AVAYA

Avaya Solution & Interoperability Test Lab

Application Notes for configuring Oak Telecom's reportX with Avaya Aura® Communication Manger R6.0.1 - Issue 1.0

Abstract

These Application Notes describe the configuration steps for provisioning Oak Telecom's reportX Call Detail Recording solution to successfully interoperate with Avaya Aura® Communication Manager R6.0.1. The Oak Telecom solution consists of a Call Detail Recording server based on the logging of outgoing, incoming, internal and missed calls data reported by the PBX, to manage captured data and generate reports.

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.

PG; Reviewed:
SPOC 2/20/2012

Solution & Interoperability Test Lab Application Notes
©2012 Avaya Inc. All Rights Reserved.

1 of 26
reportX_CM601

1. Introduction

These Application Notes describe the configuration steps required for reportX from Oak Telecom to successfully collect call detail recording records from Avaya Aura® Communication Manager R6.0.1 over TCP/IP. Oak Telecom reportX Call Logging (reportX) is a call management and reporting software package designed to report on the phone activity of a business. Oak Telecom reportX collects, stores and processes these Call Detail Recording (CDR) records to provide usage analysis, call costing and billing capabilities. Avaya Aura® Communication Manager (Communication Manager) can generate call detail records for intra-switch calls, inbound trunk calls and outbound trunk calls. In addition, split records can be generated for transferred and conference calls. Oak Telecom reportX can support any CDR format provided by Communication Manager. Oak Telecom reportX creates a custom PBX configuration file to accurately parse the CDR data. For the compliance testing, a customized format was used.

2. General Test Approach and Test Results

The general test approach was to manually place intra-switch calls, inbound trunk calls, outbound trunk calls, conference calls, transferred calls, and forwarded calls to and from telephones controlled by Communication Manager and verify that reportX collects the CDR records and properly classifies and reports the attributes of the call. For serviceability testing, logical links were disabled/re-enabled.

2.1. Interoperability Compliance Testing

The principle objective of Interoperability Compliance testing is to provide assurance to the potential customers that the tested products operate as specified and can interoperate in an environment similar to the one that will be deployed at a customer's premises. Performance and load testing is outside the scope of the compliance testing. The compliance testing is concerned with verifying that the addition of reportX does not interfere with the operation of Communication Manager in any way.

2.1.1. Avaya feature Interaction Verification

This consists of the verification of the response of the reportX to the Communication Manager for the following call types:

- **Inbound calls** – Test CDR records for inbound calls to the Communication Manager from PSTN callers.
- **Outbound calls** – Test CDR records for outbound calls from the Communication Manager to PSTN callers.
- **Hold/Transferred calls** – Test CDR records for calls transferred to PSTN callers.
- **Conference calls -** Test CDR records for calls in conference between the Communication Manager and PSTN callers.
- **Forwarded calls** – Test CDR records for calls made to deskphones that are forwarded to the PSTN.

- **Failover of reportX** - The behaviour of reportX under different failure conditions will also be observed

Solution & Interoperability Test Lab Application Notes

2.2. Test Results

All tests passed successfully. No errors or performance issues were observed on Communication Manager.

Note: Testing in all cases of this document consisted of only H.323 signalling on the Communication Manager, when SIP deskphones where used CDR information was captured but a second CDR entry for the communication between the Session Manager and Communication Manger was observed; therefore, SIP deskphones where not included in the compliance testing.

Note: Information on internally transferred and conference calls were reported as internal calls.

2.3. Support

Support from Avaya is available at http://support.avaya.com. Technical support for reportX can be obtained as shown below.

> Oak Telecom
> Unit 7 Albany Park,
> Cabot Lane, Poole,
> Dorset BH17 &BX
> United Kingdom
> Tel: +441202607000
> Email: support@oak.co.uk
> Web Support: http://help.oak.co.uk

3. Reference Configuration

Figure 1 shows the network topology during compliance testing. Oak Telecom's reportX Server collects CDR records from the Communication Manager and presents the information obtained to users on the LAN via a Client/Server session.
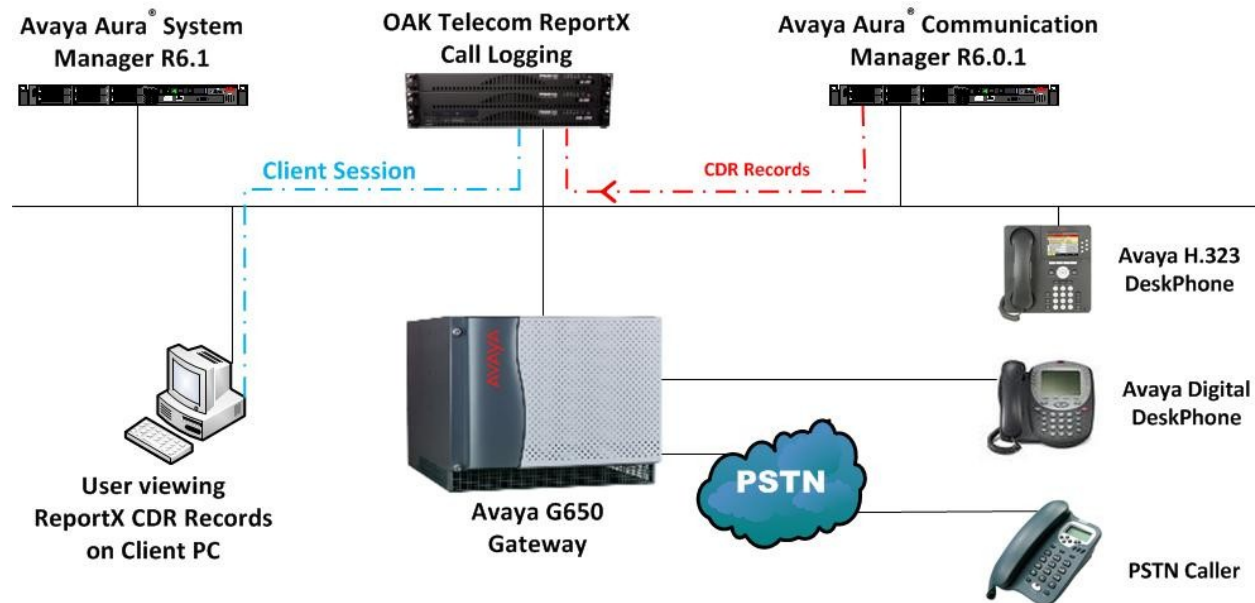
**Figure 1: Connection of Oak Telecom reportX Call Logging and Avaya Aura®
Communication Manager R6.0.1.**

4. Equipment and Software Validated

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

Equipment Description	Software Release
Avaya S8800 Server	Avaya Aura® Communication Manager R6.0.1 SP3
Avaya S8800 Server	Avaya Aura® System Manager R6.1 SP4
Avaya 96xx Series H.323 Set	96xx H.323 Release 3.1 SP2
Avaya 24xx Series Digital Set	N/A
Oak Telecom reportX Call Logging	reportX Call Logging Release 9.0.8.0

5. Configuration of Avaya Aura® Communication Manager

Configuration of Communication Manager is performed through Avaya Site Administration supporting System Administration Terminal (SAT). An SSH session to the IP address of the Communication Manager initiates the console connection.

Note: The configuration of Communication Manager for call routing is outside the scope of this document. It is assumed that a full working system is already installed. Included below are the changes necessary in order to ensure CDR records are being produced correctly by the Communication Manager. For all other provisioning information, such as administering Communication Manager, refer to product documentation in **Section 9** of these Application Notes.

5.1. Add CDR Server to Node Names IP

Add the IP address of the CDR server into the **IP NODE NAMES**. Type **change node-names ip** to access the node names and add the server **Name** and **IP Address** as shown below.

```
change node-names ip
                              IP NODE NAMES
     Name              IP Address
CLAN               192.168.30.80
Medpro             192.168.30.81
SessionManager     192.168.30.101
default            0.0.0.0
gateway            192.168.30.1
procr              192.168.30.92
procr6             ::
ReportX_Server     192.168.30.22
```

5.2. Add CDR Service as an IP Service

Add the CDR service into IP Services by typing **change ip-services**. Note the following as this information may be needed when setting up the reportX Server.
- **Local Node** is **CLAN**
- **Remote Node** is that of the **CDR_Server** entered as it was configured above.
- **Service Type** is **CDR1**
- **Remote Port** number in this example shown as **9001** but can be any free port number.

```
change ip-services                                          Page   1 of   3

                           IP SERVICES
 Service    Enabled     Local       Local     Remote          Remote
  Type                  Node        Port      Node            Port
  CDR1                  CLAN          0        ReportX_Server  9001
```

5.3. Configure CDR parameters

Type **change system-parameters cdr**. Ensure all the fields are as shown below on **Page 1** of **system-parameters cdr**. Note the **Primary Output Endpoint** is that of the service type added in **Section 5.2**.

```
change system-parameters cdr                                    Page   1 of   2
                            CDR SYSTEM PARAMETERS

 Node Number (Local PBX ID):                      CDR Date Format: month/day
      Primary Output Format: customized   Primary Output Endpoint: CDR1
    Secondary Output Format:
             Use ISDN Layouts? n                   Enable CDR Storage on Disk? n
         Use Enhanced Formats? n      Condition Code 'T' For Redirected Calls? y
        Use Legacy CDR Formats? y                Remove # From Called Number? n
 Modified Circuit ID Display? n                          Intra-switch CDR? y
               Record Outgoing Calls Only? n      Outg Trk Call Splitting? y
   Suppress CDR for Ineffective Call Attempts? n        Outg Attd Call Record? y
       Disconnect Information in Place of FRL? n      Interworking Feat-flag? n
  Force Entry of Acct Code for Calls Marked on Toll Analysis Form? n
                                      Calls to Hunt Group - Record: member-ext
 Record Called Vector Directory Number Instead of Group or Member? n
 Record Agent ID on Incoming? n        Record Agent ID on Outgoing? y
      Inc Trk Call Splitting? n
   Record Non-Call-Assoc TSC? n           Call Record Handling Option: warning
       Record Call-Assoc TSC? n   Digits to Record for Outgoing Calls: dialed
      Privacy - Digits to Hide: 0             CDR Account Code Length: 15
```

Ensure that all **Data Item Length** entries are the same as outlined below on **Page 2** of **system-parameters cdr**.

```
change system-parameters cdr                                    Page   2 of   2
                            CDR SYSTEM PARAMETERS

    Data Item - Length          Data Item - Length          Data Item - Length
 1: date            - 6    17: in-trk-code    - 4    33: line-feed       - 1
 2: space           - 1    18: space          - 1    34:                 -
 3: time            - 4    19: in-crt-id      - 3    35:                 -
 4: space           - 1    20: space          - 1    36:                 -
 5: sec-dur         - 5    21: out-crt-id     - 3    37:                 -
 6: space           - 1    22: space          - 1    38:                 -
 7: cond-code       - 1    23: ppm           - 5    39:                 -
 8: space           - 1    24: space          - 1    40:                 -
 9: code-used       - 4    25: isdn-cc       - 11    41:                 -
10: space           - 1    26: space          - 1    42:                 -
11: code-dial       - 4    27: attd-console   - 2    43:                 -
12: space           - 1    28: space          - 1    44:                 -
13: dialed-num      - 18   29: vdn           - 5    45:                 -
14: space           - 1    30: space          - 1    46:                 -
15: clg-num/in-tac  - 10   31: acct-code     - 15    47:                 -
16: space           - 1    32: return         - 1    48:                 -

                        Record length = 117
```

5.4. Enable Missed and Internal Calls

To allow missed calls to appear on the CDR reports, set **CDR Reports** to **r** in the trunk group used for outgoing/incoming calls. Type **change trunk-group x** where **x** is the number of the incoming/outgoing trunk group.

```
change trunk-group 9                                        Page   1 of  21
                            TRUNK GROUP

Group Number: 9                      Group Type: isdn        CDR Reports: r
  Group Name: reportX                      COR: 1      TN: 1       TAC: *19
   Direction: two-way       Outgoing Display? n       Carrier Medium: PRI/BRI
 Dial Access? y             Busy Threshold: 255  Night Service:
Queue Length: 0
Service Type: tie                       Auth Code? n          TestCall ITC: rest
                        Far End Test Line No:
TestCall BCC: 4
```

To enable intra-switch calls to be recorded, type **change intra-switch-cdr** and add the **Extension** numbers of the sets that are to be recorded for internal calls.

```
change intra-switch-cdr                                     Page   1 of   3
                        INTRA-SWITCH CDR

                            Assigned Members:   8    of 5000   administered
  Extension         Extension           Extension           Extension
   2000
   2001
   2002
   2010
   2011
   2012
   4000
   4001
```

6. Configuration of Oak Telecom's reportX Server

The configuration information provided in this section describes the steps required to set up reportX to collect CDR records generated over a TCP/IP link to Communication Manager. For all other provisioning information, such as reportX software installation, refer to Oak Telecom reportX product documentation in **Section 9** of these Application Notes.

6.1. Configuration of Oak Telecom's reportX software to correctly interoperate with Avaya Aura® Communication Manager

On the reportX PC navigate to **Start → Programs → Oak Telecom → report → Setup** as shown below.
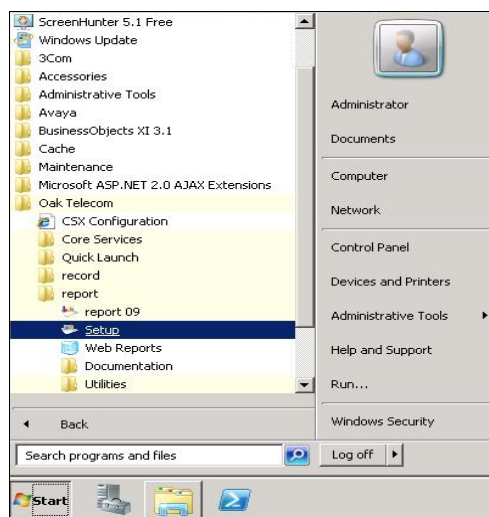
Alternatively, this Setup can be launched from the Quick Launcher as shown below. Click on the blank icon in the **QUICK LAUNCH** and select **Comms Suite Setup**.
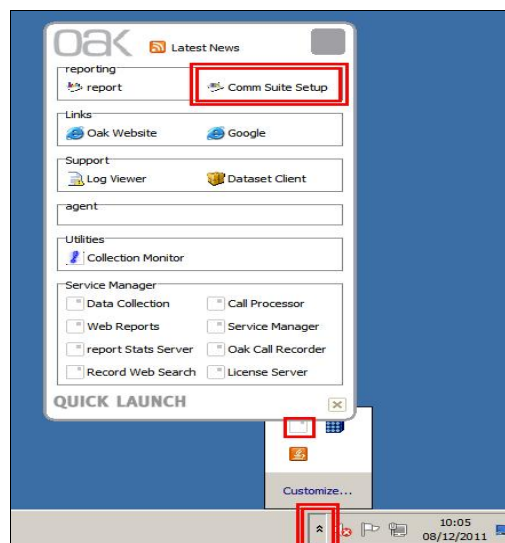
Select **Supervisor** for the **Username** and enter the appropriate **Password**. Click **OK**.
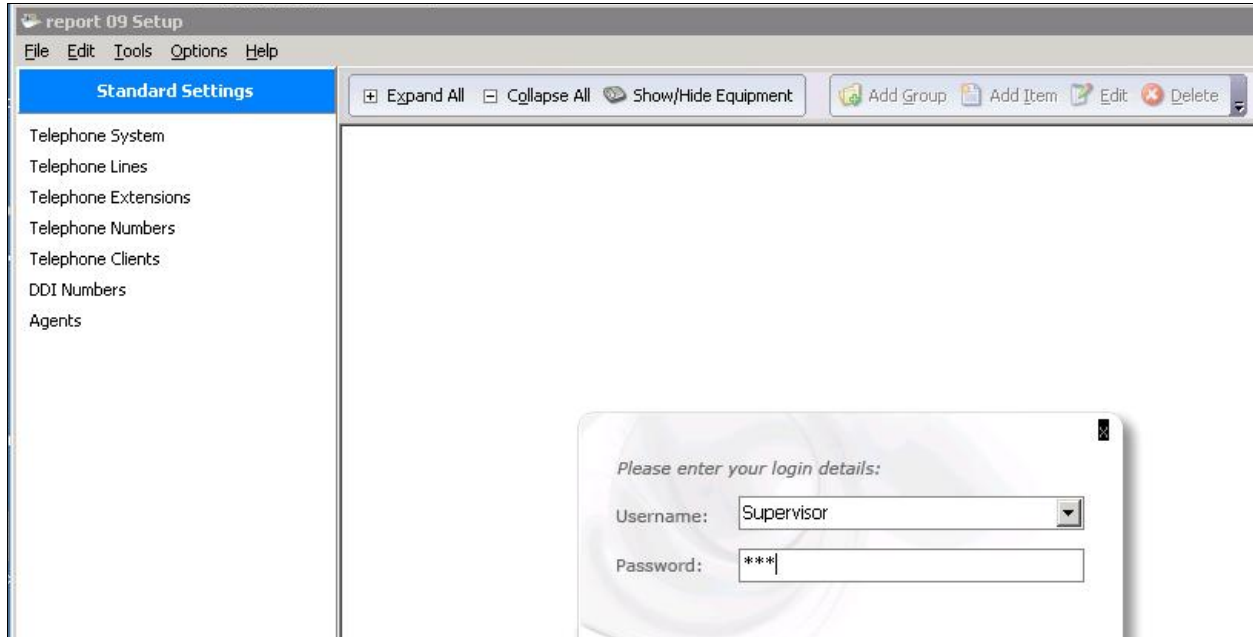
From the **Standard Settings** section in the left pane, select **Telephone System** to bring up the sites configured. All default installations will be provided with a default site for configuration. Right-click on the default site and **Edit** this site as shown below.
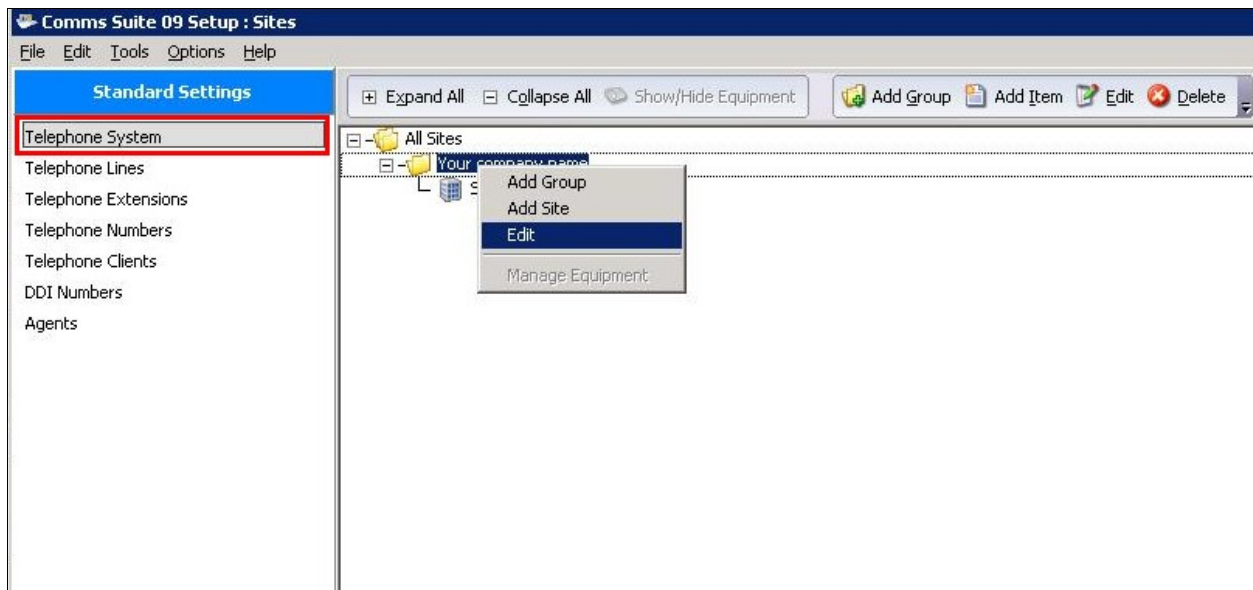
Under the **Call Management** tab, select the **Telephone System** tab and configure the site details as shown below.

- **Site No**   Will be set to 1 if this is the first site to be configured.
- **Short Name**   Enter any value that describes the site being configured.
- **Name**   Enter the full name of the site being configured.
- **Area Code**   Enter the local area code that is specific to the site.

PG; Reviewed:
SPOC 2/20/2012

Solution & Interoperability Test Lab Application Notes
©2012 Avaya Inc. All Rights Reserved.

12 of 26
reportX_CM601

Under the **Data Collection** tab, change the collection type by clicking on the highlighted button below.

Select **IP Server** as the **Collector** and double-click **IP Server** to select it.
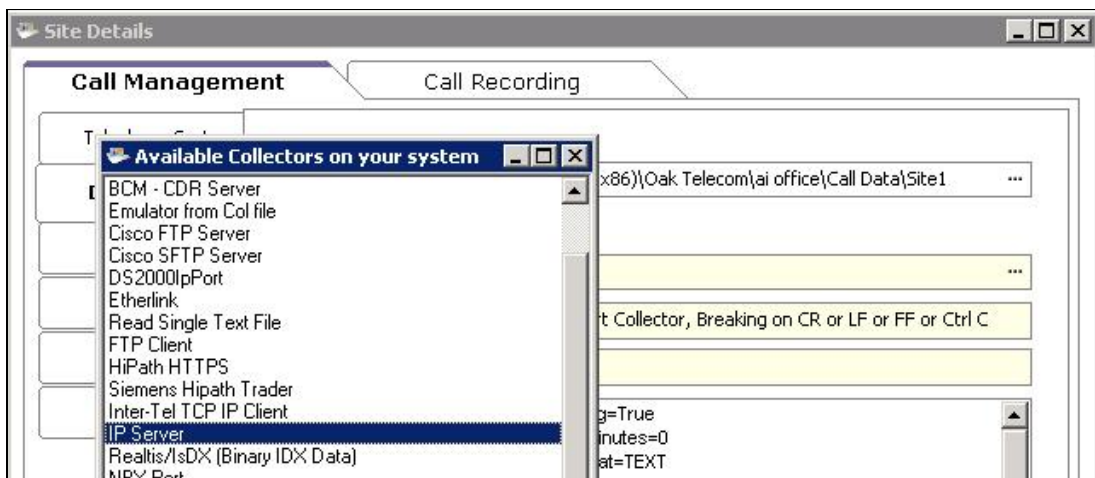
Press **Configure**, as shown below, in order to change the port to listen for CDR records. Note that this port number will be the same as the port number configured in **Section 5.2**.
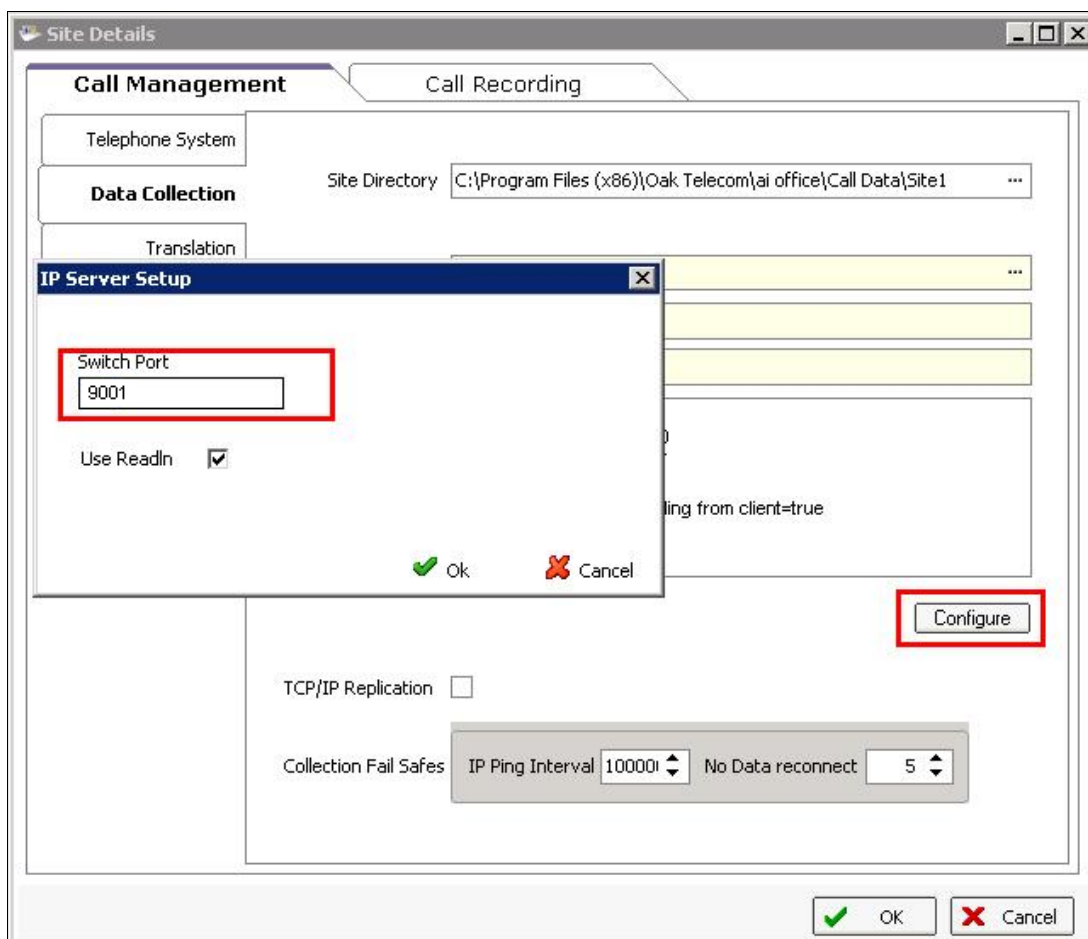
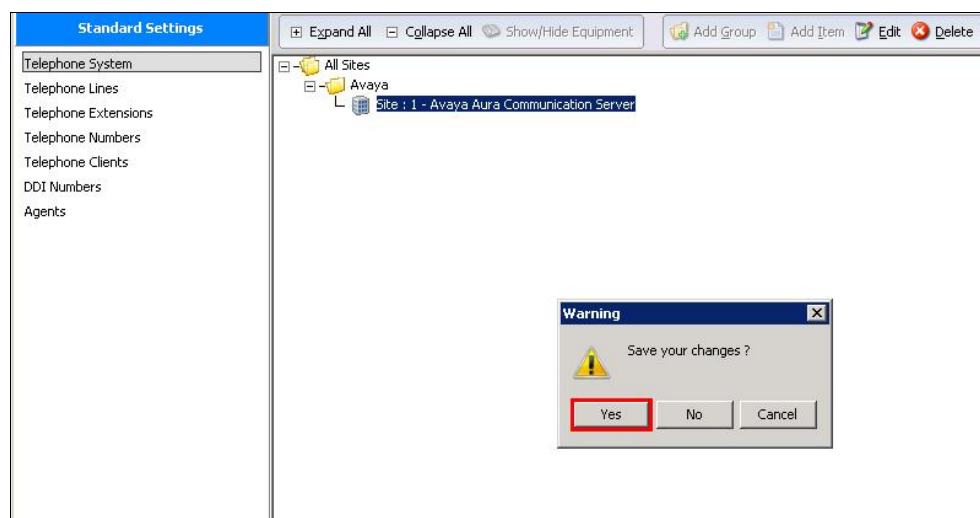Under the **Translation** tab, change the following in order to connect to the Communication Manager.

- **Manufacturer**   Select **AVAYA** from the drop down menu.
- **Device**   Select **ACM** from the drop down menu.
- **Translator (VCE)**   Select **AVAYA DEFINITY OAK FORMAT.**

Once all the details above are filled in correctly, click **OK** at the bottom right of the screen as shown below. This will open a new window labeled **Confirm**, click **Yes** on this window.
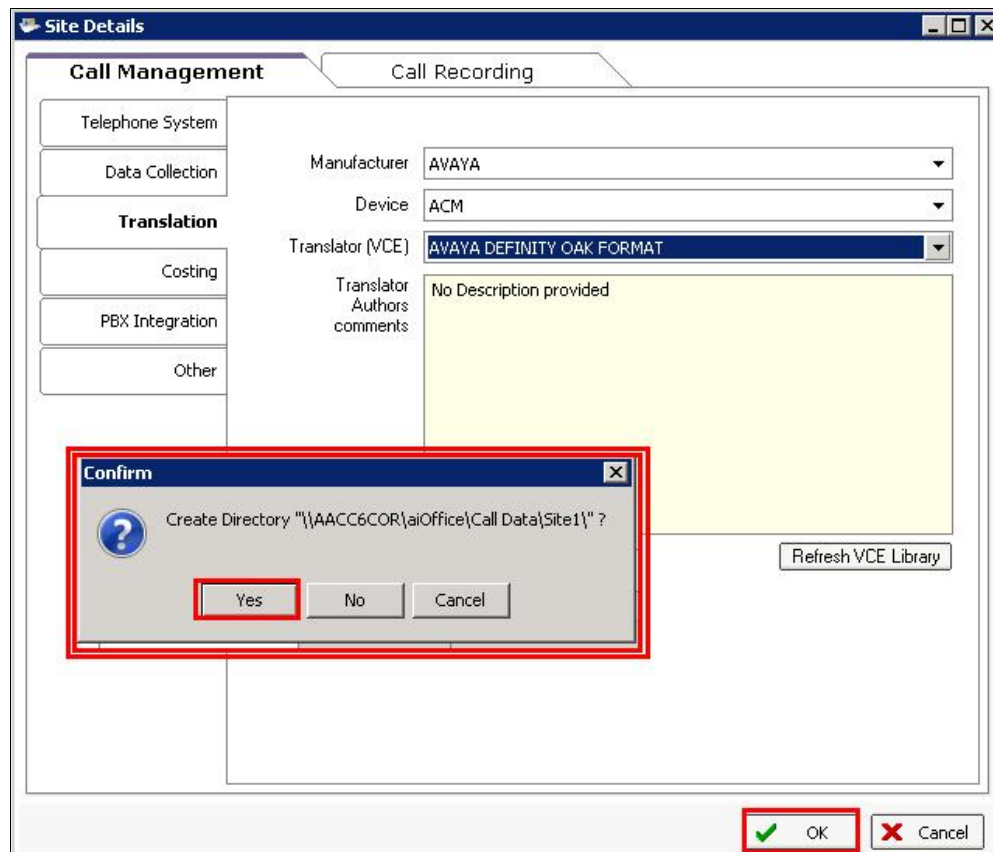

A system window opens prompting the user to save changes. Click **Yes** as highlighted below to save all changes made in this section.

PG; Reviewed:
SPOC 2/20/2012
Solution & Interoperability Test Lab Application Notes
©2012 Avaya Inc. All Rights Reserved.
16 of 26
reportX_CM601

Once the changes are saved, a window automatically opens prompting the restart of all reportX services. Click on **Restart All** and then **OK** as highlighted below.
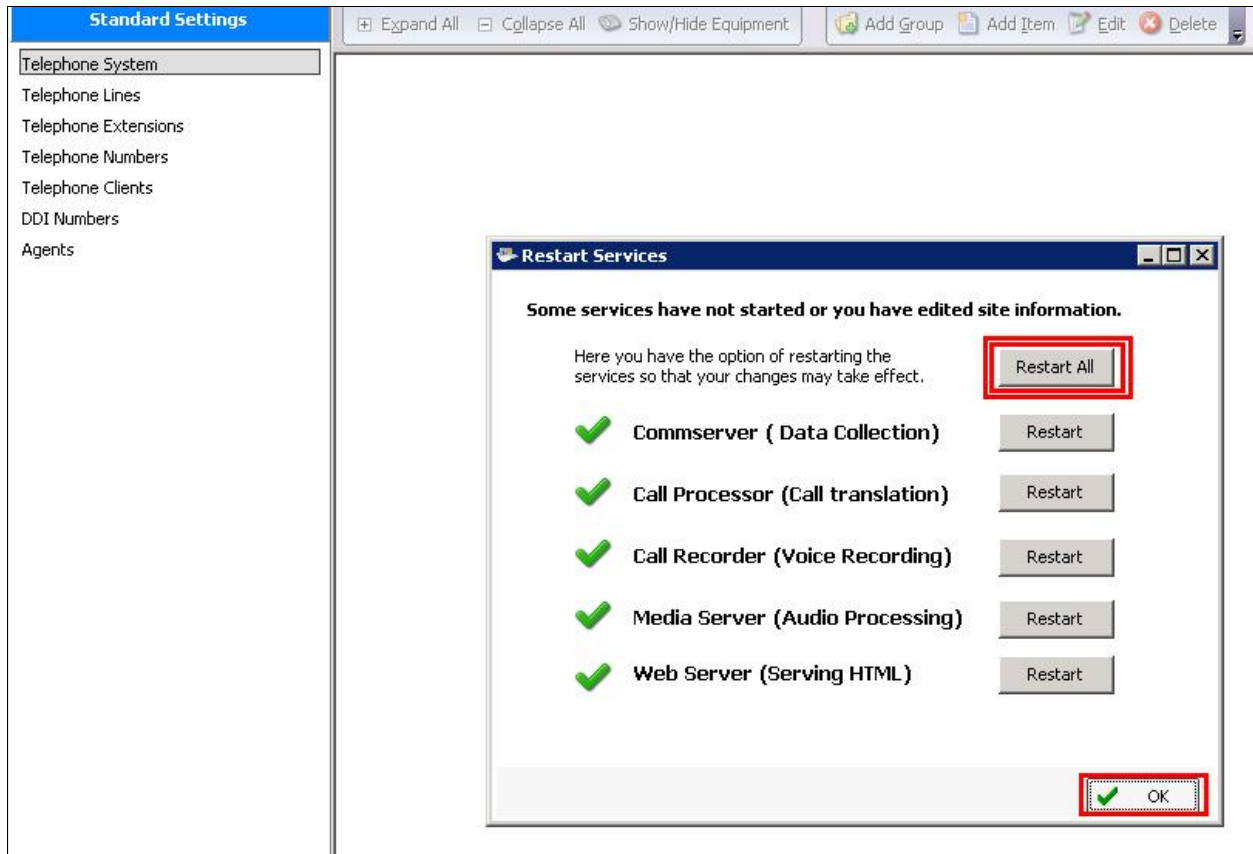
7. Verification Steps

The following steps can be taken to ensure that the Communication Manager is sending CDR data and to show that the reportX server is receiving this data and processing it properly.

7.1. Verify that CDR data is being sent by the Avaya Aura® Communication Manager

Type **status cdr-link,** this brings up a page showing the **Link State** as either up or down. Observe as shown below the **Link State** should be **up**.

```
status cdr-link
                              CDR LINK STATUS
                 Primary                       Secondary

        Link State: up                         CDR not administered

      Date & Time: 2011/11/02 11:11:02         0000/00/00 00:00:00
  Forward Seq. No: 0                            0
 Backward Seq. No: 0                            0
CDR Buffer % Full:   0.00                          0.00
      Reason Code: OK
```

7.2. Verify Oak telecom Services are running

Open a web session to http://<servername>:9595 in order to view the services as highlighted below.
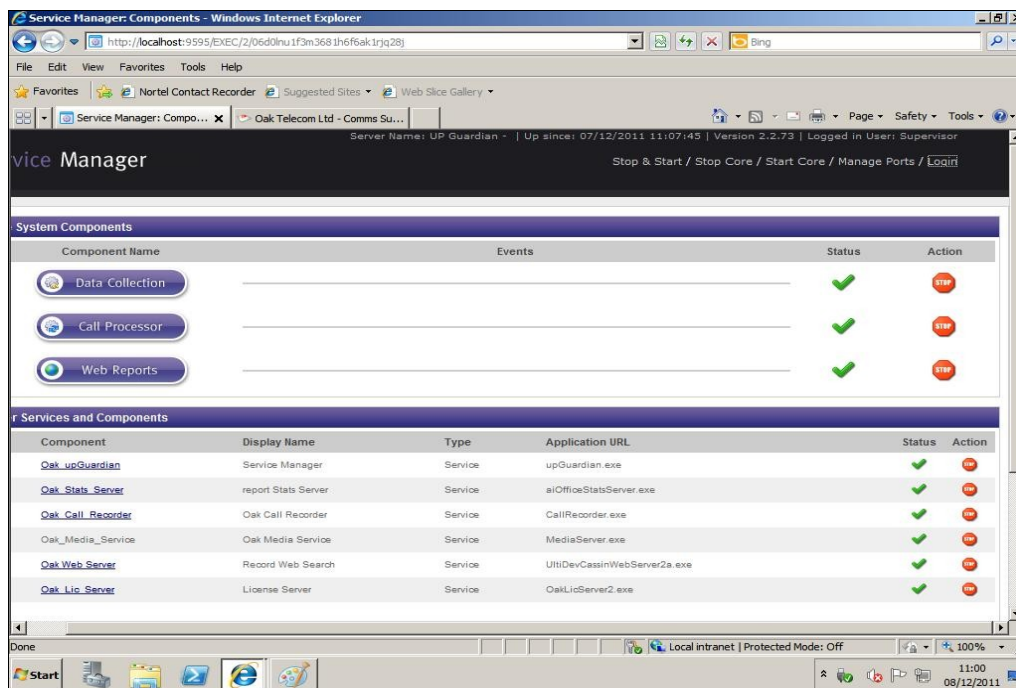
7.3. Verify that CDR data is being received by Oak Telecom's reportX Server

Log onto the reportX server and check that raw CDR data is being received into the Site1 Folder. Open the folder called Site1 located in **C:/Program Files (x86)/Oak Telecom/aiOffice/Call Data**. This should contain a **COL File** as is highlighted below.
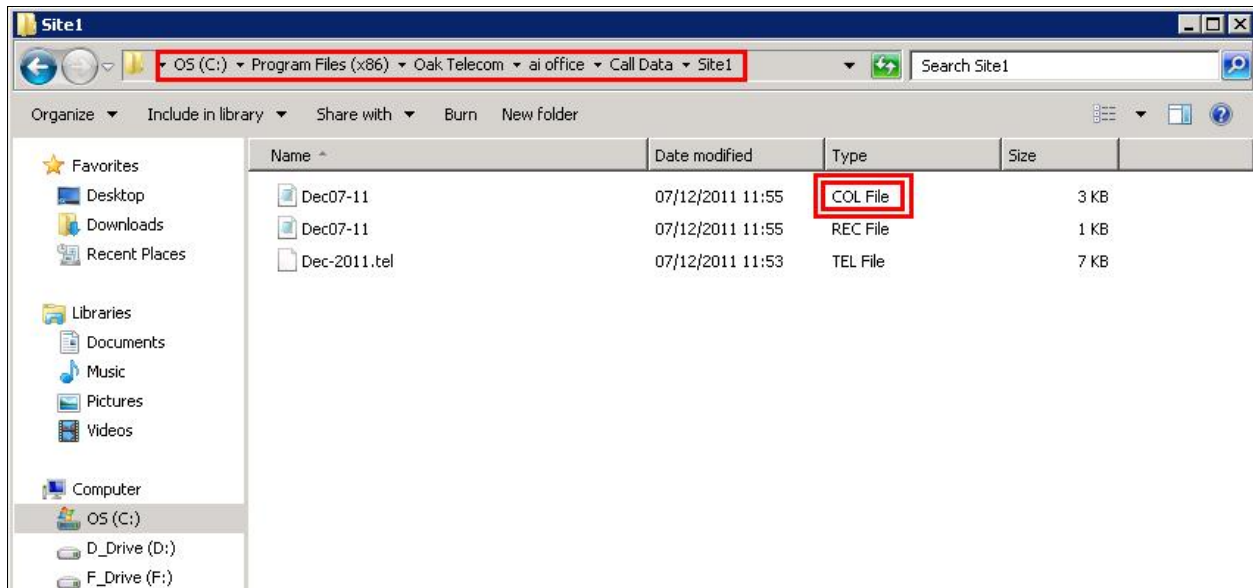

The COL File should contain information on recent calls as shown below. This will be in raw format and is not expected to be fully understandable.
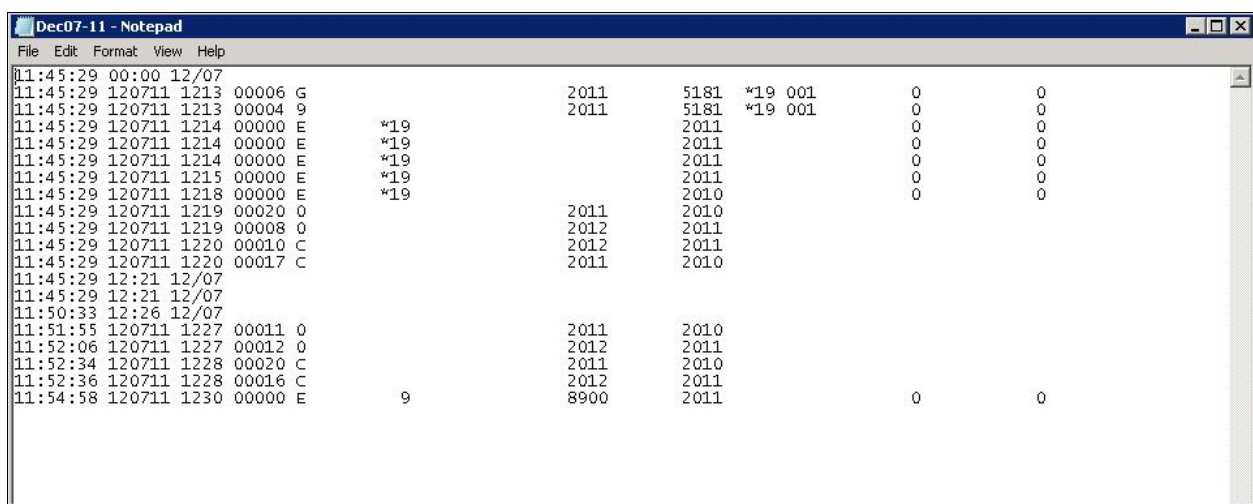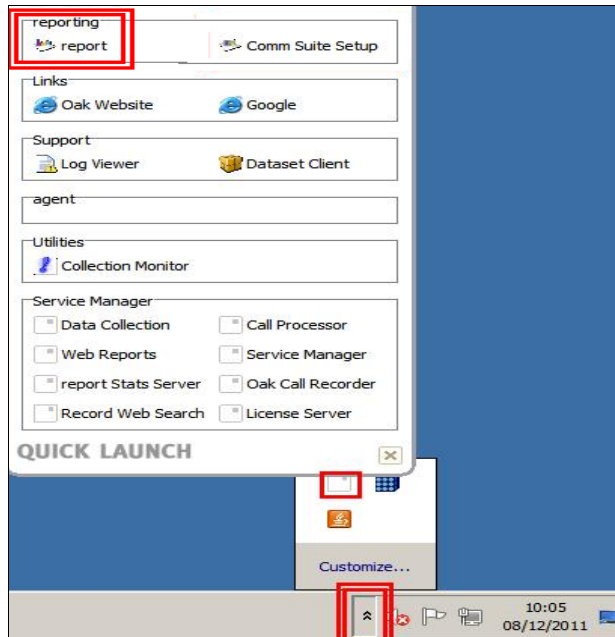
7.4. Verify that Oak Telecom's reportX is producing reports on CDR information correctly

Open the reportX client software Report09 in order to view reports. Navigate to **Start →
Programs → Oak Telecom → report → report09** as shown below.
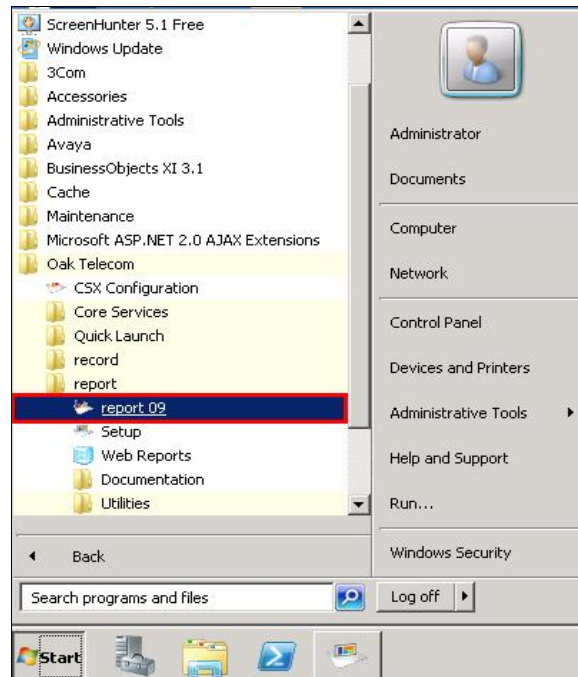

Alternatively, reports can be accessed from the Quick Launcher as shown below. Click on the blank icon in the **QUICK LAUNCH** and select **report.**

Solution & Interoperability Test Lab Application Notes
©2012 Avaya Inc. All Rights Reserved.

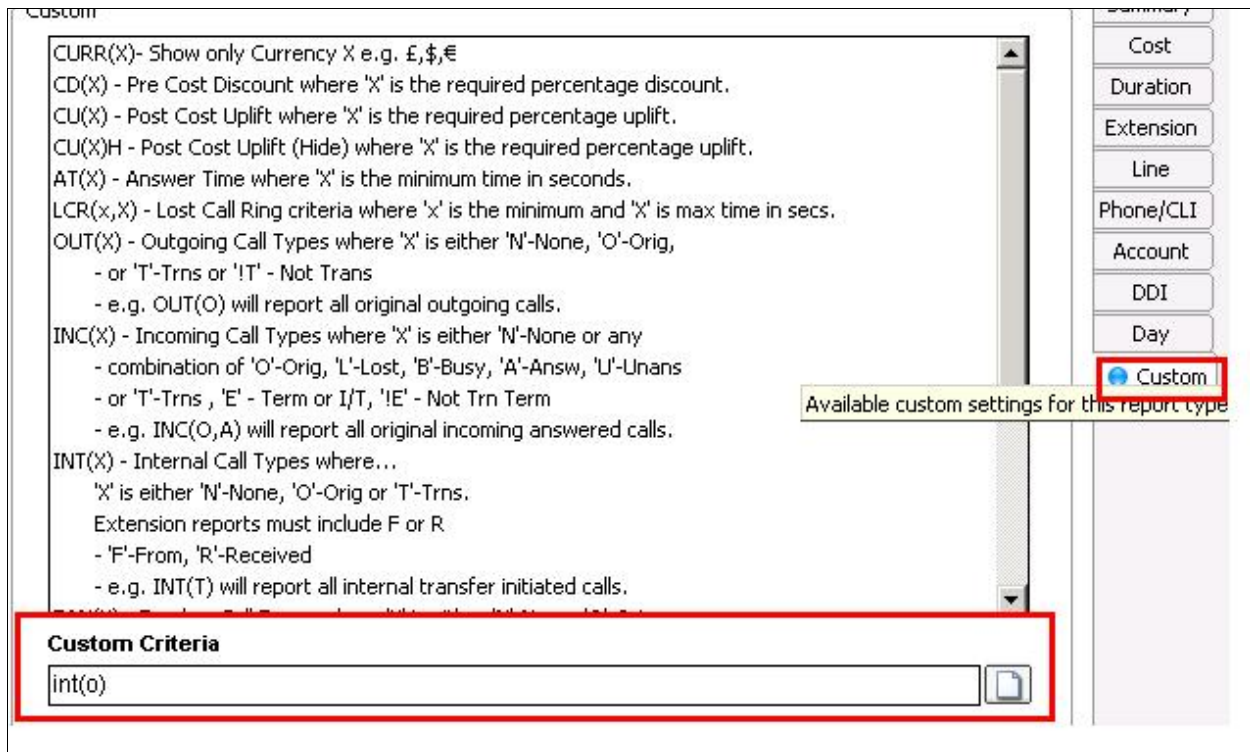Select **Supervisor** for the **Username** and enter the appropriate **Password**. Click **OK**.
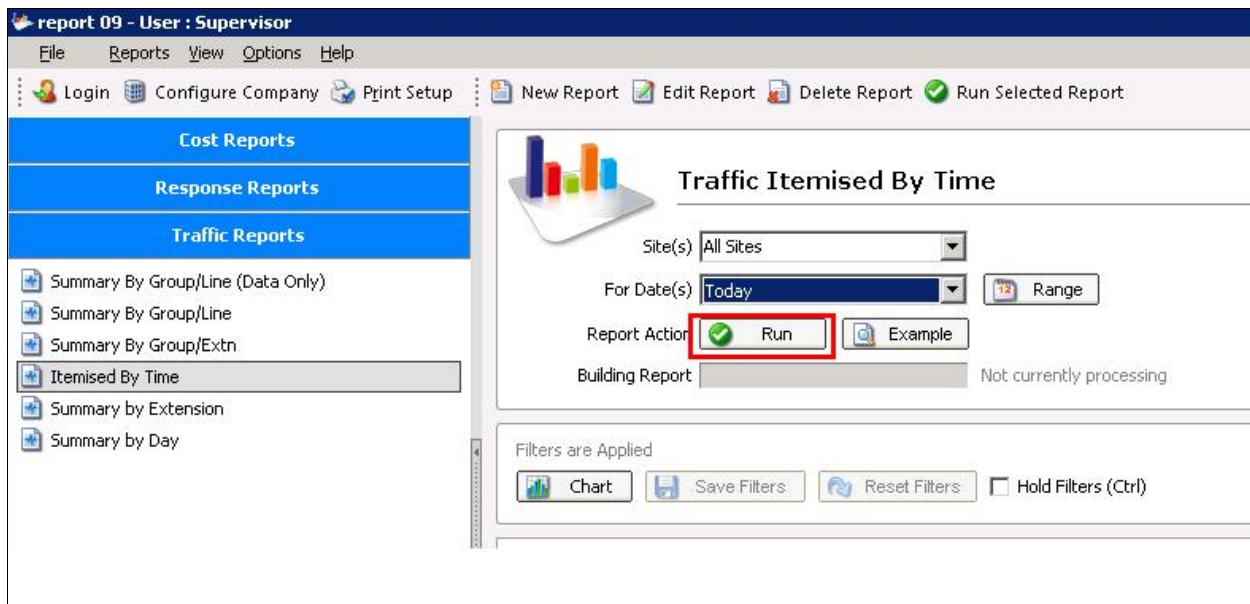

Click on **Traffic Reports** and select **Itemised By Time** as highlighted below. Before the report is run, click on **Custom** to include internal calls in the report.
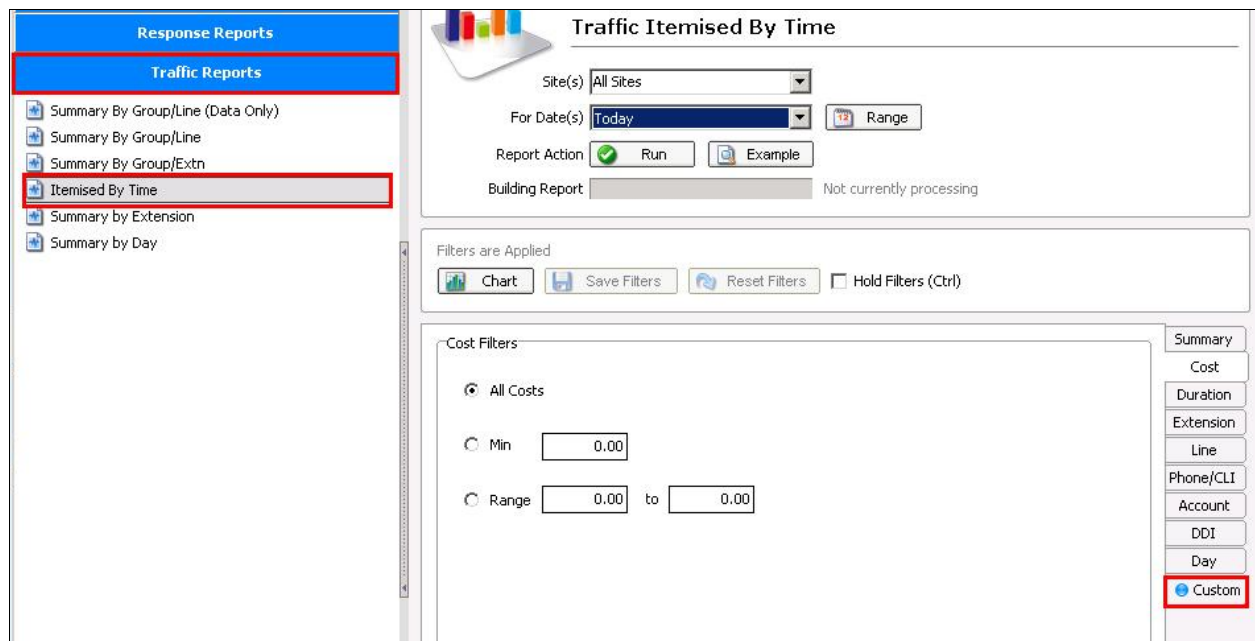
Type **int(o)** into the **Custom Criteria** window as shown below.

Click on **Run** to run the report as highlighted below.

An example of such a report is shown below.

Run on : 7 December 2011 12:02:56   Page 1

Itemised By Time

Site : (1)Avaya Aura Communication Server. Calls from Wed Dec 07 2011 to Wed Dec 07 2011. Calls from 00:00 to 23:59 each day. Internal Calls: Original.

Date	Time	Site Code	Type Of Call	From Extn/ Line	To Extn/ Line	Duration HH:MM:SS	Ring Secs	Answ Call	Trans Call	Phone Number	Account Code	Cost €
Dec 07 11	12:18:00	ACM	Int	E 2011	E 2012	00:00:08	0	Yes	No			€ 0.00
Dec 07 11	12:18:00	ACM	Int	E 2010	E 2011	00:00:20	0	Yes	No			€ 0.00
Dec 07 11	12:19:00	ACM	Out	E 2010	L	00:00:17	0	---	No	2011		€ 0.00
Dec 07 11	12:19:00	ACM	Out	E 2011	L	00:00:10	0	---	No	2012		€ 0.00
Dec 07 11	12:26:00	ACM	Int	E 2011	E 2012	00:00:12	0	Yes	No			€ 0.00
Dec 07 11	12:26:00	ACM	Int	E 2010	E 2011	00:00:11	0	Yes	No			€ 0.00
Dec 07 11	12:27:00	ACM	Out	E 2011	L	00:00:16	0	---	No	2012		€ 0.00
Dec 07 11	12:27:00	ACM	Out	E 2010	L	00:00:20	0	---	No	2011		€ 0.00
	Total Calls	8										

8. Conclusion

As illustrated in these Application Notes, Oak Telecom's reportX can be configured to successfully interoperate with Avaya Aura® Communication Manager R6.0.1. All call types generated a CDR record and was reported on correctly by the reportX Server.

9. Additional References

This section references documentation relevant to these Application Notes. The Avaya product documentation is available at http://support.avaya.com where the following documents can be obtained.

[1] *Administering Avaya Aura® Communication Manager, Document ID 03-300509, June 2010.*

[2] *Avaya Aura® Communication Manager Feature Description and Implementation, Document ID 555-245-205, June 2010.*

[3] *Maintenance Commands for Avaya Aura® Communication Manager, Branch Gateways and Servers Document ID 03-300431, May 2011.*

All information on the product installation and configuration for Oak Telecom reportX can be found at http://help.oak.co.uk. This is an online help which contains documentation and video guides supporting all Oak Telecom's products.

©2012 Avaya Inc. All Rights Reserved.
Avaya and the Avaya Logo are trademarks of Avaya Inc. All trademarks identified by ® and ™ are registered trademarks or trademarks, respectively, of Avaya Inc. All other trademarks are the property of their respective owners. The information provided in these Application Notes is subject to change without notice. The configurations, technical data, and recommendations provided in these Application Notes are believed to be accurate and dependable, but are presented without express or implied warranty. Users are responsible for their application of any products specified in these Application Notes.

Please e-mail any questions or comments pertaining to these Application Notes along with the full title name and filename, located in the lower right corner, directly to the Avaya DevConnect Program at devconnect@avaya.com.