Figure 1: Test Diagram for RSI Shadow CMS application with Avaya IP Office Server Edition Solution

4. Equipment and Software Validated

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

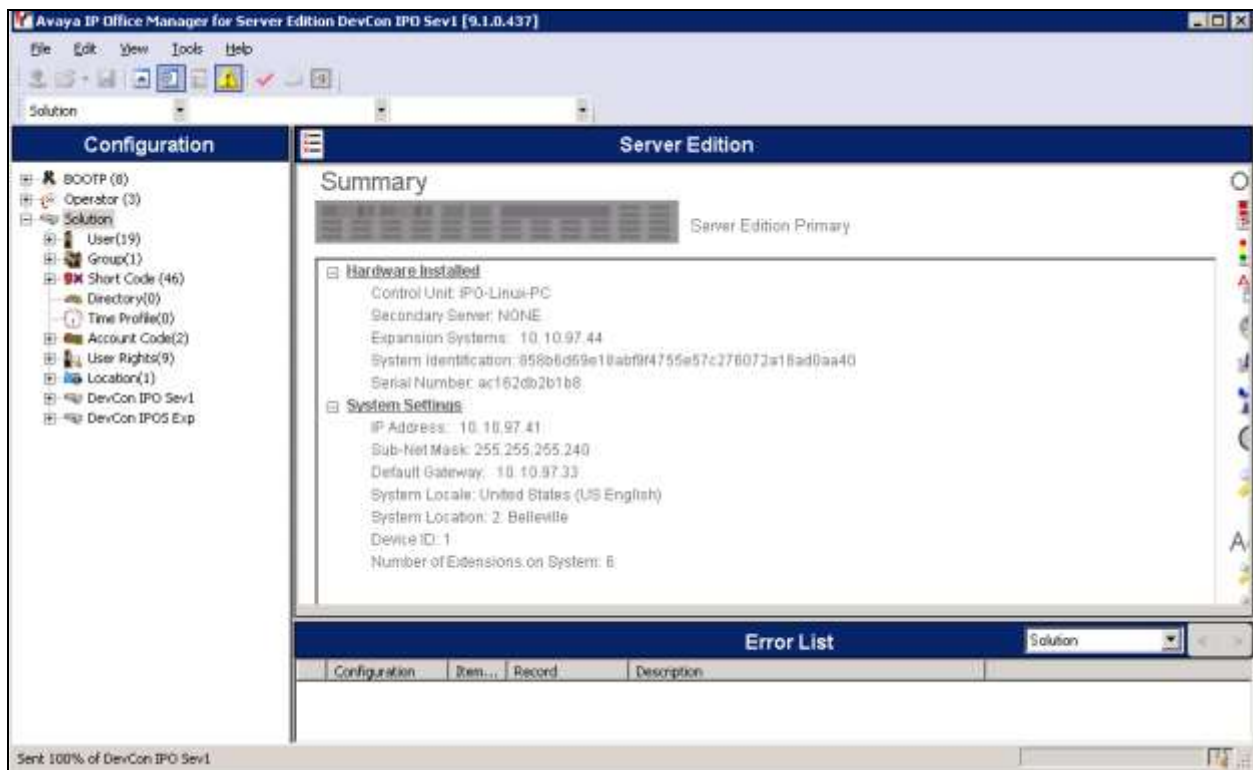
| Equipment/Software | Release/Version |
|--|--------------------|
| Avaya IP Office Server Edition running on HP ProLiant DL360 G7 | 9.1.0 Build 437 |
| Avaya IP Office 500V2 Expansion | 9.1.0 Build 437 |
| Avaya Communicator for Windows Softphone | 2.0.3.30 |
| Avaya IP 1608 H323 Deskphone | 1.360A |
| Avaya IP 9640 H323 Deskphone | 3.230A |
| Avaya IP 1140E SIP Deskphone | 4.4.18.0 |
| Avaya Digital 9404 Deskphone | N/A |
| RSI Shadow CMS | 5.0.6.0 |
| Windows Server 2012 R2 Standard running on VMware | VMware version 5.5 |

Note: Compliance Testing is applicable when the tested solution is deployed with a standalone IP Office 500 V2 and also when deployed with IP Office Server Edition in all configurations.

5. Configure Avaya IP Office

The document assumes that Avaya IP Office Server Edition has been installed and configured to work with a 500V2 expansion. This section only describes the details on how to configure the IP Office Server Edition solution to work with Shadow CMS application.

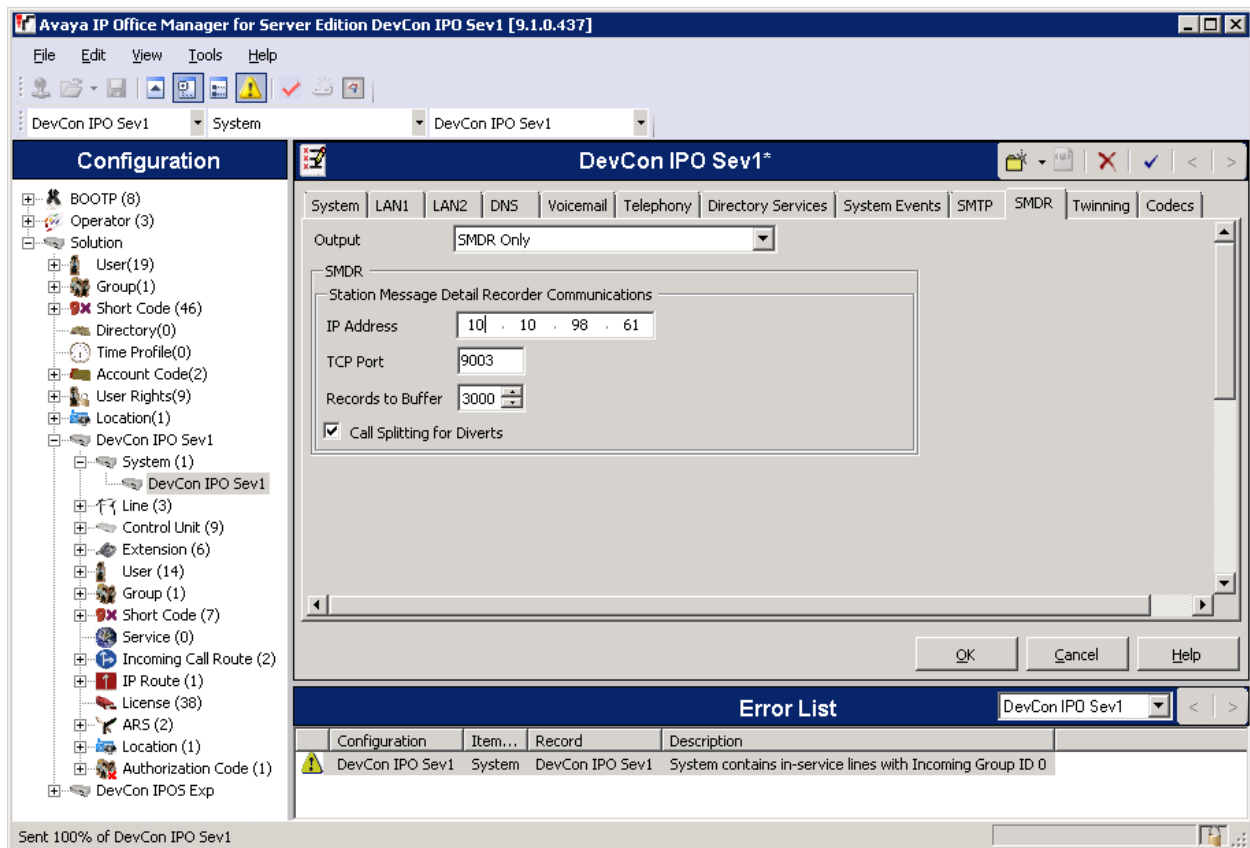
From a PC running the IP Office Manager application, select **Start → Programs → IP Office → Manager** to launch the Manager application. Select the proper IP Office system, and log in using the appropriate credentials. The Avaya IP Office Manager for Server Edition screen is displayed as shown in the screen below.



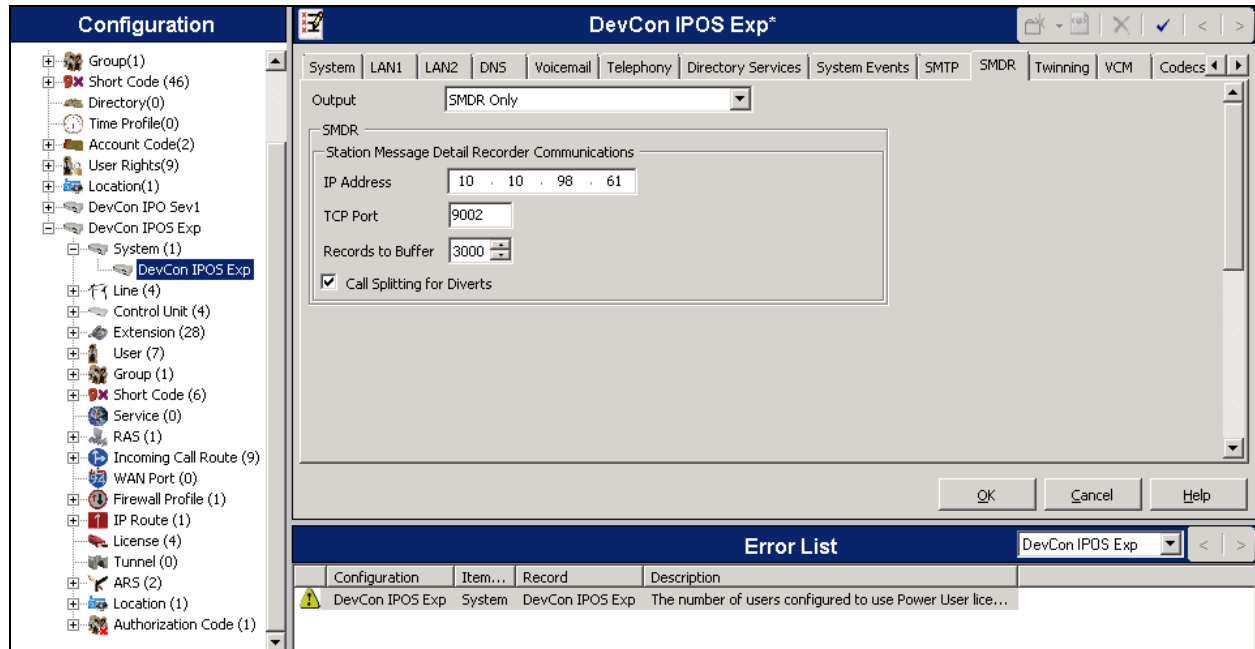
From the configuration tree in the left pane, navigate to **DevCon IPOs Sev1 → System → DevCon IPOs Sev1** to display the Server Edition screen in the right pane. Select the **SMDR** tab. Select “SMDR Only” from the **Output** drop-down list, to display the SMDR sub-section.

For IP Address, enter the IP address 10.10.97.61 of Shadow CMS. For TCP Port, enter a desired port, in this case “9003”. Make a note of the port number, to be used later for configuring Shadow CMS.

Modify Records to Buffer to the desired value, and check **Call Splitting for Diverts**. The record buffer is used by IP Office to cache SMDR records in case of communication failure with Shadow CMS. Click **OK** button to save the configuration.



Navigate to **DevCon IPOS Exp** → **System** → **DevCon IPOS Exp** to display the 500V2 expansion in the right pane. Select the **SMDR** tab. Use the same information above to configure SMDR in the 500V2 expansion, except for the TCP port, in the **TCP Port** field enter the port “9002”. Click **OK** button to save the configuration.



6. Configure RSI Shadow CMS

This section provides the procedures for configuring Shadow CMS. The procedures include the following areas:

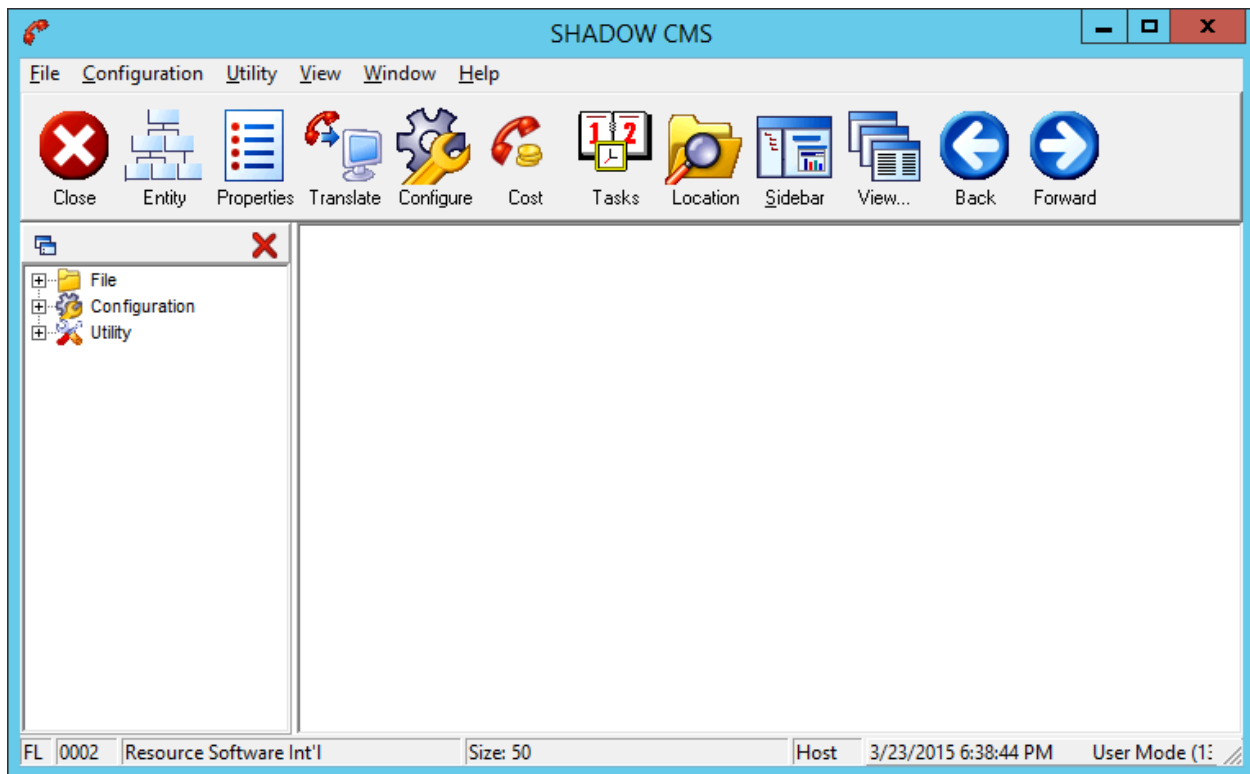
- Launch CMS application
- Administer CDR driver
- Administer data source
- Administer socket settings

The configuration of Shadow CMS is typically performed by RSI Support Services. The procedural steps are presented in these Application Notes for informational purposes.

6.1. Launch CMS application

From the Shadow CMS server, double click on CMS icon in the desktop to display the **SHADOW CMS** screen.

Select **File → Properties** (not shown) from the top menu.



6.2. Administer CDR driver

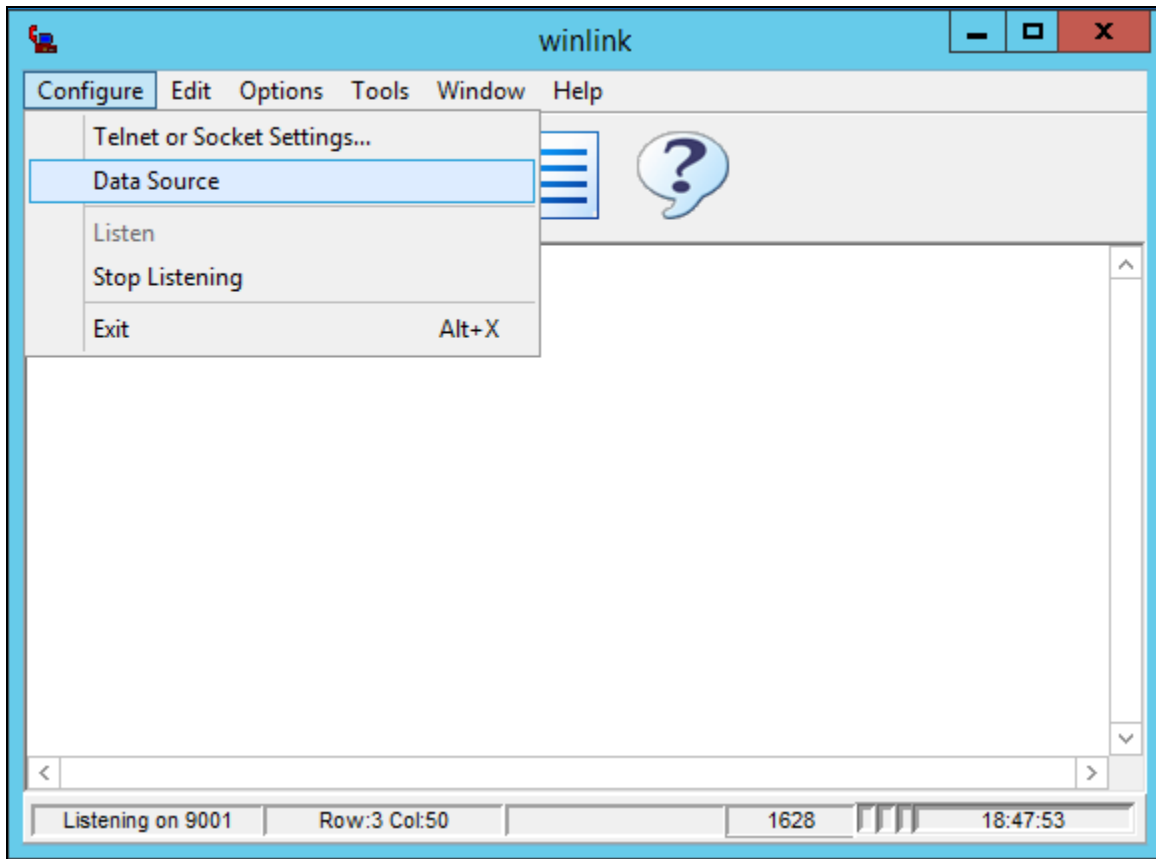
The **Properties** screen is displayed. Select the **Data** tab, followed by the **CDR** sub-tab. In the **Driver / Parser** sub-section, select “AVAYAIP6 Avaya IP Office” for Driver Name, as shown below and leave other fields at default.

The screenshot shows a 'Properties' dialog box with a blue title bar and a close button (X) in the top right corner. The dialog has several tabs: 'Company Info', 'Data', 'Organization', 'Tax', 'Carrier Services', 'Report', 'Time Zone', and 'File Paths'. The 'Data' tab is selected, and within it, the 'CDR' sub-tab is active. The 'Source' section contains an 'Input Mode' dropdown menu set to 'Winlink IP & Serial Data Storage', a 'Configure...' button, an 'Application' text field with the path 'C:\Program Files (x86)\RSI\CMS\drivers\winlink.exe', and a 'Source File Name and Location' section with a text field containing 'C:\Program Files (x86)\RSI\CMS\0002.RAW' and a 'Browse...' button. Below these are two checked checkboxes: 'Erase source file after translation' and 'Cost Records during polling process'. The 'Driver / Parser' section features a 'Driver Name' dropdown menu with 'AVAYAIP6 Avaya IP Office' selected, and a 'Description' text area containing 'AVAYAIP6.PRS', 'Dec 11, 2002', and 'CMS,Revolution'. At the bottom of the dialog are three buttons: 'Apply', 'OK', and 'Cancel'.

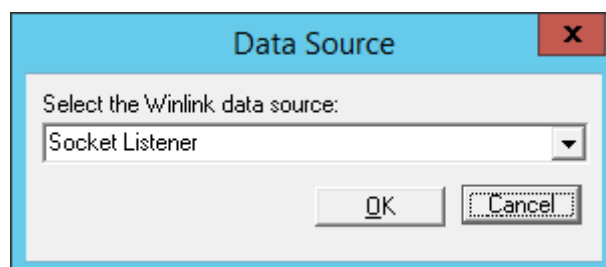
6.3. Administer Data Source

From the **SHADOW CMS** screen shown in **Section 6.1**, navigate to **Utility → Winlink Data Storage** (not shown) from the top menu, to display the **winlink** screen below.

Select **Configure → Data Source** from the top menu.

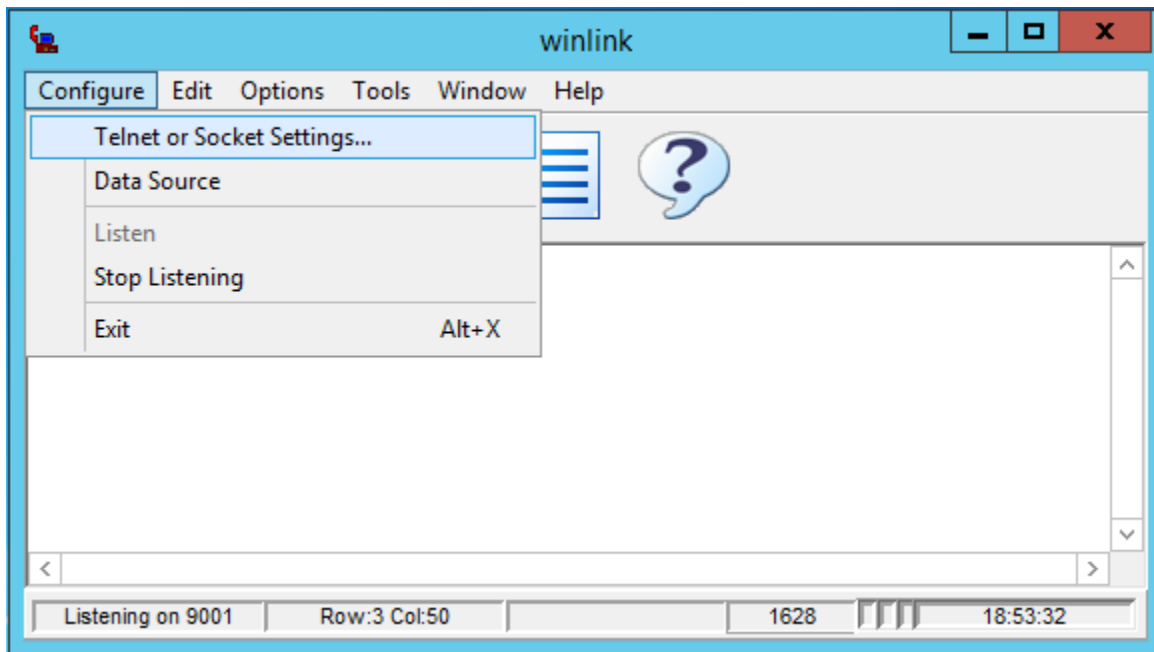


The **Data Source** screen is displayed next. Select “Socket Listener” from the drop-down list, as shown below.



6.4. Administer Socket Settings

From the **SHADOW CMS** screen shown in **Section 6.1**, navigate to **Utility → Winlink Data Storage** (not shown) to display the **winlink** screen. Select **Configure → Telnet or Socket Settings...** from the top menu as shown below.

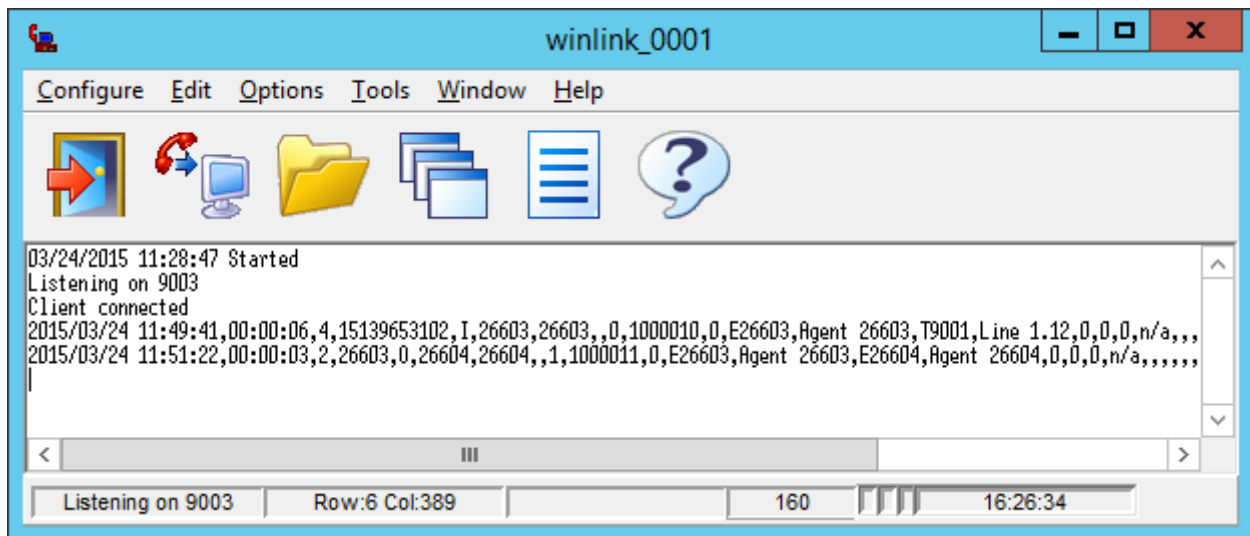


The **IP Configuration** screen is displayed next. For **Name (or IP address)**: enter the IP address of the Shadow CMS server. For **Port**, enter the TCP port from **Section 5**. Retain the default values in the remaining fields.

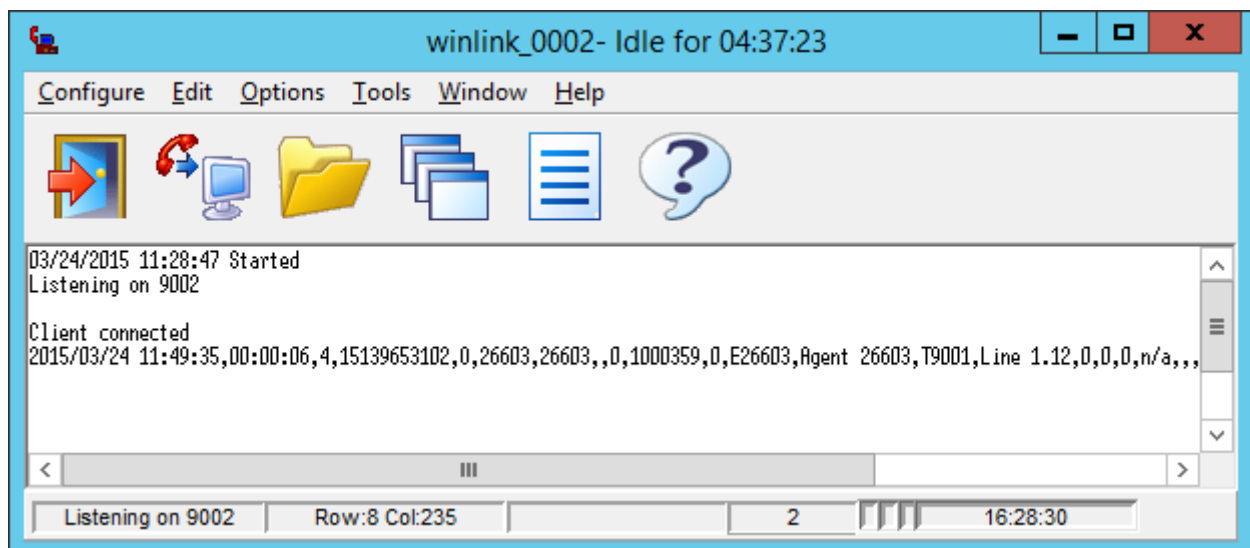
The screenshot shows the 'IP Configuration' dialog box. It has a title bar with a close button. The dialog contains the following fields and controls:

- Settings:**
 - Name (or IP address):** A text field containing '10.10.98.61'.
 - Port:** A text field containing '9003'.
 - User Name:** An empty text field.
 - Password:** An empty text field.
 - Protocol:** A group box containing three radio buttons:
 - TCP:** Selected (indicated by a filled circle).
 - UDP:** Unselected (indicated by an empty circle).
 - Proprietary:** Unselected (indicated by an empty circle).
- Buttons:** 'OK' and 'Cancel' buttons at the bottom right.

The **winlink_0001** screen is displayed next. Verify that the application is started and listening on the proper TCP port, the screen below shows the winlink listening on port “9003” for SMDR records of the IP Office Server Edition.



Repeat steps from **Section 6.3** and **6.4** to create another winlink listening port “9002” for the SMDR records of the IP Office 500V2 expansion.

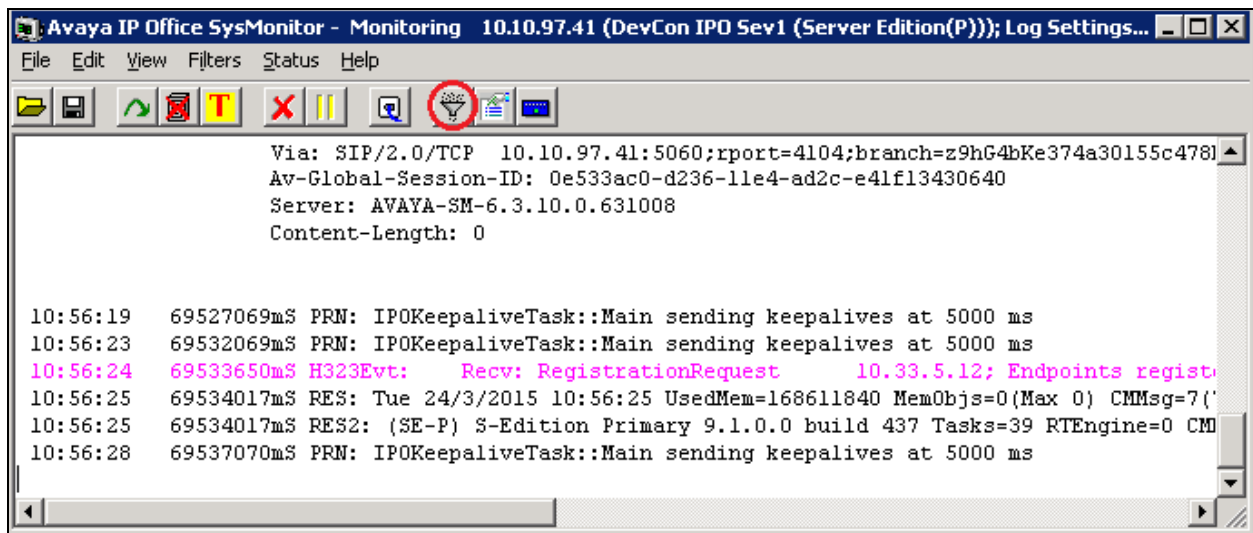


7. Verification Steps

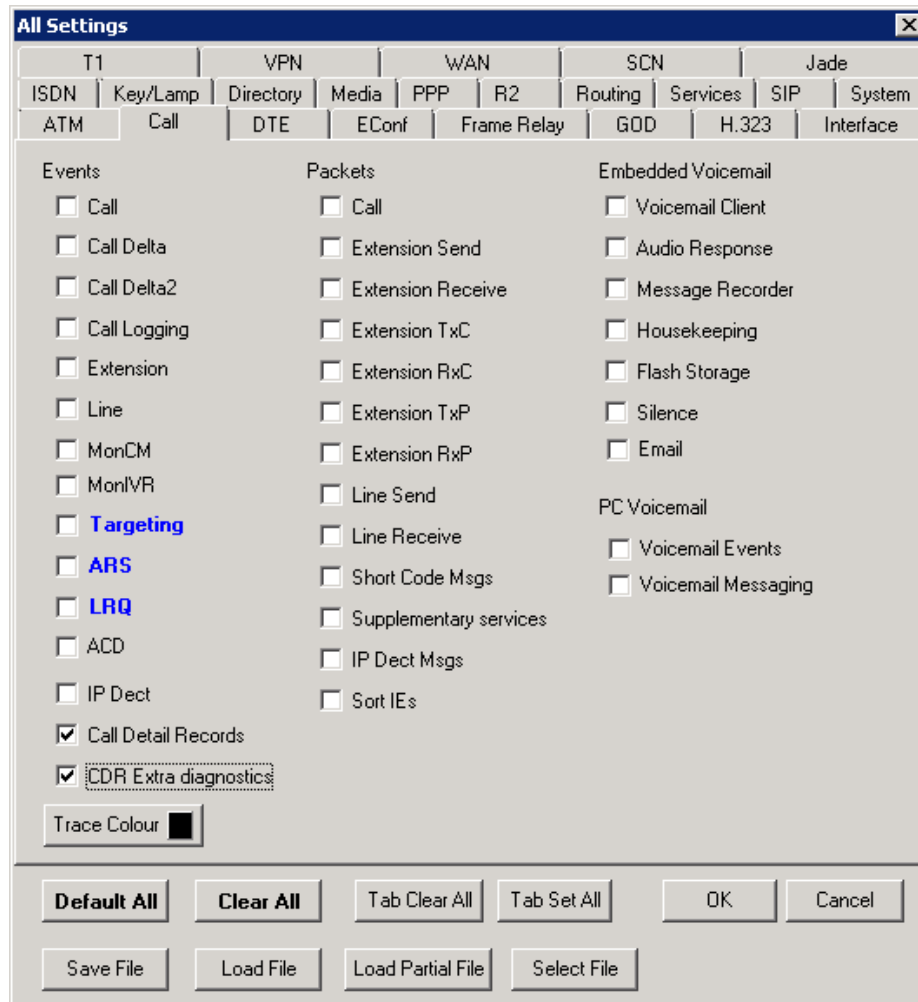
This section provides the tests that can be performed to verify proper configuration of IP Office and Shadow CMS.

7.1. Verify Avaya IP Office

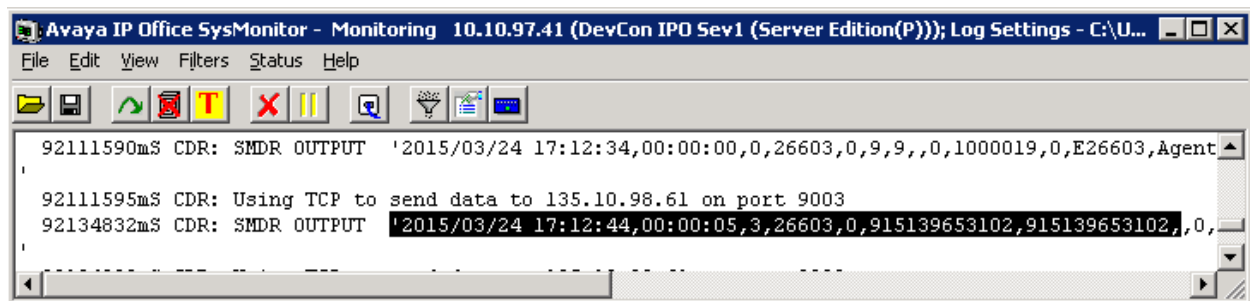
From a PC running the Avaya IP Office Monitor application, select **Start → Programs → IP Office → Monitor** to launch the application. The **Avaya IP Office SysMonitor** screen is displayed, as shown below. Click on the **Filter** icon.



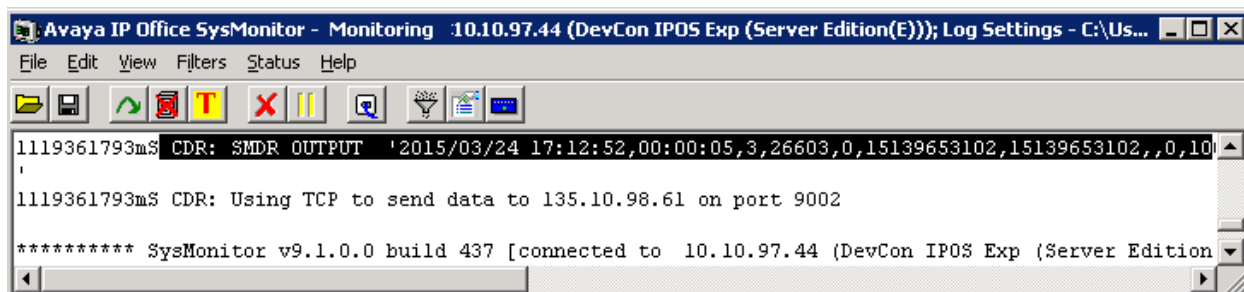
The **All Settings** screen is displayed. Check **Call Detail Records** and **CDR Extra diagnostics**, as shown below.



Make and complete a call, such as outbound trunk call from an extension in the IPO Server Edition to PSTN. Verify that raw SMDR data is displayed on the **Avaya IP Office SysMonitor** screen; the screen below shows the call record for outbound PSTN call on the IPO Server Edition.

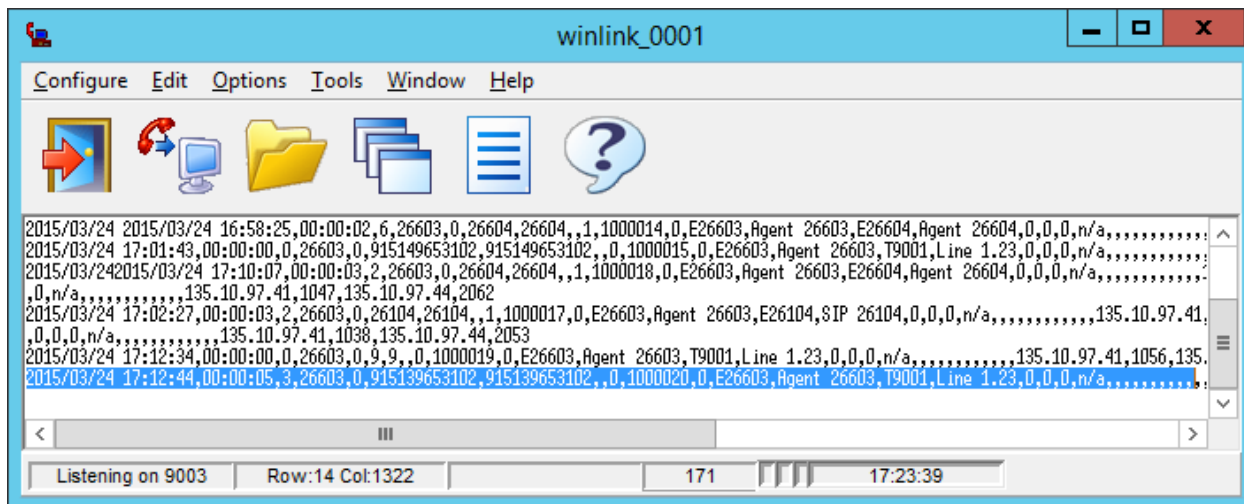


Since the outbound PSTN call from an extension in the IPO Server Edition goes through IP Office Line IP trunk first and then uses the PRI trunk in IPO 500V2 expansion that connects to PSTN, this results in one additional SMGR record generated in the 500V2 expansion. The **Avaya IP Office SysMonitor** of the 500V2 expansion below shows the call record for the outbound PSTN call.

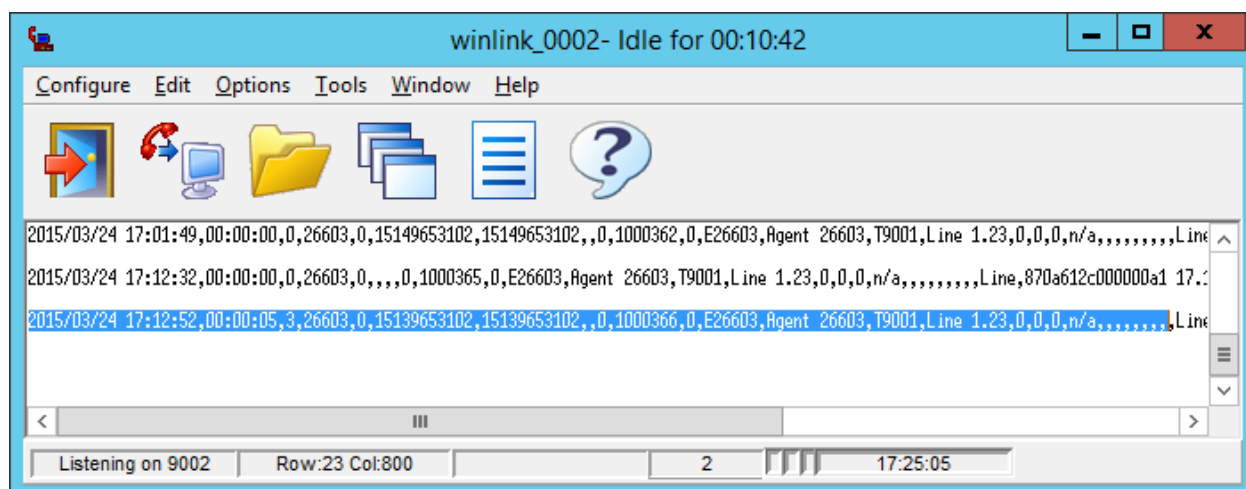


7.2. Verify RSI Shadow CMS

From the Shadow CMS server, there are two **winlink** windows to listen on the IPO Server Edition solution: one listening on port 9003 of the IP Office Server Edition primary and another listening on port 9002 of the IP Office 500V2 expansion. The **winlink_0001** screen below shows the call record received from the IP Office Server Edition, verify that an entry is displayed for each SMDR record output from **Section 7.1**



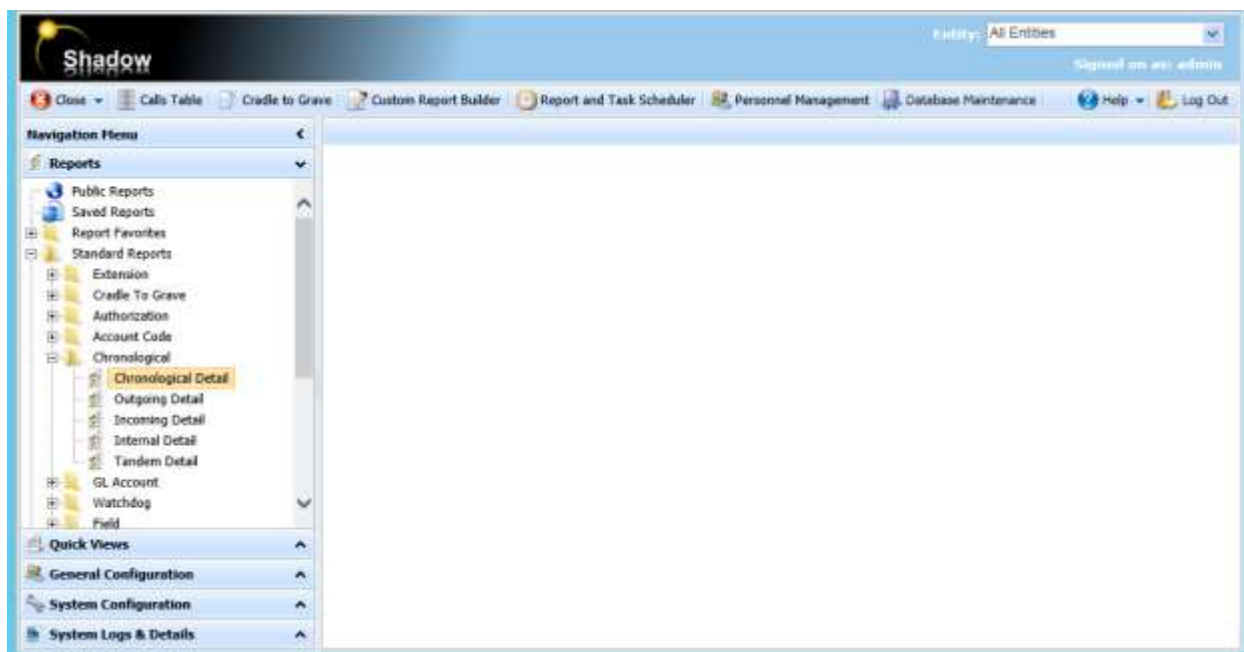
The **winlink_0002** window below shows the call record for the outbound PSTN call received from the IP Office 500V2 expansion.



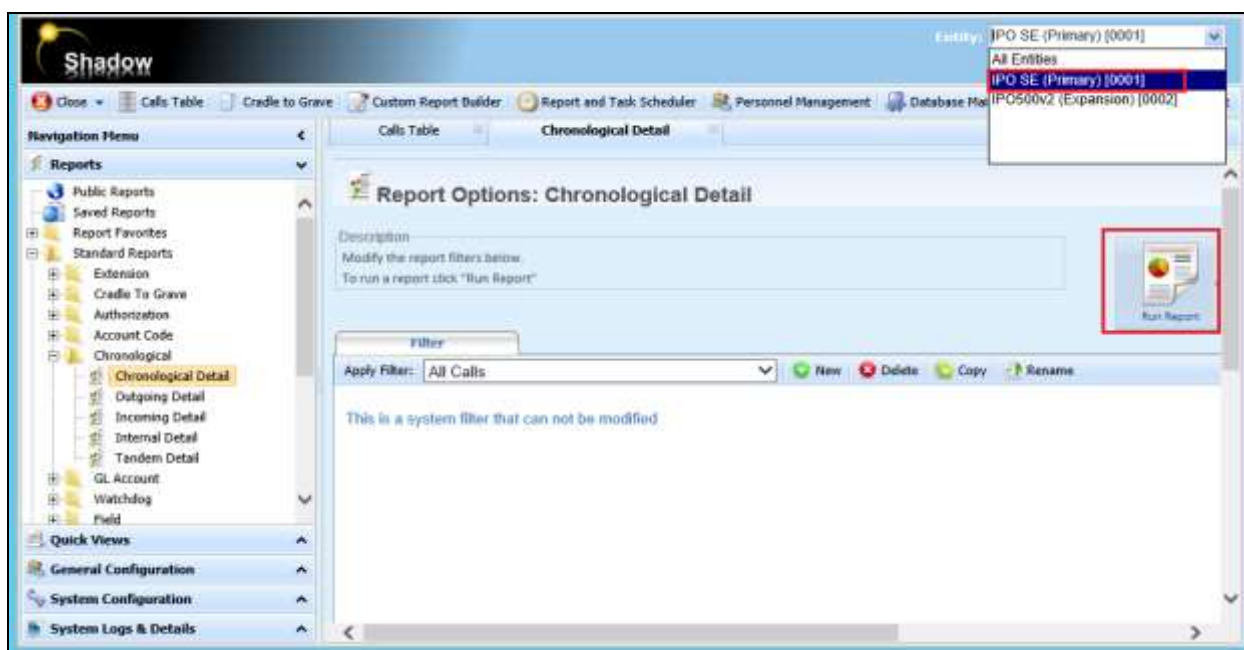
Access the Shadow CMS web-based interface by using the URL “http://ip-address:81” in an Internet browser window, where “ip-address” is the IP address of Shadow CMS. The screen below is displayed. Log in using the appropriate credentials.



The screen below is displayed. Select **Reports** → **Standard Reports** → **Chronological** → **Chronological Detail** from the left pane, as shown below.




Select the entity **IPO SE (Primary) [0001]** in the **Entity** dropdown menu in the top right of the window and click on the **Run Report** button to show the Chronological Detail report for call records of the IPO Server Edition.



The **Chronological Detail** report is displayed. Verify that there is a reported entry matching to the SMDR data from **Section 7.1**.

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Chronological Detail
 All Calls
 IPO SE (Primary)
 40 King St. W Suite 300 Oshawa Ontario

Report Date: All
Print Date: 2015-03-24

| Date | Time | Dir | From | To | Location | Digits | Duration | Cost | Route | Comment |
|------------|-------|-----|--------|--------|--------------|--------------|----------|------|-------|---------|
| 2015/03/20 | 15:44 | Inc | T9001 | E26603 | little miaoh | 513 965-3102 | 00:07:32 | 0.00 | INC | 0 |
| 2015/03/20 | 15:55 | Int | E26105 | E9500 | Outgoing | 500 | 00:00:00 | 0.00 | OUT | 0 |
| 2015/03/20 | 18:00 | Int | E26603 | E26604 | Outgoing | 26604 | 00:01:46 | 0.00 | OUT | 0 |
| 2015/03/23 | 15:48 | Int | E26603 | E26604 | Outgoing | 26604 | 00:00:00 | 0.00 | OUT | 0 |
| 2015/03/23 | 15:50 | Int | E26604 | E26603 | Outgoing | 26603 | 00:00:08 | 0.00 | OUT | 0 |
| 2015/03/23 | 16:27 | Out | E26105 | T9009 | Outgoing | 54000 | 00:00:03 | 0.00 | OUT | 0 |
| 2015/03/23 | 18:53 | Int | E26603 | E26104 | Outgoing | 26104 | 00:00:05 | 0.00 | OUT | 0 |
| 2015/03/23 | 18:58 | Int | E26603 | E26104 | Outgoing | 26104 | 00:00:02 | 0.00 | OUT | 0 |
| 2015/03/24 | 11:49 | Inc | T9001 | E26603 | little miaoh | 513 965-3102 | 00:00:06 | 0.00 | INC | 0 |
| 2015/03/24 | 11:51 | Int | E26603 | E26604 | Outgoing | 26604 | 00:00:03 | 0.00 | OUT | 0 |
| 2015/03/24 | 16:58 | Int | E26603 | E26604 | Outgoing | 26604 | 00:00:02 | 0.00 | OUT | 0 |
| 2015/03/24 | 17:01 | Out | E26603 | T9001 | MONTREAL PQ | 514 965-3102 | 00:00:00 | 0.00 | LD | 0 |
| 2015/03/24 | 17:10 | Int | E26603 | E26604 | Outgoing | 26604 | 00:00:03 | 0.00 | OUT | 0 |
| 2015/03/24 | 17:12 | Out | E26603 | T9001 | LITTLE MIAOH | 513 965-3102 | 00:00:05 | 0.00 | LD | 0 |
| Calls: | | 145 | | | | | 00:27:16 | 0.00 | | |

Repeat the above step by selecting the entity **IPO500v2 (Expansion) [0002]** and then click on **Run Report** button. The screen below shows the report for IPO 500V2 expansion for the same outbound PSTN call made from the extension registered to the primary server.

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Chronological Detail
 All Calls
 IPO500v2 (Expansion)

Report Date: All
Print Date: 2015-03-24

| Date | Time | Dir | From | To | Location | Digits | Duration | Cost | Route | Comment |
|------------|-------|-----|--------|--------|--------------|--------------|----------|------|-------|---------|
| 2015/03/20 | 15:44 | Inc | T9001 | E26603 | little miaoh | 513 965-3102 | 00:07:32 | 0.00 | INC | 0 |
| 2015/03/20 | 15:55 | Int | E26105 | E9500 | Outgoing | 500 | 00:00:00 | 0.00 | OUT | 0 |
| 2015/03/20 | 18:00 | Int | E26603 | E26604 | Outgoing | 26604 | 00:01:46 | 0.00 | OUT | 0 |
| 2015/03/23 | 15:48 | Int | E26603 | E26604 | Outgoing | 26604 | 00:00:00 | 0.00 | OUT | 0 |
| 2015/03/23 | 15:50 | Int | E26604 | E26603 | Outgoing | 26603 | 00:00:08 | 0.00 | OUT | 0 |
| 2015/03/23 | 16:27 | Out | E26105 | T9009 | Outgoing | 54000 | 00:00:03 | 0.00 | OUT | 0 |
| 2015/03/23 | 18:53 | Int | E26603 | E26104 | Outgoing | 26104 | 00:00:05 | 0.00 | OUT | 0 |
| 2015/03/23 | 18:58 | Int | E26603 | E26104 | Outgoing | 26104 | 00:00:02 | 0.00 | OUT | 0 |
| 2015/03/24 | 11:49 | Inc | T9001 | E26603 | little miaoh | 513 965-3102 | 00:00:06 | 0.00 | INC | 0 |
| 2015/03/24 | 11:51 | Int | E26603 | E26604 | Outgoing | 26604 | 00:00:03 | 0.00 | OUT | 0 |
| 2015/03/24 | 16:58 | Int | E26603 | E26604 | Outgoing | 26604 | 00:00:02 | 0.00 | OUT | 0 |
| 2015/03/24 | 17:01 | Out | E26603 | T9001 | MONTREAL PQ | 514 965-3102 | 00:00:00 | 0.00 | LD | 0 |
| 2015/03/24 | 17:10 | Int | E26603 | E26604 | Outgoing | 26604 | 00:00:03 | 0.00 | OUT | 0 |
| 2015/03/24 | 17:12 | Out | E26603 | T9001 | LITTLE MIAOH | 513 965-3102 | 00:00:05 | 0.00 | LD | 0 |
| Calls: | | 145 | | | | | 00:27:16 | 0.00 | | |

8. Conclusion

These Application Notes describe the configuration steps required for RSI Shadow CMS to successfully interoperate with Avaya IP Office Server Edition Release 9.1. All feature and serviceability test cases were completed with observations noted in **Section 2.2**.

9. Additional References

This section references product documentation relevant to these Application Notes.

Documentation for Avaya products can be found at <http://support.avaya.com>.

- [1] IP Office 9.1 Administering Avaya IP Office Platform with Manager, Release 9.1, Issue 10.03, February 2015.
- [2] Avaya IP Office™ Platform Documentation Catalog Release 9.1, Document number 16-604278 Issue 2, December 2014
- [3] Avaya IP Office™ Platform 9.1. Deploying Avaya IP Office™ Platform IP500 V2, Document number 15-601042 Issue 30g, 27 January 2015
- [4] Avaya IP Office™ Platform Embedded Voicemail User Guide (IP Office Mode), Document number 15-604067 Issue 15a, 16 January 2015

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