# Avaya Solution & Interoperability Test Lab

# Application Notes for configuring Tiger Prism from Tiger Communications with Avaya IP Office 500 V2 Standalone R10.0 - Issue 1.0

## Abstract

These Application Notes describe the configuration steps required for call accounting and billing functionality of the Tiger Prism from Tiger Communications to successfully interoperate with Avaya IP Office 500 V2 R10.0.

Readers should pay particular attention to the scope of testing as outlined in Section 2.1, as well as 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.

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# 1. Introduction

These Application Notes describe the compliance tested configuration of Tiger Prism from Tiger Communications to interoperate with Avaya IP Office 500 V2 Standalone R10.0. These Application Notes show the Call Detail Recording (CDR) capability of IP Office and the ability of Tiger Prism to report on the CDR it receives.

**Note:** IP Office CDR is called Station Message Detail Reporting (SMDR), so CDR may be referred to as CDR or SMDR throughout the remainder of this document as they both refer to call detail records.

Tiger Prism is a Call Accounting and Billing package that utilizes the SMDR link in IP Office. Tiger Prism collects, stores, and processes the CDR records to provide usage analysis, call costing and billing capabilities. IP Office can generate SMDR records for internal calls, inbound trunk calls and outbound trunk calls. In addition, split records can be generated for transferred calls and conference calls. Tiger Prism creates a custom IP Office configuration file to accurately parse the SMDR data.

# 2. General Test Approach and Test Results

The general test approach was to configure the Tiger Prism to communicate with the IP Office as implemented on a customer's premises. Testing focused on verifying SMDR are collected by the Tiger Prism and received in the format as generated by the IP Office. Various call scenarios were preformed to simulate real call types as would be observed on a customer's premises. See **Figure 1** for a network diagram. The interoperability compliance test included both feature functionality and serviceability tests.

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 testing included feature and serviceability testing. The feature testing evaluated processing of SMDR data obtained from the IP Office via TCP-IP link. The serviceability testing introduced failure scenarios to see if Tiger Prism could resume after a link failure with IP Office.

The testing included:
- Local internal call handling.
- Handling of incoming network calls over PRI trunks.
- Handling of outgoing calls over the PRI trunk.
- Call forwarding on busy/no answer/unconditional.

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- Transfers – blind and supervised.
- Conference calls.
- Calls answered by voicemail.

## 2.2. Test Results

Tests were performed to insure full interoperability between Tiger Prism and IP Office. The tests were all functional in nature and performance testing was not included. All the test cases passed successfully except for the following issues which were noted.

1. Short Codes for DND are not sent to Tiger Prism when a H.323 or digital phone makes the call. The Short code is sent for any SIP phone.
2. Tiger Prism does not apply a Transfer Flag on an internal transfer for the following scenario. IP Office phone (A) calls to IP Office phone (B) then A transfers B to IP Office phone (C). All parties and the talk times for all legs in this scenario are reported correctly. Note this issue does not occur when the B party makes the transfer. The information sent by IP Office for a call where the B party transfers the call is different to when the A party transfers the call.
3. For Conferences calls, parties and talk times are reported correctly but Tiger Prism does not apply a Conference Flag to the reported call legs.
4. Tiger Prism will only apply a Charged Party on calls forwarded to the PSTN when the name label for the diverting Phone is in the format "Extn xxxx". There is no Diverting Phone property in the IP Office CDR, only a label.

## 2.3. Support

Support from Avaya is available by visiting the website http://support.avaya.com and a list of product documentation can be found in **Section 9** of these Application Notes. Technical support for the Tiger Prism product can be obtained as follows.

- Tel :     +44 (0)1425 891000
- Web :  http://www.tigercomms.com/departments
- Email: enquiries@tigercomms.com

# 3. Reference Configuration

**Figure 1** shows an Avaya IP Office 500 V2 R10.0 serving both SIP and H.323 endpoints. Tiger Prism by Tiger Communications was configured on the same IP network for the transfer of CDR data from Avaya IP Office 500 V2 to the Tiger Prism server using the SMDR output on the IP Office.
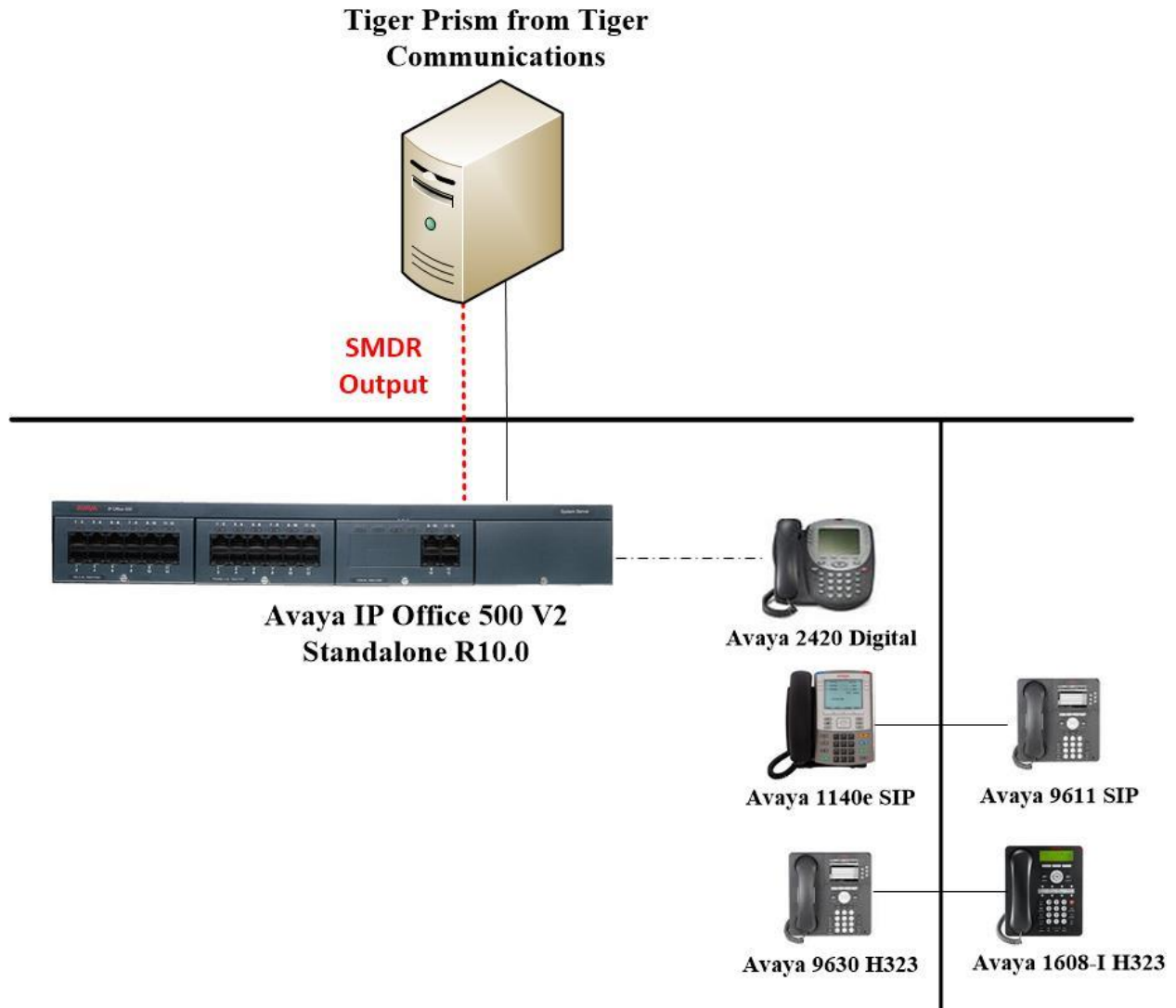


**Figure 1: Network solution of Prism and Avaya IP Office 500 V2 R10.0**

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# 4. Equipment and Software Validated

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

| Device Description | Versions Tested |
|---|---|
| Avaya IP Office 500 V2 Standalone | R10.0.0.2.0 Build 10 |
| Avaya IP Office Manager running on a Windows 7 PC | R10.0.0.2.0 Build 10 |
| Avaya 9630 H323 Deskphone | R6.4014U |
| Avaya 1140e SIP Deskphone | R04.04.28.00 |
| Avaya 1608 I Deskphone | H323 1608UA1_350B.bin |
| Avaya 2040 Digital Deskphone | V5.0 |
| Avaya 9611 SIP Deskphone | R7.0.0.39 |
| Tiger Communications Tiger Prism<br>• IPOffice.exe<br>• Collection.exe | 2016.4.001.5033<br>Version: 12.12.3.0<br>Version: 13.4.1.0 |

**Note:** Compliance Testing is applicable when the tested solution is deployed with a standalone IP Office 500 V2 only.

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# 5. Avaya IP Office Configuration

Configuration and verification operations on the Avaya IP Office illustrated in this section were all performed using Avaya IP Office Manager. The information provided in this section describes the configuration of the IP Office for this solution. It is implied a working system is already in place. For all other provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 9**. The configuration operations described in this section can be summarized as follows:

- Launch Avaya IP Office Manager.
- Display LAN Configuration.
- SMDR Configuration.
- Save Configuration.

## 5.1. Launch Avaya IP Office Manager (Administration)

From the IP Office Manager PC, click **Start → Programs → IP Office → Manager** to launch the Manager application (not shown). Enter the appropriate credentials and click on the **OK** button to receive the IP Office configuration.

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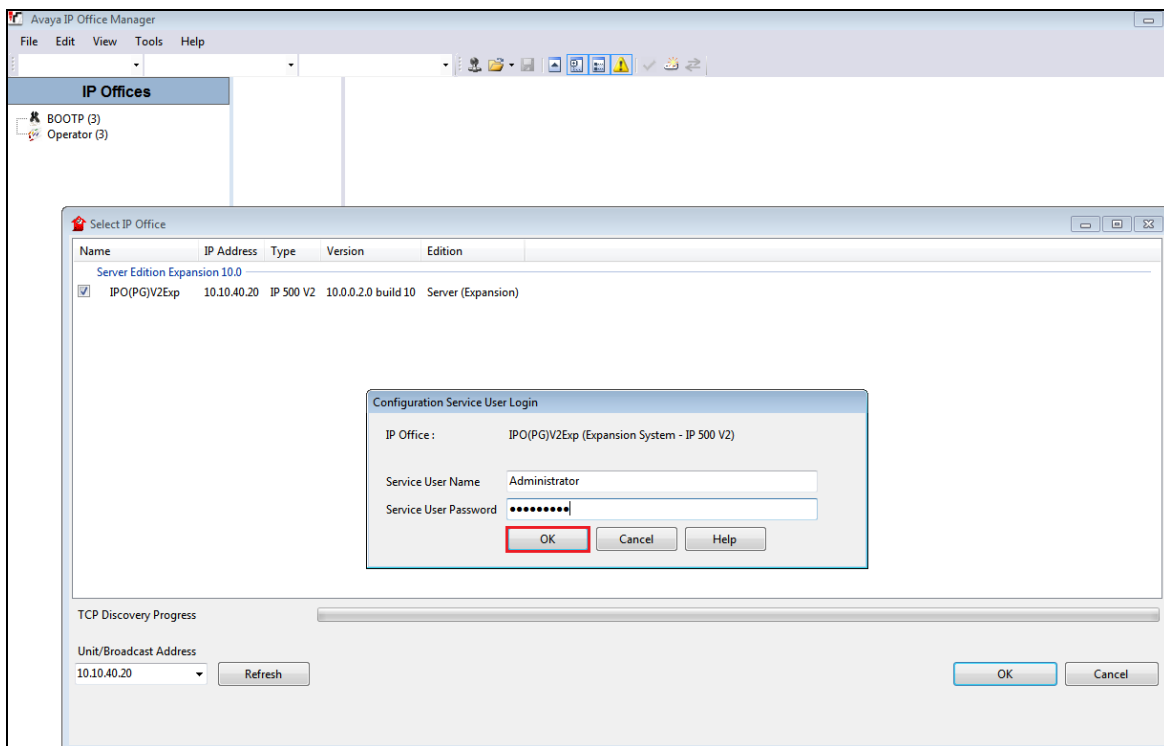
## 5.2. Display LAN Configuration

From the left window navigate to **System** as shown and in the main window click on the **LAN1** tab and within that tab select the **LAN Settings** tab. The **IP Address** of the IP Office along with the information below in **Section 5.3** will be required in the Tiger Prism setup in **Section 6.1**.



## 5.3. SMDR configuration

Select the **SMDR** tab and enter the following information:
- **Output**              Select **SMDR Only** from the drop box.
- **IP Address**          Enter the IP Address of the Tiger Prism server.
- **TCP Port**            Enter **8000**
- **Records to buffer**   Enter **500**, this was left as default. (**Note:** 3000 is the maximum).
- Click the **Call Splitting for Diverts**, check the box.

Click the **OK** button to save.

## 5.4. Save Configuration

Once all the configurations have been made it must be saved to IP Office. Click on the **Save** icon at the top of the screen and the following window appears, click on **OK** to commit the changes to memory.



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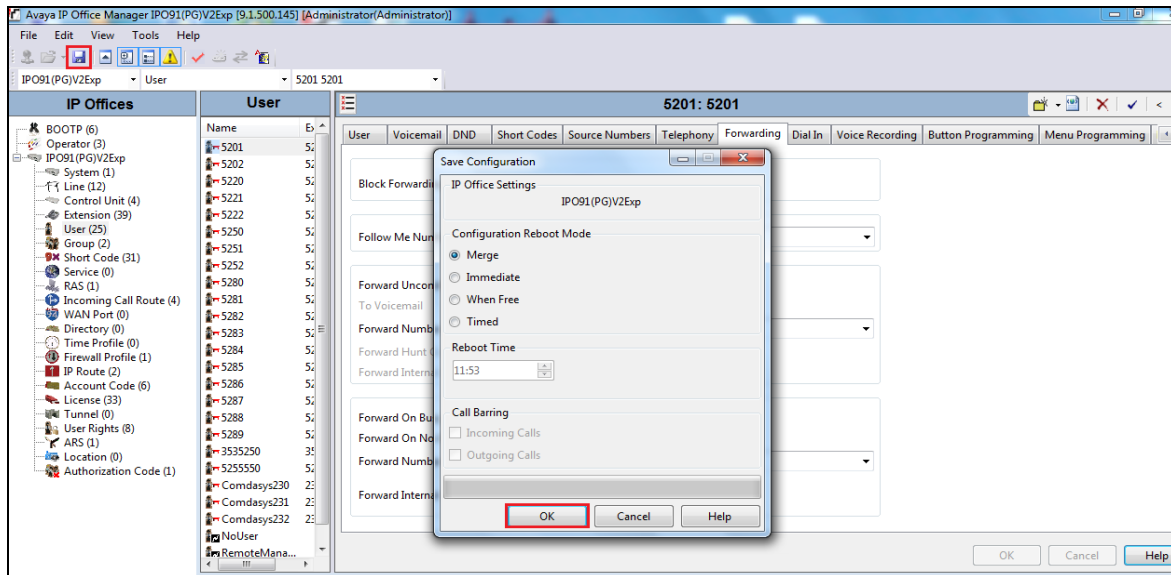
# 6. Configure Tiger Prism

This section describes the steps performed to configure the Tiger Prism to connect to the IP Office. It is implied that the Tiger Prism software is already installed. For all other provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 9**.

## 6.1. Modify Node Configuration File

On the Tiger Prism server, modify the configuration file; in this case it is called D:\Tiger.Prism\network\Switch\Avaya03\**Avaya03.conf**.
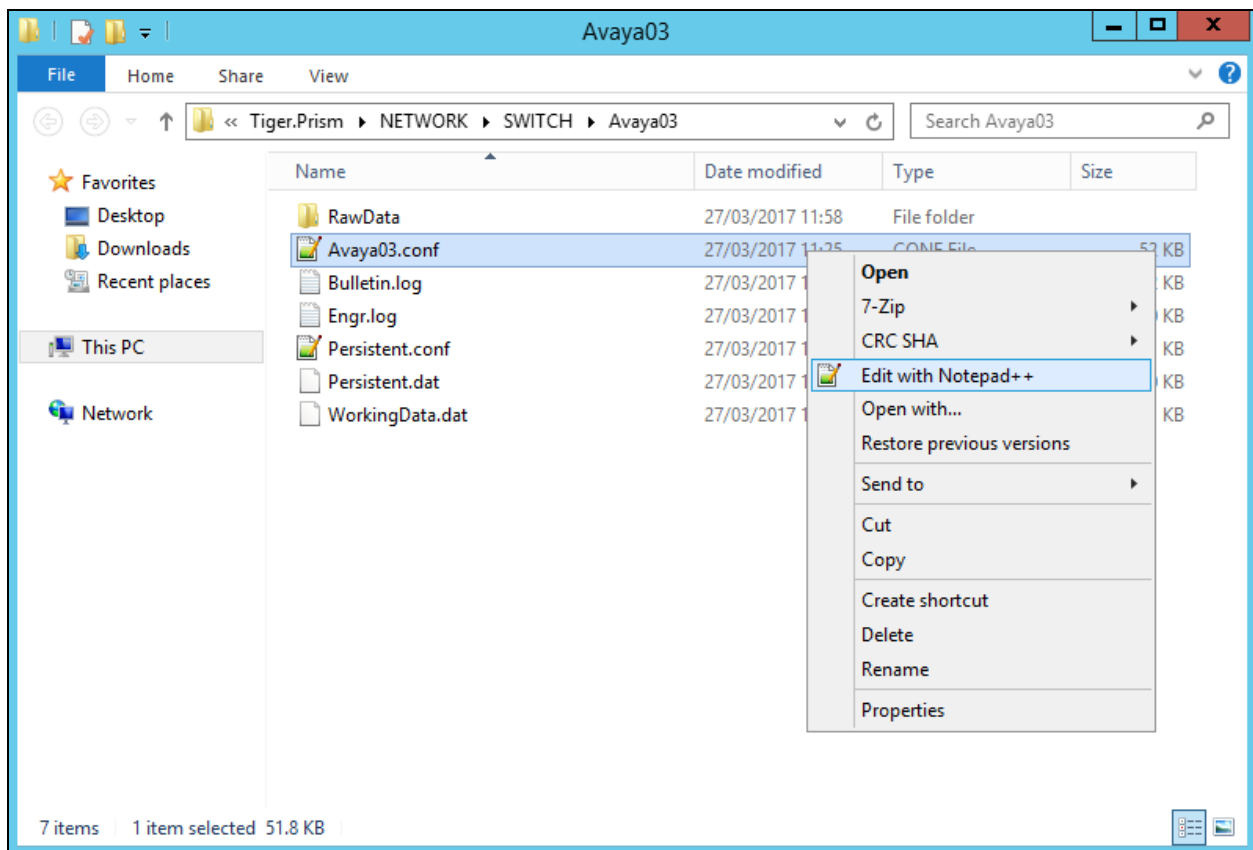
Once the file is opened locate the **[Switch]** section as shown below, set the **Type** field to **IPOffice** to ensure that IPOffice.exe program is used by Tiger Prism.

```
[Switch]
Type=IPOffice
Revision=7.0
MaxCallHoldTime=120000
MaxTandemHoldOn=30000
MaxSectionHoldOn=7200000
RecordDiscardBlacklistHoldOn=3600000
MaxLineLength=2000
BreakYear=1980
CustomerId=
NodeId=3
DiscardDuplicateRecords=1
DiscardOutgoingWithNoCalledDigits=0
RecordTenant=0
PassTrunkGroupLength=1
CallTimeType=0
SequenceNumberDays=7
SequenceNumbersHeld=7
DefaultLatency=0
DiversionChargedPartyRule=0
TransferChargedPartyRule=0
QueueDeviceIsUnanswered=0
SkipHostNameLookup=1
ForwardNoAnswerAfterMS=15000
IsolatedSwitch=0
```

Locate the **[Input]** section and enter the **Address** as per **Section 5.2**. Set the **Port** number to **8000** as configured as the **TCP Port** in **Section 5.3**. Set the **CreateAs** field to **server** to ensure that Tiger server waits for a connection from IP Office.

```
[Input]
Name=Avaya IPOffice 03 Socket Input
Type=Socket
Direction=Input
Protocol=TCP
Address=10.10.40.20
Port=8000
CreateAs=server
Mode=Stream
Sharing=readwrite
BufferSize=1024
TimeOut=200
Sharing=none
Blocking=0
NormalReadResetInterval=1200000
InitialReadResetInterval=3600000
0
```

Locate the **[FieldDefsFile]** section and configure the **Name** parameter with the location of the **IPOffice4_2.conf** file. This file holds the field definitions that match the SMDR output from the IP Office (During compliance testing, the file was located at **D:\Tiger.Prism\Network\SwitchConf\IPOffice4_2.conf**). A full printout of this file can be found in the **Appendix** of these Application Notes.

```
[FieldDefsFile]
Name= D:\Tiger.Prism\Network\SwitchConf\IPOffice4_2.conf
```

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## 6.2. Configure Data Collection
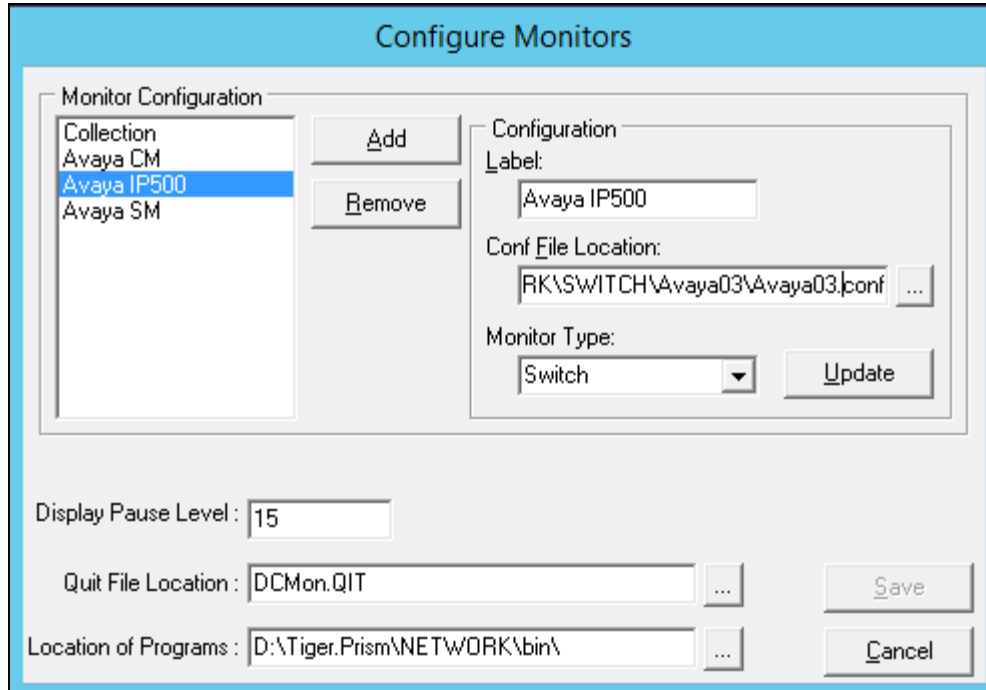
On the Tiger Prism server, open **dcmon.exe** (this was done from a shortcut on the desktop as shown below). On the main Data Collection Monitor screen toolbar, click on **Options →** **Configure**.
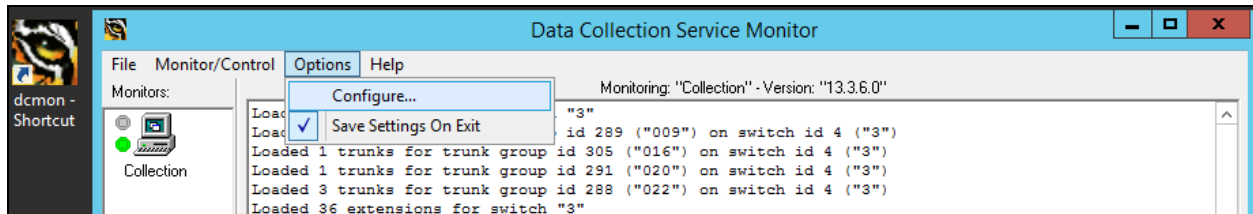


There are two types of monitor types to be configured - one for the collection which interfaces with the Tiger Prism database and one for the switch which interfaces with IP Office. In the **Configure Monitors** dialog box click the **Add** button. The screen shot below shows the addition of the interface to IP Office.

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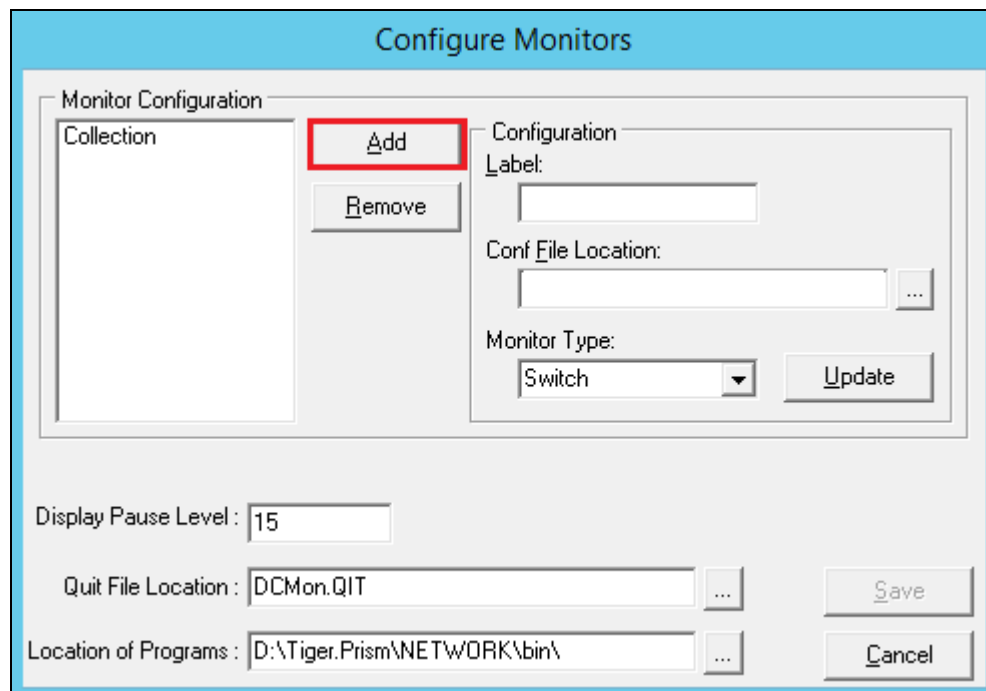
In the **Label** field enter a descriptive name for the switch monitor type. In the **Conf File Location** field enter or browse to the location of the **Avaya03.conf** file created in **Section 6.1**. The **Avaya02.conf** file for this compliance testing was located at **D:\Tiger.Prism\network\Switch\Avaya03\**. For the **Monitor Type** select **Switch** from the drop-down list. The rest of the parameters can be left with their default values. Click **Save**.

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## 6.3. Start Data Collection

In the main **Data Collection Monitor** screen, right click on the collection monitor icon labeled **Collection** and select **Start Program**. Do the same for the switch monitor icon labeled **Avaya IPO500**.
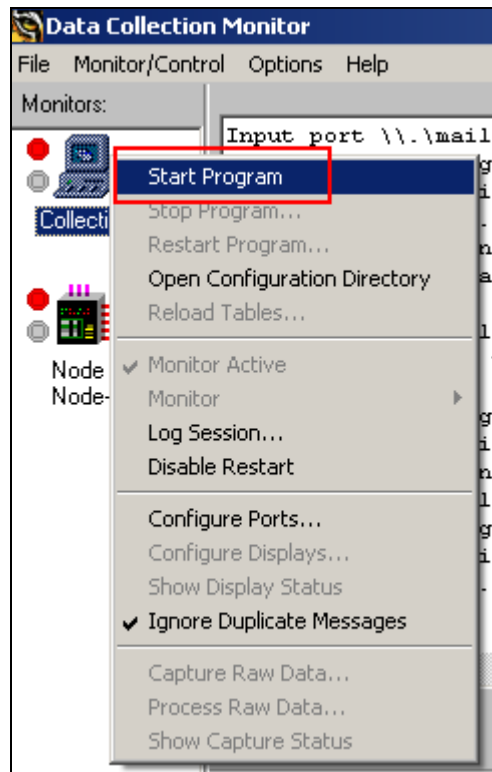
# 7. Verification

The following steps may be used to verify the configuration.

## 7.1. Verify Data Collection Monitor Status

Place a call and verify that Tiger Prism received the CDR record for the call and then processed the call. Compare the values of data fields in the CDR record with the expected values and verify that the values match as shown below. Verify that the **Collection** and **Avaya IP500** display a green status symbol indicating they are online. Confirm that the raw data in the bottom pane is tabulated accordingly for the database in the top pane.
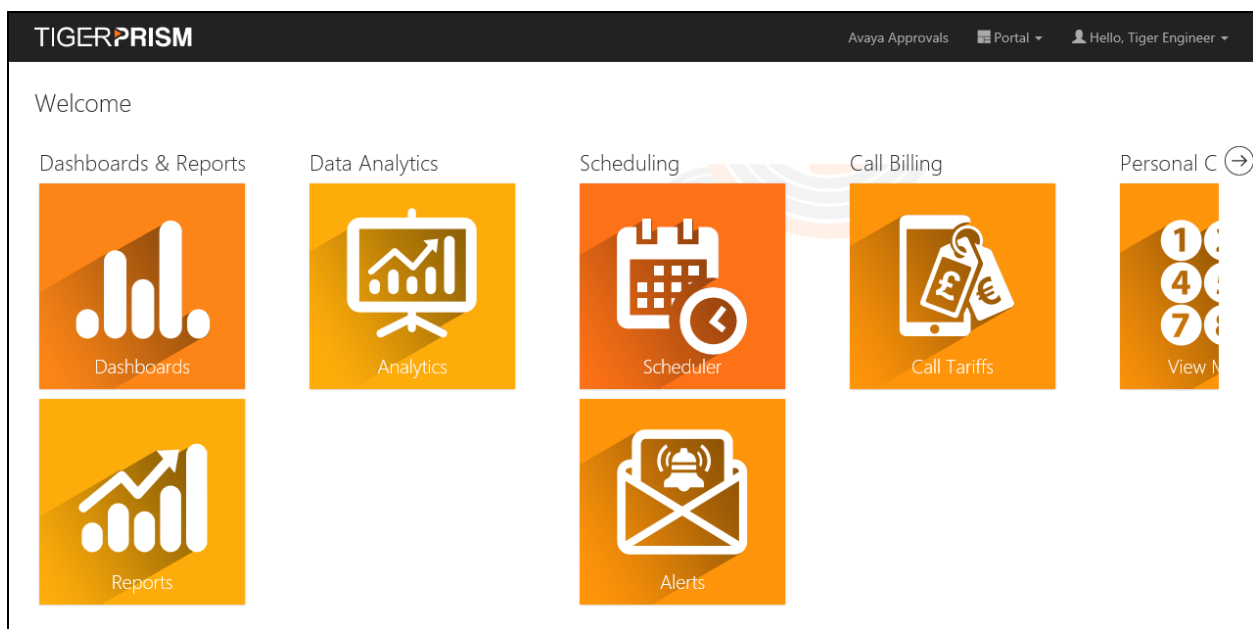
## 7.2. Verify Report/Billing Information Accuracy

Open a web browser to the Tiger Prism server as shown below. Enter the appropriate credentials and click on the login icon.
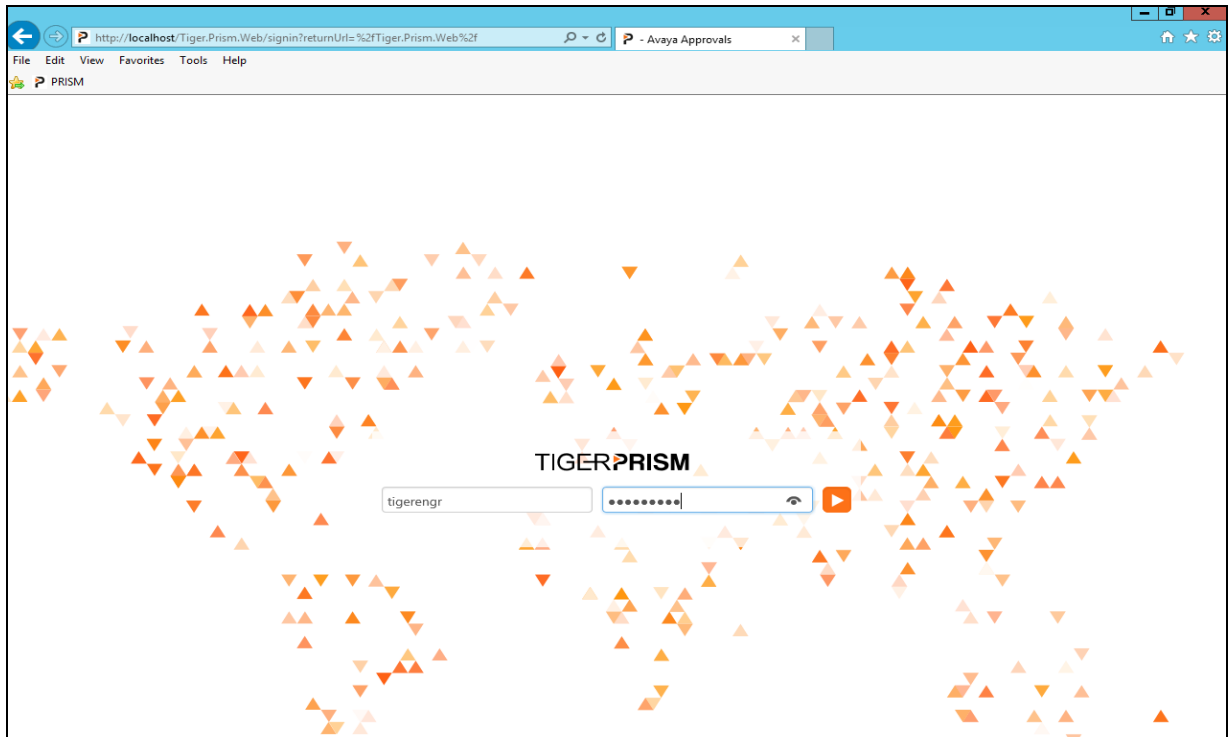


Once logged in, click on **Analytics**.

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From the left-hand menu select **Search → Legs** (not shown). This will display the calls for the current day. For the testing a widget was created; this is a custom saved report with the required fields for verification testing added to the displayed. In the example below **DevConnect (1)** was created and selected to be displayed.
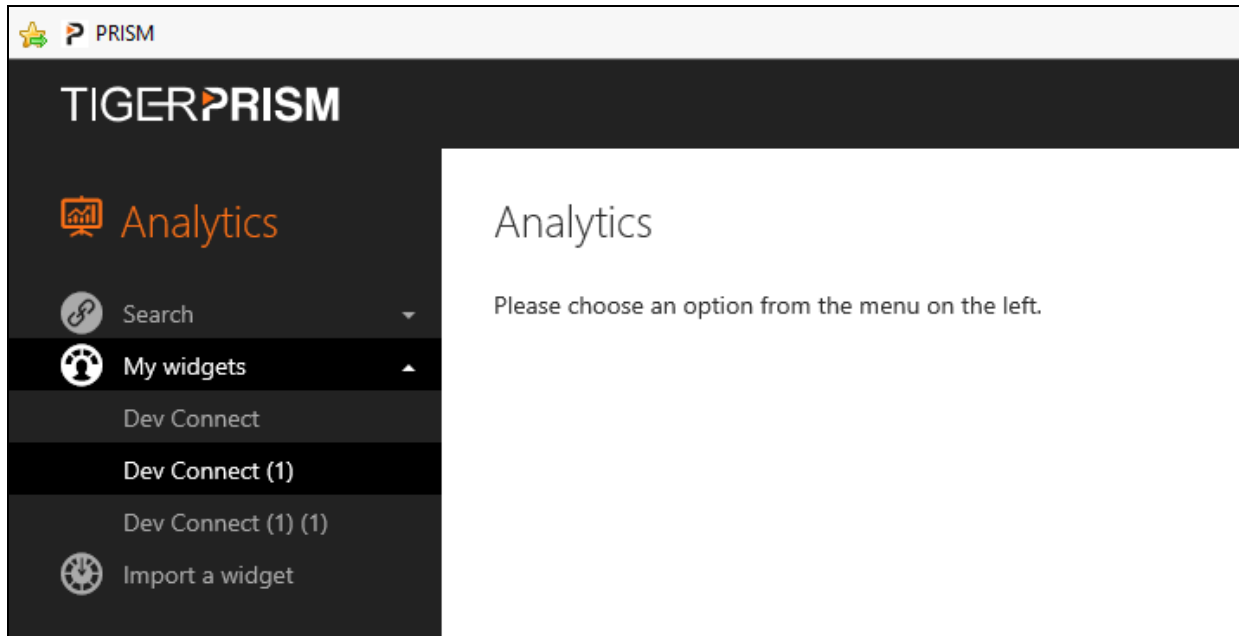
The following is a report run for the previous month showing all the data for calls for that month.

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# 8. Conclusion

A full and comprehensive set of feature and functional test cases were preformed during Compliance testing. Tiger Prism from Tiger Communications is considered compliant with Avaya IP Office 500 V2 R10.0. All test cases have passed with any issues observed outlined in **Section 2.2**.

# 9. Additional References

These documents form part of the Avaya official technical reference documentation suite. Further information may be had from *http://support.avaya.com* or from your Avaya representative.

[1] *Deploying Avaya IP Office™ Platform IP500 V2*.
[2] *Administering Avaya IP Office™ Platform with Web Manager*.
[3] *Administering Avaya IP Office™ Platform with Manager*.
[4] *IP Office System Monitor*, Document Number 15-601019, Issue 03c, March 1, 2013

Product Documentation for TigerTMS Products can be obtained at: http://www.tigercomms.com

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# Appendix

**D:\Tiger.Prism\Network\SwitchConf\IPOffice4_2.conf**

```
#      Configuration file for the Avaya IP Office version 4.2 switch interface.
#      Initial revision
#
#      (c) 2008 Tiger Communications plc
##############################################################################

##############################################################################
# Format of entries is "N:S.L,T" or "S.L", where,
#   "N" is the line number
#   "S" is the offset of the field's starting position in the line
#   "L" is the length of the field
#   "T" is the field type, with valid values
#        "I" is interpreted as a decimal integer
#        "i" is blank or interpreted as a decimal integer
#        "X" is interpreted as a hexadecimal integer
#        "x" is blank or interpreted as a hexadecimal integer
#        "C" is an interpreted character string
#        "B" is blank space
#        "F=value" is the fixed character string "value"
#        "f=value" is blank or the fixed character string "value"
#        "V=value" is a variable length string, terminated by the string "value"
#        "v=value" is blank or a variable length string, terminated by the string
"value"
#        "W=value" is a variable length decimal integer, terminated by the string
"value"
#        "w=value" is blank or a variable length decimal integer, terminated by the
string "value"
##############################################################################

[SwitchInfo]
SwitchName=Avaya IP Office
SwitchVersion=4.2
ProgramName=IPOffice
ProgramVersion=6.1.1.0

[Description]
0=This is the field definitions for the Avaya IP Office version 4.2

[SampleData]
0=2008/11/05 10:00:24,00:00:00,23,2002,O,1337,1337,,,1,1000460,0,E2002,Reception
Right,E1337,Bedroom 337,0,0,,,,,,,,,,,,,,,,
1=2008/11/05 10:02:39,00:00:15,10,2002,O,1302,1302,,,1,1000461,0,E2002,Reception
Right,E1302,Bedroom 302,0,0,,,,,,,,,,,,,,,

[FieldDefs]
START_DATE_YEAR=1:0.4,I
START_DATE_SEP1=1:4.1,F=/
START_DATE_MONTH=1:5.2,I
START_DATE_SEP2=1:7.1,F=/
START_DATE_DAY=1:8.2,I
START_DATE_TIME_SEP=1:10.1,B
START_TIME_HOUR=1:11.2,I
START_TIME_SEP1=1:13.1,F=:
START_TIME_MINS=1:14.2,I
```

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```
START_TIME_SEP2=1:16.1,F=:
START_TIME_SECS=1:17.2,I
START_TIME_DURTN_SEP=1:19.1,F=,
DURATION_HOUR=1:20.2,I
DURATION_SEP1=1:22.1,F=:
DURATION_MINS=1:23.2,I
DURATION_SEP2=1:25.1,F=:
DURATION_SECS=1:26.2,I
DURATION_RINGSEP=1:28.1,F=,
RING_DURATION=1:29.4,W=,
CALLING_NUMBER=1:34.20,V=,
CALL_DIRECTION=1:55.1,V=,
CALLED_NUMBER=1:57.20,V=,
DIALLED_NUMBER=1:78.20,V=,
ACCOUNT_CODE=1:99.10,V=,
IS_INTERNAL=1:110.1,W=,
CALL_ID=1:112.8,W=,
CONTINUATION=1:121.1,W=,
PARTY1_DEVICE=1:123.5,V=,
PARTY1_NAME=1:129.10,V=,
PARTY2_DEVICE=1:140.5,V=,
PARTY2_NAME=1:146.10,V=,
HOLD_TIME=1:157.4,W=,
PARK_TIME=1:162.4,W=,
AUTH_VALIDITY=1:167.1,w=,
AUTH_CODE=1:169.10,v=,
USER_CHARGED=1:180.20,v=,
CALL_CHARGE=1:201.1,v=,
CHARGE_CURRENCY=1:203.1,v=,
CHARGE_AT_LAST_USER_CHANGE=1:205.1,v=,
METER_UNITS=1:207.1,v=,
UNITS_AT_LAST_USER_CHANGE=1:209.1,v=,
COST_PER_UNIT=1:211.1,v=,
MARK_UP=1:213.1,v=,
EXTERNAL_TARGETING_CAUSE=1:215.9,v=,
EXTERNAL_TARGETER_ID=1:225.10,v=,
EXTERNAL_TARGETED_NUMBER=1:236.5,v=,

L2_MARKER=2:0.1,F=C

# Unused fields
CALL_DIRECTION_SEP=1:-1.1,C
IS_INTERNAL_SEP=1:-1.1,C
CONTINUATION_SEP=1:-1.1,C
```

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