**Avaya Solution & Interoperability Test Lab**

# Application Notes for Infortel Select version 8.1 with Avaya Communication Server 1000, Release 7.0 using Serial Buffer Box – Issue 1.0

## Abstract

These Application Notes describe the configuration steps required for the Infortel Select version 8.1 to successfully interoperate with Avaya Communication Server 1000 Release 7.0 using a Serial buffer box.

Infortel Select v8.1 is an application that is able to process and cost Call Detail Records generated by the Avaya Communication Server Release 7.0 and output them in a report format. The Call Detail Records generated by the Avaya Communication Server is collected using a Serial buffer box.

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 objective of this interoperability compliance testing is to verify that the Infortel Select v8.1 application can collect, process and cost Call Detail Records (CDR) that are generated by the Avaya Communication Server 1000 Release 7.0 (CS1000) and generate the output in various reports format. The collection of CDR is being done using a Serial buffer box.

# 2. General Test Approach and Test Results

The compliance test included configuring the Infortel Select Server to collect CDR records from Serial buffer, process them and be able to output them in reporting format with data in the report matching that of the raw CDR data. All the intended tests were carried out and the results were positive.

## 2.1. Interoperability Compliance Testing

The focus of the compliance testing was primarily on verifying whether the Infortel Select application can connect to a Serial buffer box and collect the CDR generated by the CS1000. Once the records have been collected, the application needs to process the data and cost it as required and should be able to provide the output in a report format.

For testing purposes basic calls like internal, Inbound PSTN, Outbound PSTN, Conference, Transfer and calls from secondary directory number (DN) were placed in the CS1000. These calls generated CDR that was buffered in the serial buffer. The Infortel Select application successfully connected to the buffer box, downloaded the CDR data, and processed them as required and was able to provide the processed data in a report format.

## 2.2. Test Results

The objectives outlined in the **Section 2.1** were verified and met. All test cases were executed and they all passed.

## 2.3. Support

Technical support for Infortel Select can be obtained by calling 1.800.326.6183 or by opening a service ticket at http://www.isi-info.com/support/support_serviceticket.htm

# 3. Reference Configuration

**Figure 1a and 1b** illustrate the lab test configurations used during the compliant testing event between the CS1000 and the Infortel Select Application Server using the Serial buffer box. **Figure 1a** shows the setup where the collection from the buffer box to the Infortel Select server is using the modem connectivity. **Figure 1b** shows the setup where the collection from the buffer box to the Infortel Select server is using the Ethernet connectivity.

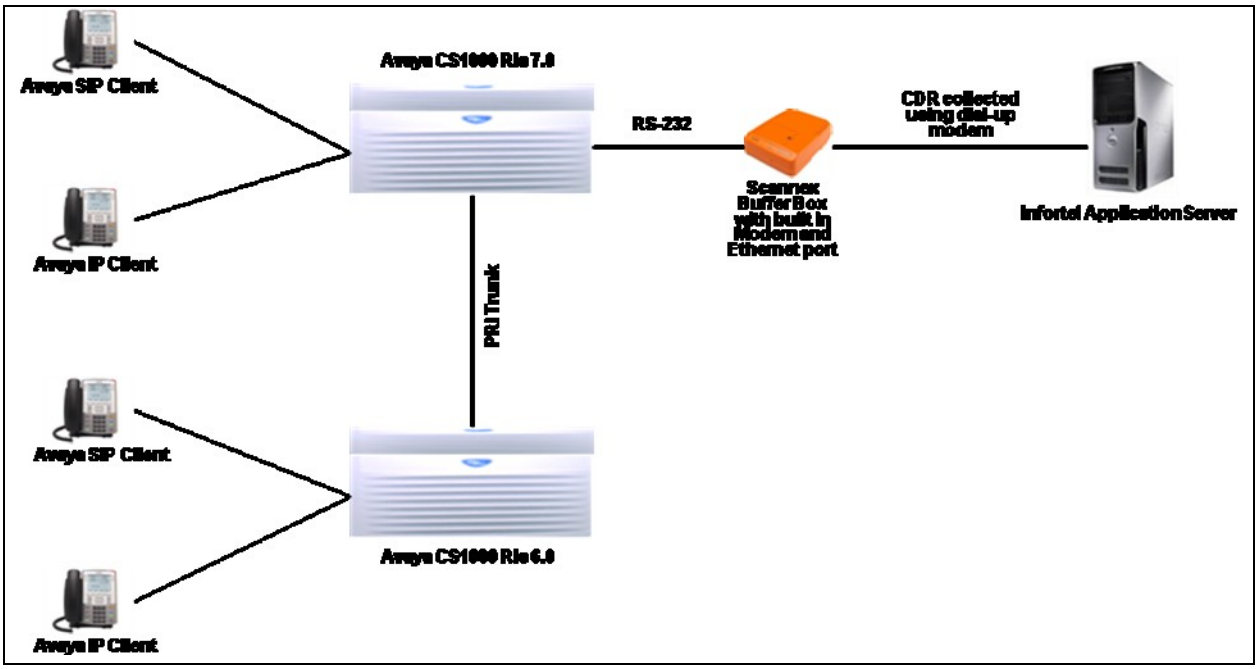


**Figure 1a: Lab Test Connection Diagram for CS1000 and Infortel Select using a Serial Buffer Box and Modem connectivity**

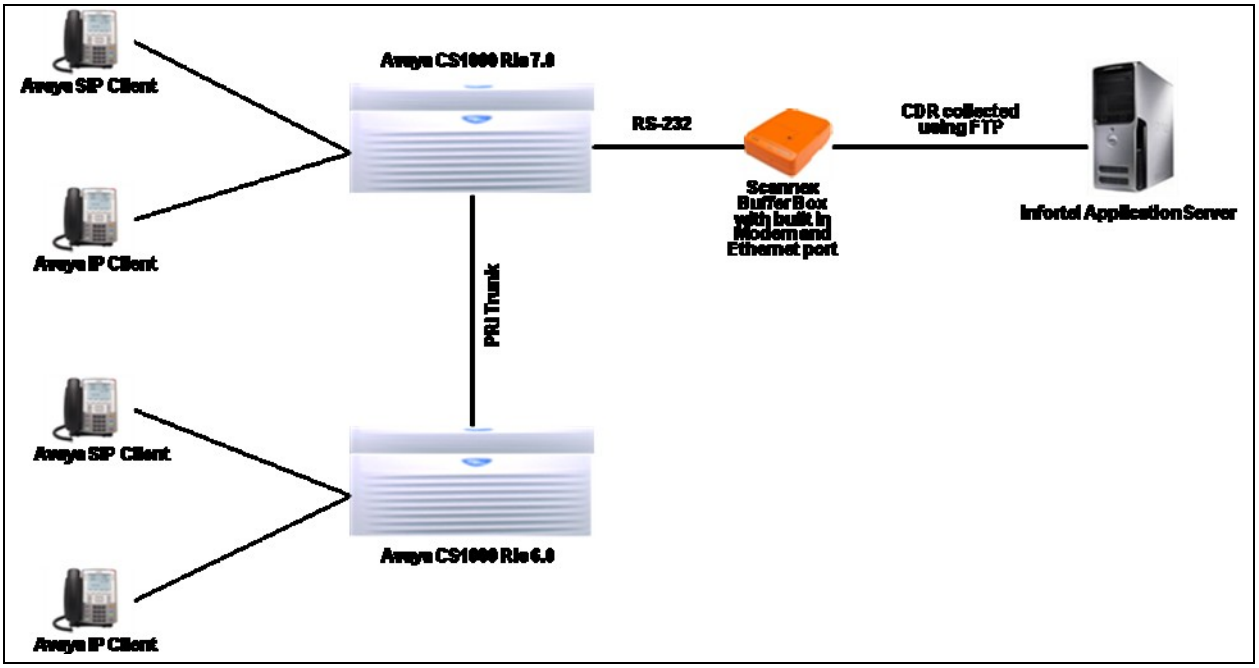


**Figure 1b: Lab Test Connection Diagram for CS1000 and Infortel Select using a Serial Buffer Box and Ethernet connectivity**

# 4. Equipment and Software Validated

The following equipment and software were used during the lab testing:

| Equipment | Software/Firmware |
|---|---|
| Avaya CS1000 | SW Version : 7.00 Q<br>SW Version : 6.00 (used for emulated PSTN) |
| Avaya Telephones:<br>i2004 (IP)<br>i2007 (IP)<br>1120E (IP)<br>1140E (SIP) | <br>0602B76<br>0621C7D<br>0624C7J<br>02.02.21.00 |
| Infortel Select Application Server | Windows XP SP3 |
| Infortel Select | SW Version 8.1.0 |
| Scannex IP Buffer | FW Version 2.60.159 |

# 5. Configuration on CS1000

This section describes the steps to configure the CS1000 so that it can generate the CDR. The section also explains the hardware connection between the CS1000 and the buffer box.

## 5.1. Configuring the CS1000 for generating CDR

This section describes the configuration that needs to be done on the CS1000 using the overlays so that the CS1000 generates the CDR as required.

Overlays **17**, **16** and **11** are used to do the required configuration.

To configure the CS1000 to output CDR records to the serial port, login to the CS1000 and use overlay **LD 17**. In this **LD**, configure the **TTY** port that is found under the **ADAN** gate opener. **Figure 2** below shows the print of the configuration. The responses in red are the required input to be configured in **LD 17**.

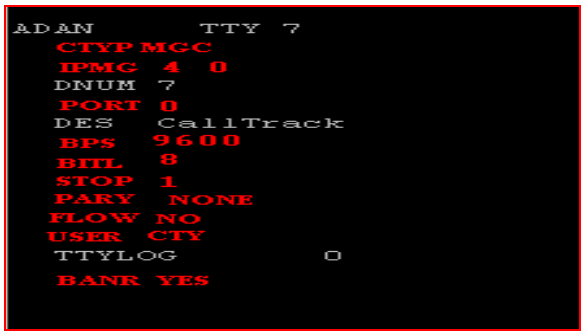


**Figure 2: Print of TTY in ADAN showing the Serial port Configuration**

Also in **LD 17** under the **PARM** gate opener the *FCDR* type and the *CLID* needs to be configured. **Figure 3** below shows the print of the configuration. The responses in red are the required input to be configured in **LD 17**.

```
ERRM ERR BUG AUD
DTRB 100
ABCD NO
TMRK 128
FCDR NEW
PCDR NO
TPO  NO
TSO  NO
CLID YES
DUR5 NO
MLDN YES
MARP YES
IPIE NO
```

**Figure 3: Print of PARM in ADAN showing the FCDR and CLID Configuration**

The route in CS1000 needs to be configured for CDR and it is configured in **LD 16**. This is the route in CS1000 on which the test calls are made. **Figure 4** below shows the print of the configuration. The responses in red are the required input to be configured in **LD 16**.

```
DRNG NO
CDR  YES
INC  YES
LAST YES
TTA  NO
QREC YES
OAL  YES
AIA  NO
OAN  YES
OPD  NO
```

**Figure 4: Print of RDB showing the required Configuration**

The telephones on the CS1000 whose CDR needs to be collected need to have their class of service configured to output the CDR information. Telephones (SIP, IP and digital) are configured using **LD 11**. **Figure 5** below shows the print of the configuration. The responses in red are the required input to be configured in **LD 11**. Note that other class of services needs to be configured depending on the required CDR output, however during compliance testing, internal call CDR is required and therefore class of service **ICDA** is configured as shown in **Figure 5**.

```
CAC_MFC 0
CLS  UNR FBA WTA LPR PUA MTD FNA HTA TDD HFD CRPD
     MWD LMPN RMMD SMWD AAD IMD XHD IRD NID OLD VCE DRG1
     POD SLKD CCSD SWD LND CNDD
     CFTD SFD MRD DDV CNID CDCA MSID DAPA BFED RCBD
     ICDA CDMD LLCN MCTD CLBD AUTU
     GPUD DPUD DNDD CFXD ARHD CLTD ASCD
     CPFA CPTA ABDD CFHD FICD NAID BUZZ AGRD MOAD
     UDI RCC HBTD AHD IPND  DDGA NAMA MIND PRSD NRWD NRCD NROD
     DRDD EXRO
     USMD USRD ULAD CCBD RTDD RBDD RBHD PGND FLXD FTTC DNDY DNO3 MCBN
     FDSD NOVD VOLA VOUD CDMR PRED RECD MCDD T87A SBMD KEM3 MSNV FRA  PKCH MUTA
MWTD DVLD CROD CROD
```

**Figure 5: Print of a Telephone showing the CLS Configuration**

Refer to **Section 9 [1]** for additional information on the CS1000 administration.

## 5.2. Connecting the CS1000 to the Buffer Box

This section explains the hardware connection between the CS1000 and the buffer box. It is assumed that the buffer box is pre-configured to collect the CDR that is being outputted by the CS1000.

Connect one end of the 9 pin serial cable to the RS-232 port of the CS1000 and the other end to the COM1 port of the Scannex buffer box via a null modem. Once the buffer box is powered on, it starts to collect the CDR that is being outputted by the CS1000.

Refer to **Section 9 [2]** for additional information on the Scannex IP buffer box.

# 6. Configuration for Infortel Select

This section describes the steps on how to configure the Infortel Select Server to collect the CDR stored in the buffer box, process the data and generate the reports. It also explains the hardware connectivity between the Infortel Select Server and the Scannex buffer box.

## 6.1. Connecting the Infortel Select Server to the Buffer Box

The Infortel Select Server can collect the CDR from the buffer box by the following two methods,

- Dial-Up Modem: In this configuration, the Infortel Select Server is connected to a modem using one of its COM ports. The modem is connected to an analog line port of the CS1000. The Scannex buffer box has an inbuilt modem and it too is connected to an analog line port of the CS1000. When the Infortel Select Sever wants to collect the CDR, it dials into the Scannex buffer box and retrieves the CDR data.

- FTP Service: In this configuration, the Infortel Select Server is on an IP network. The Scannex buffer box has an Ethernet port and it too is connected to the same IP network. When the Infortel Select Server wants to collect the CDR, it uses the FTP service, connects to the buffer box and retrieves the CDR data.

## 6.2. Configuring the Infortel Select Server to collect CDR

This section describes how to configure the Infortel Select Server so that it can collect the CDR from the buffer box. The assumption is made here that the Infortel Select application is installed correctly and hard wired to the buffer box using either the Modem or Ethernet connectivity as explained in Section **6.1**. For additional information on Infortel Select installation, refer to **Section 9 [3].**

To configure the Infortel Select Server to collect the CDR data from the buffer box, navigate to **Start > Programs > Infortel Select > Control Center** from the server it is installed on (not shown). **Figure 6** shows the main screen of the Control Center.

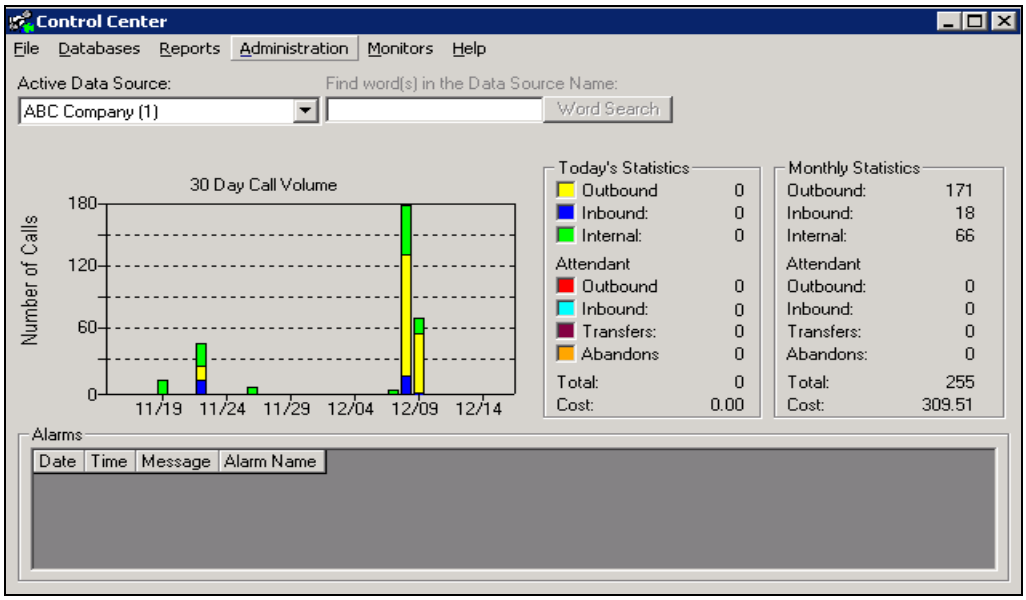


**Figure 6: Control Center Main Screen**

From the Control Center Main Screen navigate to **Administration > System Configuration options** as shown in **Figure 7** below.

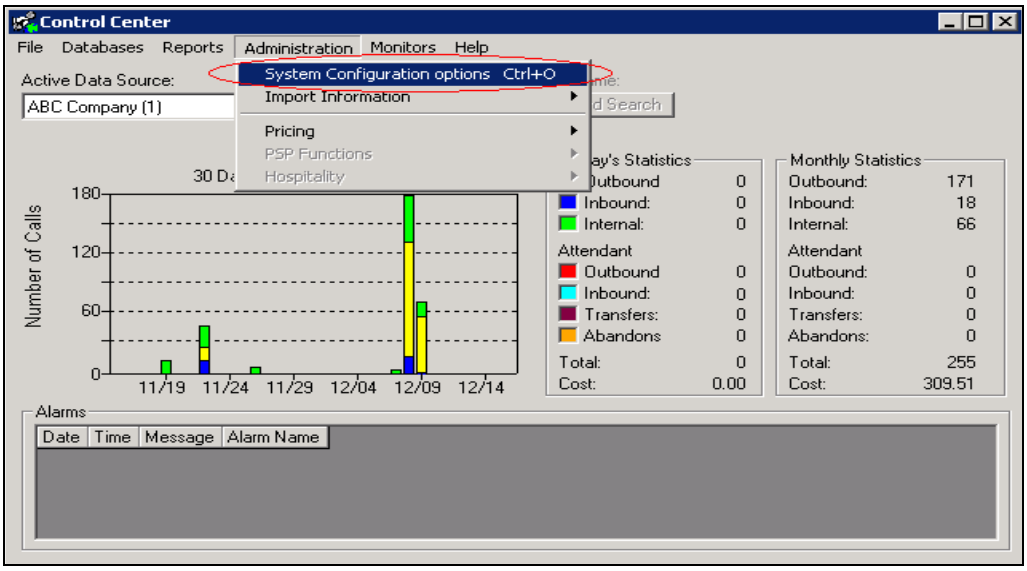


**Figure 7: Administration Screen**

From the System Configuration screen, select **Data Source (*)** and click on the **Run** button as shown in **Figure 8**.

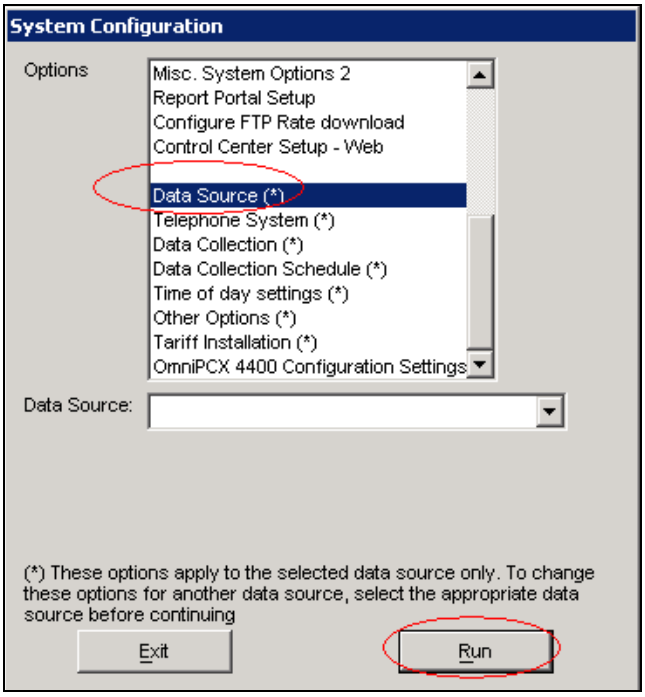


**Figure 8: Data Source Configuration**

From the Data Source screen as shown in **Figure 9**, enter the relevant information for the fields *Data Source Name, Home Area Code (NPA)* and *Exchange (NXX)*. Click on the **OK** button.

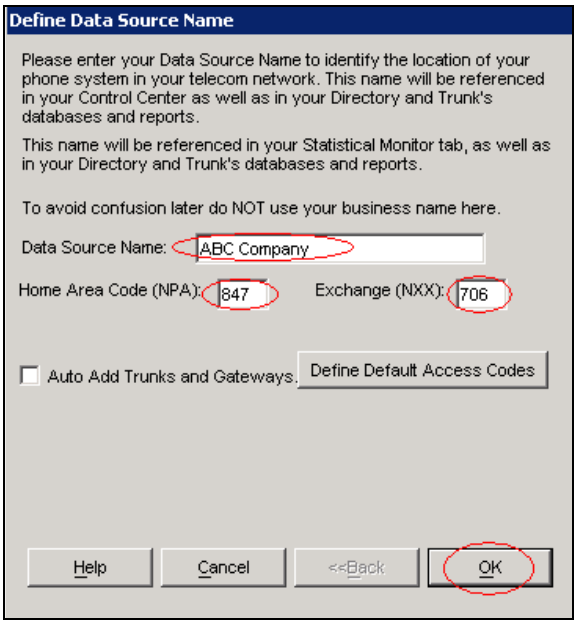


**Figure 9: Configuring Data Source Name**

To configure the Data Collection, navigate to **Administration > System Configuration options** as shown in **Figure 7** and from the System Configuration screen, select **Data Collection (*)** and click on the **Run** button as shown in **Figure 10**.

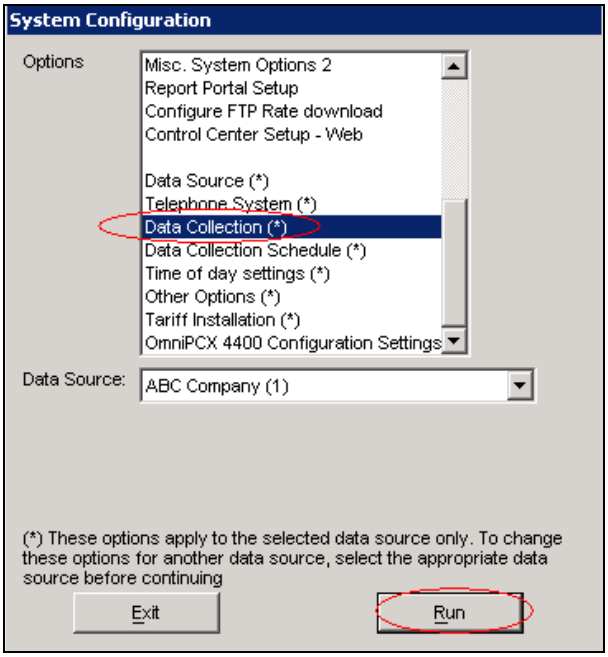


**Figure 10: Data Collection Configuration**

As explained in **Section 6.1** Infortel Select Server can connect using two methods. To collect the CDR using dial-up modem, configure the fields as shown in the Data Collection Settings screen

of **Figure 11.** Under *Data Collection Method* select **Remote Polling via Modem**. From the *External Data Buffer Type* drop down field select **Poll-Cat NetLink**. In the *Remote Polling Phone Number* configure the DN of the Scannex buffer box. Click on the **Set Comm Settings** button to configure the selected buffer box's communication parameters.

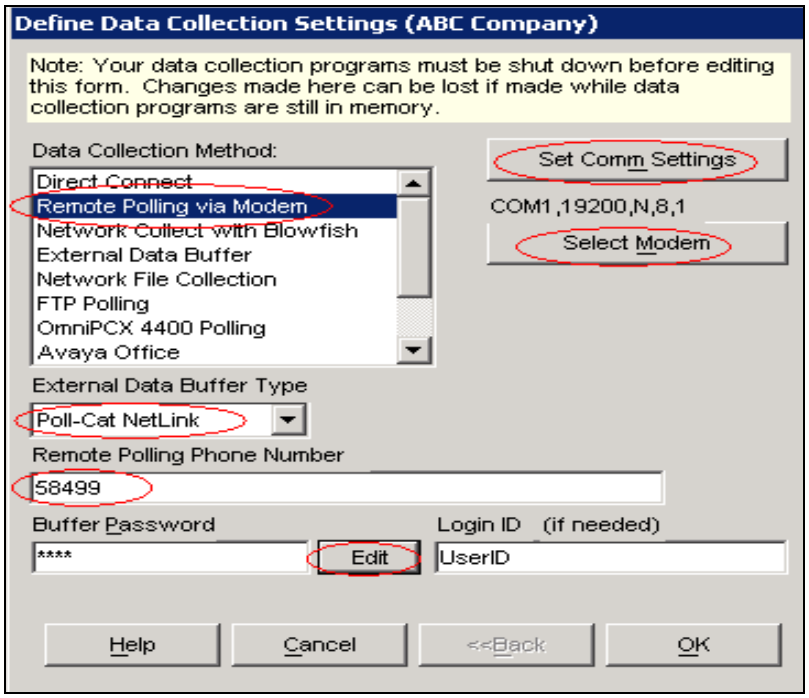


**Figure 11: Configuring Data Collection Source using Dial-Up Modem**

Configure the *Port Settings* values as shown in **Figure 12** below and the rest of the values will be at default. Click the **OK** button after completing the configuration.

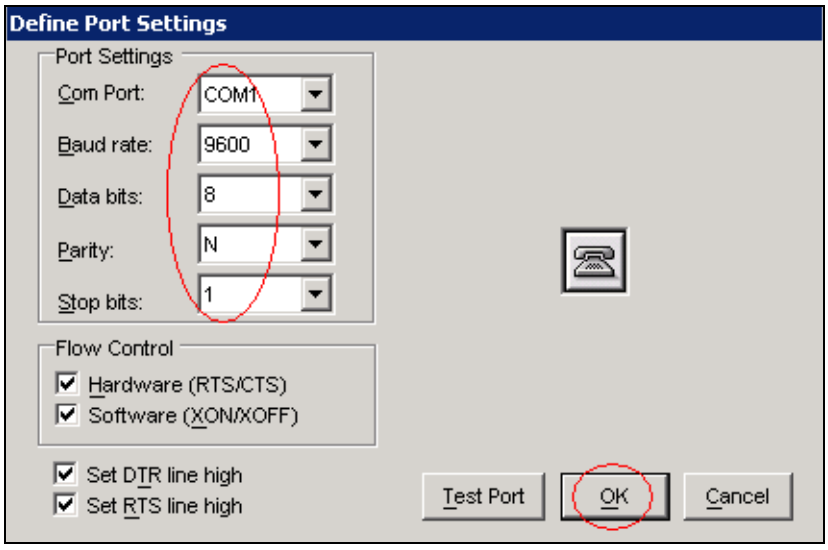


**Figure 12: Communication Settings for the selected Buffer Box**

From **Figure 11** click the **Edit** button next to the *Buffer Password* field to configure the Password (if any) for the buffer box. **Figure 13** shows the screen where the *Password* field can be configured. Click on **OK** button to continue.


**Figure 13: Configuring the Password field for the selected Buffer Box**

From **Figure 11** click the **Select Modem** button to configure the in-built modem of the Scannex buffer box. **Figure 14** shows the **Choose a Modem** screen. From the *Script* field select **generic.modem** from the drop down menu and then click on **OK** to continue.

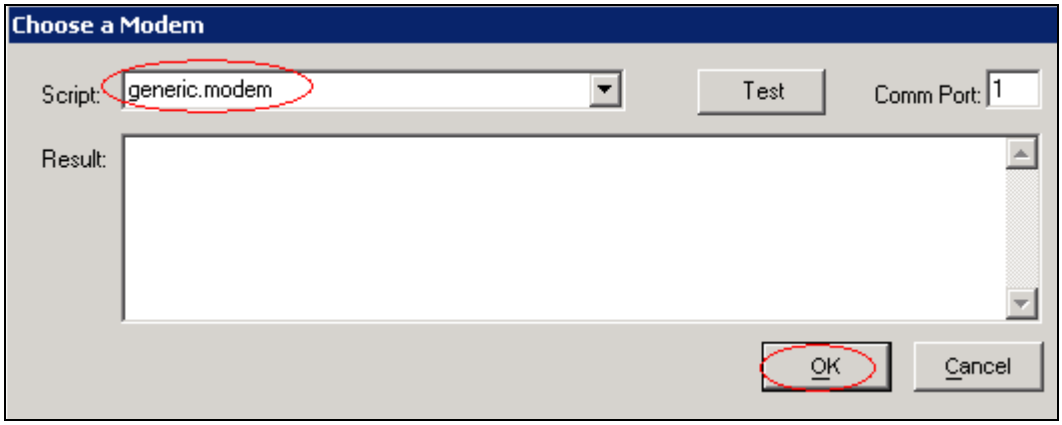


**Figure 14: Selecting a Modem**

**Figure 15** shows the final Data Collection Setting screen with the information of the modem selected.

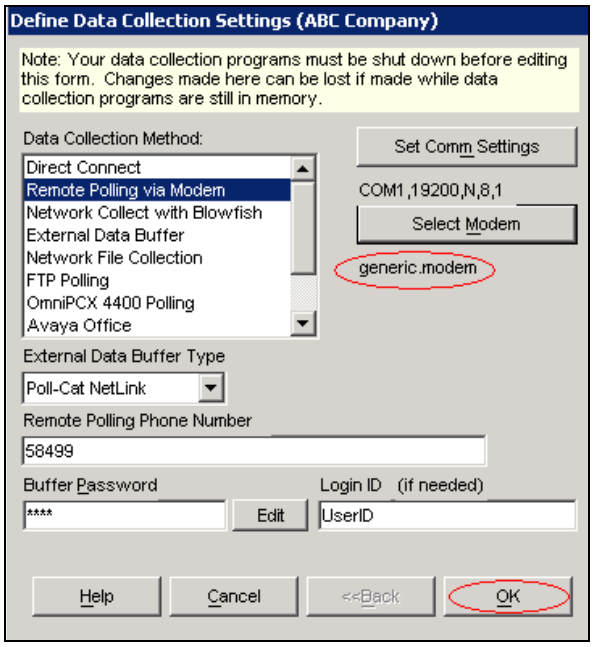


**Figure 15: Screen of Completed Data Collection Settings**

Click on **OK** button as shown in **Figure 15** to complete the Data Collection Configuration of the Infortel Select Server.

To collect the CDR using FTP service, configure the fields as shown in the Data Collection Settings screen of **Figure 16**. Under *Data Collection Method* select **FTP Polling**. For the *External Data Buffer Type*, select **Scannex/ION Network** from the drop down menu. The *FTP Address* is the IP address assigned to the Scannex buffer box. If the buffer box has any Password that needs to be configured, then click on the **Edit** button and follow the steps as shown in **Figure 13**. Click the **OK** button to complete the Data Collection Settings configuration.

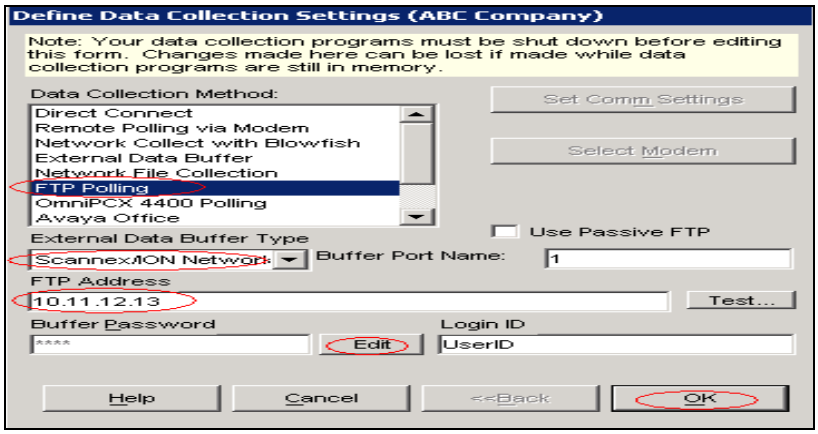


**Figure 16: Configuring Data Collection Source using FTP Service**

To configure the Data Collection Schedule, navigate to **Administration > System Configuration options** as shown in **Figure 7** and from the System Configuration screen, select **Data Collection Schedule (*)** and click on the **Run** button as shown in **Figure 17**.

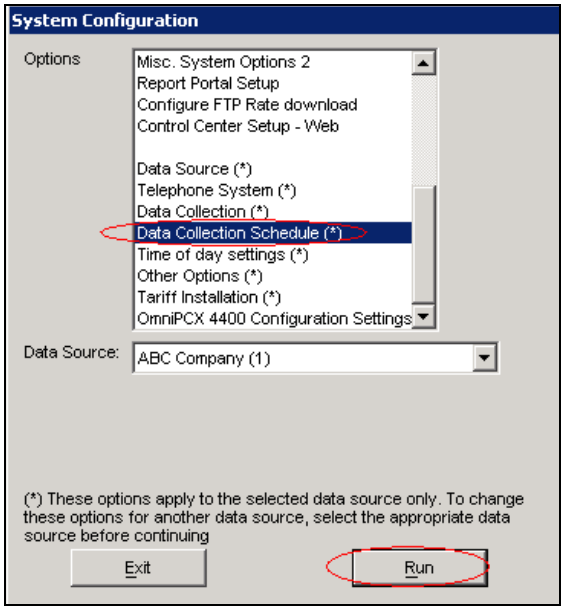


**Figure 17: Data Collection Schedule Configuration**

From the Define Data Collection Schedule Settings screen as shown in **Figure 18**, select a *Data Collection Options*. During compliance testing, the selected collection option was in **Interval** and the *Interval Data Collection Time* was set to **1 minute**. Click on the **OK** button to complete this configuration.

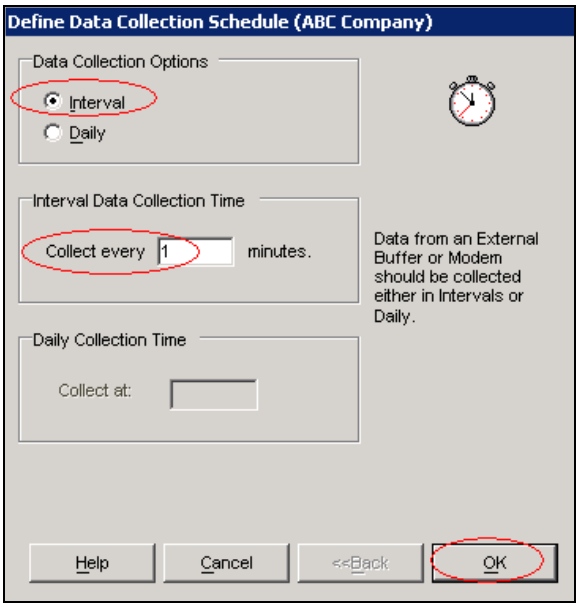


**Figure 18: Configuring Data Collection Schedule**

To complete the collection configuration, the correct Route/Trunk has to be defined on which the test calls are made. These are the same Route/Trunk that are defined on the CS1000 and configured as in **Section 5.1**.

To configure the Trunks on the Infortel Select Server, from the Control Center screen, navigate to **Databases > Trunks** as shown in **Figure 19** below.

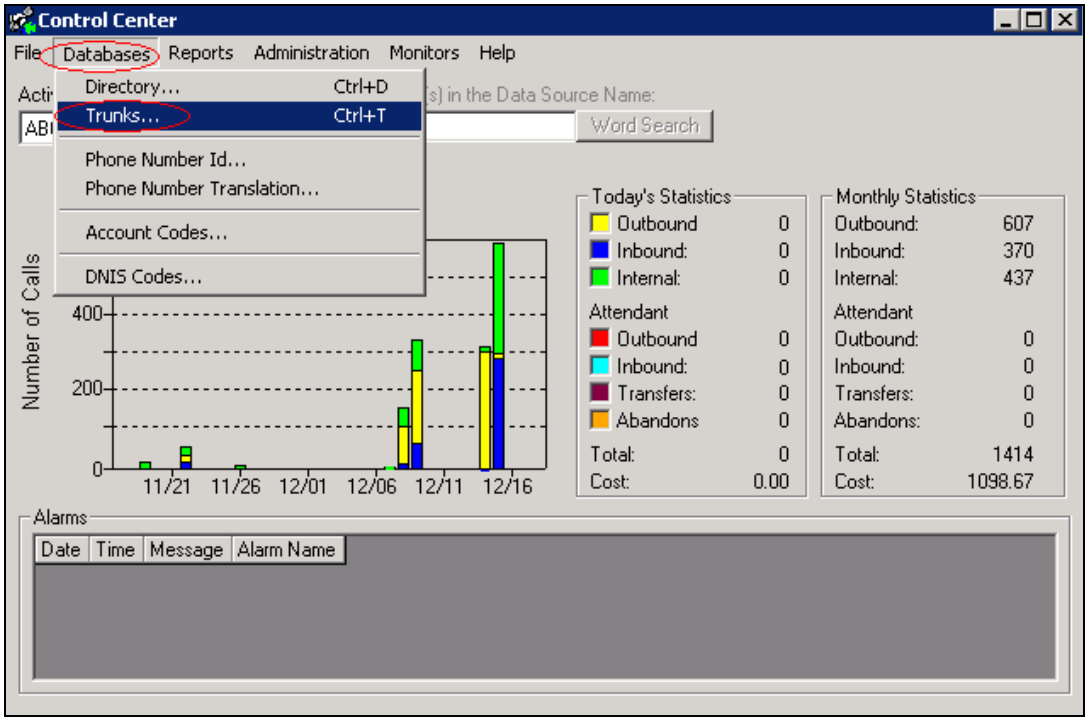


**Figure 19: Databases Screen**

To collect CDR from both internal and long distance calls, both internal and long distance routes needs to be configured. **Figure 20** below shows an internal route being configured. To add an internal route right click the mouse on **Internal** and then navigate to **Add > Add Route**.

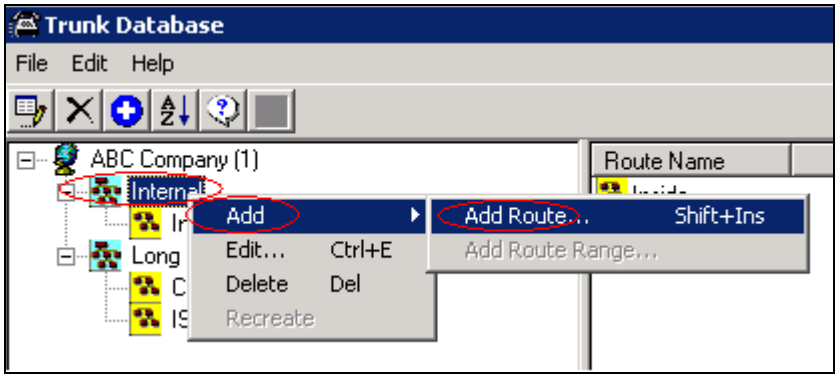


**Figure 20: Adding Internal Route**

**Figure 21** shows the internal route being configured. Fields *Route Name, Route Id* and *Member Range* needs to be populated with relevant information. Click **OK** to complete the configuration.

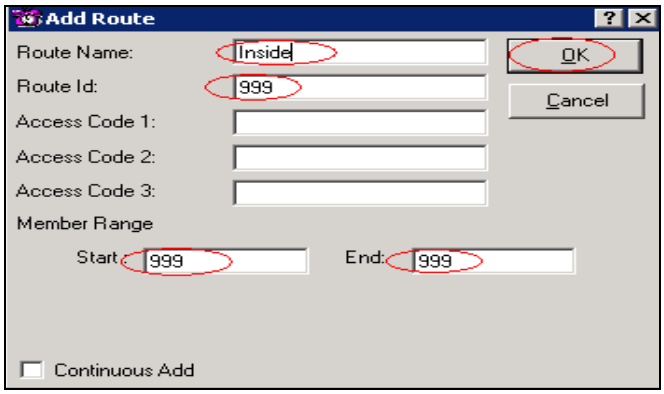


**Figure 21: Internal Route Configuration**

To configure a long distance route, first a Facility needs to be added and configured. **Figure 22** shows a Facility being added by right clicking the mouse on **ABC Company (1)** and then navigate to **Add > Add Facility**.

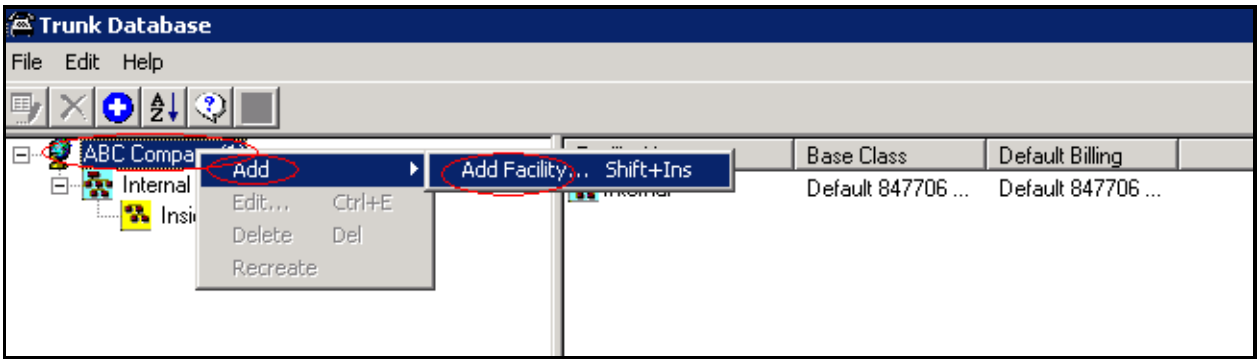


**Figure 22: Adding a Facility**

To configure the newly added Facility, populate the *Facility Name* field and select the appropriate parameters from the drop down for the *Line ID, Bill Class Name* and *GMT Offset* fields. The Rate Table selected under *Billing Description* field needs to be configured and details for setting up Rate Tables are explained in Infortel Select product document which is referred to in **Section 9 [3]**. Also populate the appropriate *Home Area Code* field and click **OK** to complete the configuration. The configuration is shown in **Figure 23** below.

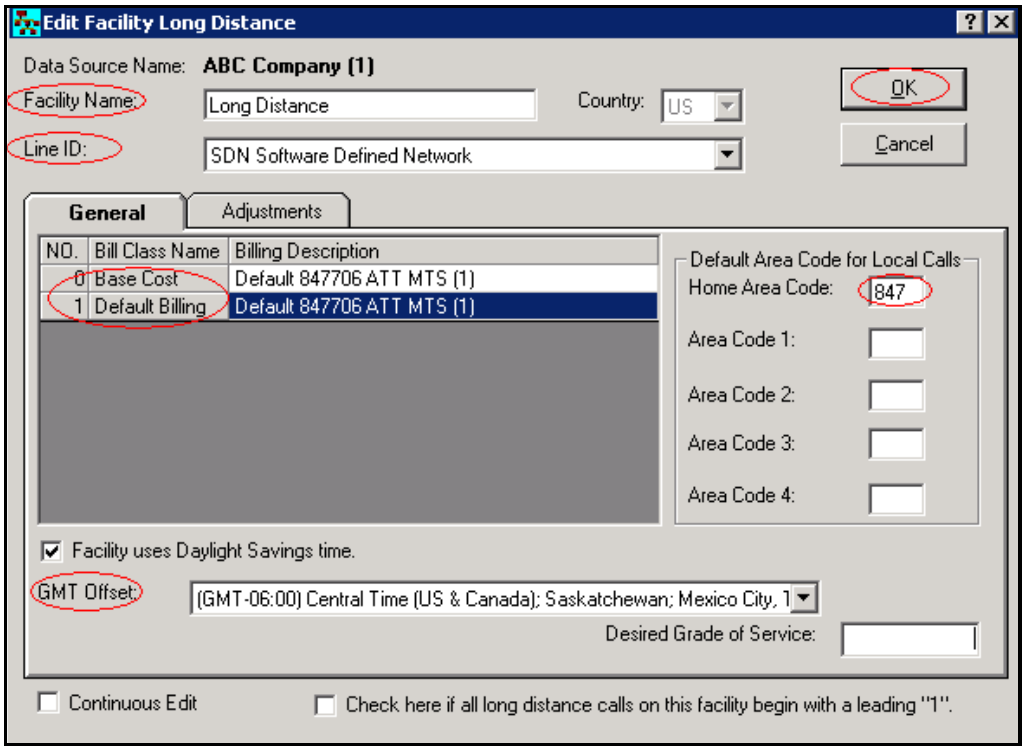


**Figure 23: Configuring the newly added Facility**

**Figure 24** below shows a long distance route being configured on the newly added facility. To add a long distance route right click the mouse on **Long Distance** and then navigate to **Add > Add Route**.

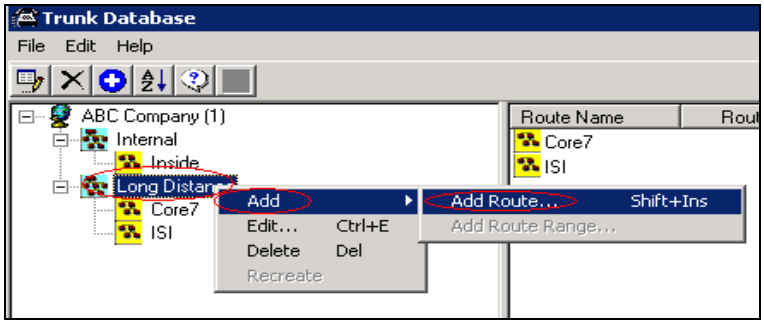


**Figure 24: Adding Long Distance Route**

**Figure 25** shows the long distance route being configured. Fields *Route Name, Route Id, Access Code 1* and *Member Range* need to be populated with relevant information. Click **OK** to complete the configuration.

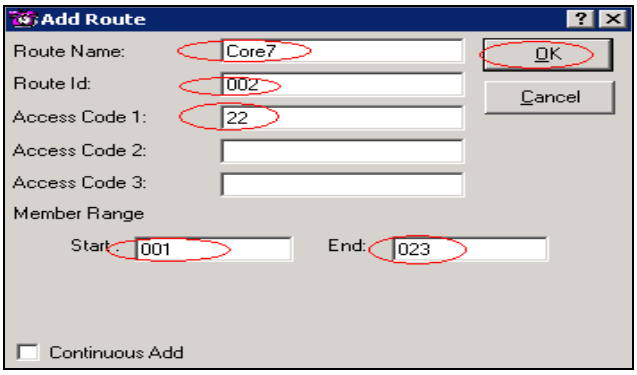


**Figure 25: Long Distance Route Configuration**

## 6.3. Collection and Processing of CDR data

CDR data collection configuration is explained in **Section 6.2**. This section explains as how the CDR data is collected and processed by the Infortel Select Server.

Infortel Select Server uses the **isvCollect** and **isvProcess** services to collect and process the CDR data respectively. These services are automatically started when the server running the Infortel Select application is booted up.

To access these services, navigate to **Start > Programs > Infortel Select > Manage Background Services** from the Infortel Select Server. **Figure 26a** below shows the main screen of the Manage Background Services. The figure also shows the **isvCollect** service running and the log message in the bottom part of the window shows that the collection (using dial-up modem method) has passed.

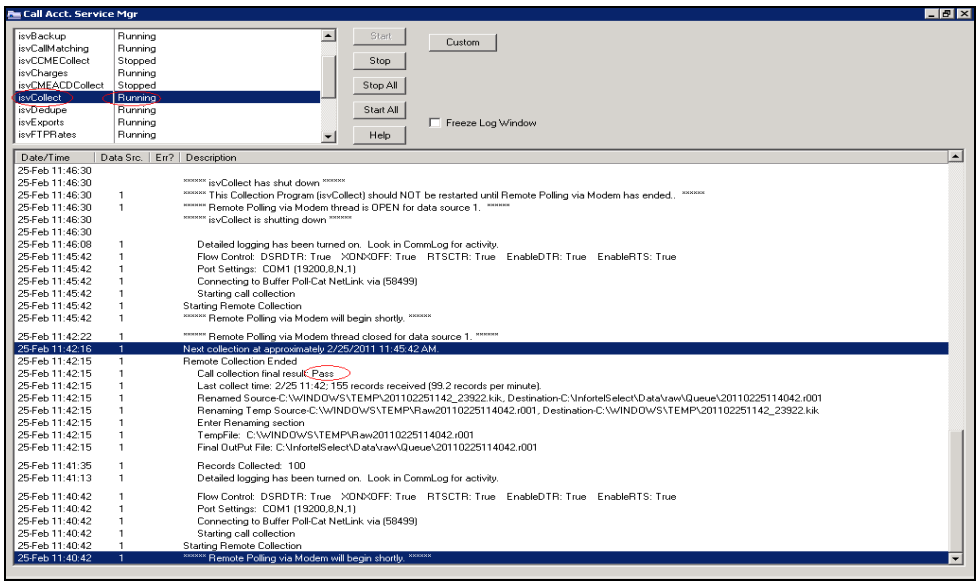


**Figure 26a: Manage Background Services showing isvCollect service and logs**

**Figure 26b** also shows the **isvCollect** service running and the log message in the bottom part of the window shows that the collection (using FTP service method) has passed.

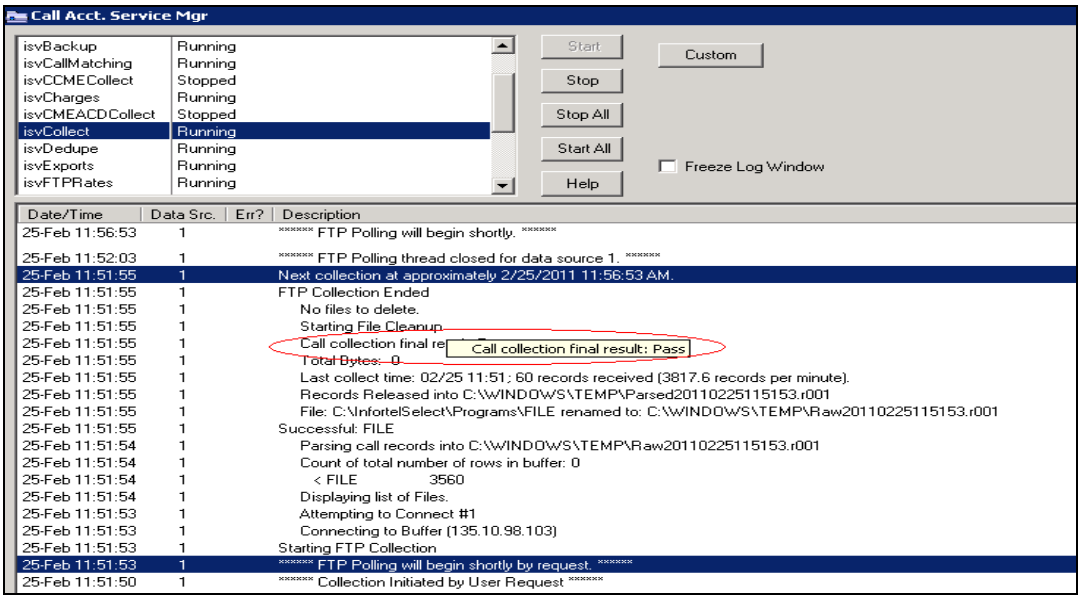


**Figure 26b: isvCollect service and logs during FTP Service**

The collection process collects the CDR data buffered in the buffer box and then writes it into an *xxx.rxxx* file. Once this process is completed, the Infortel Select Server processes the *xxx.rxxx* file by renaming it into an *xxx.Wxxx* file.

**Figure 27** below shows the main screen of the Manage Background Services along with the **isvProcess** service running and the log message in the bottom part of the window shows that the records has been processed.

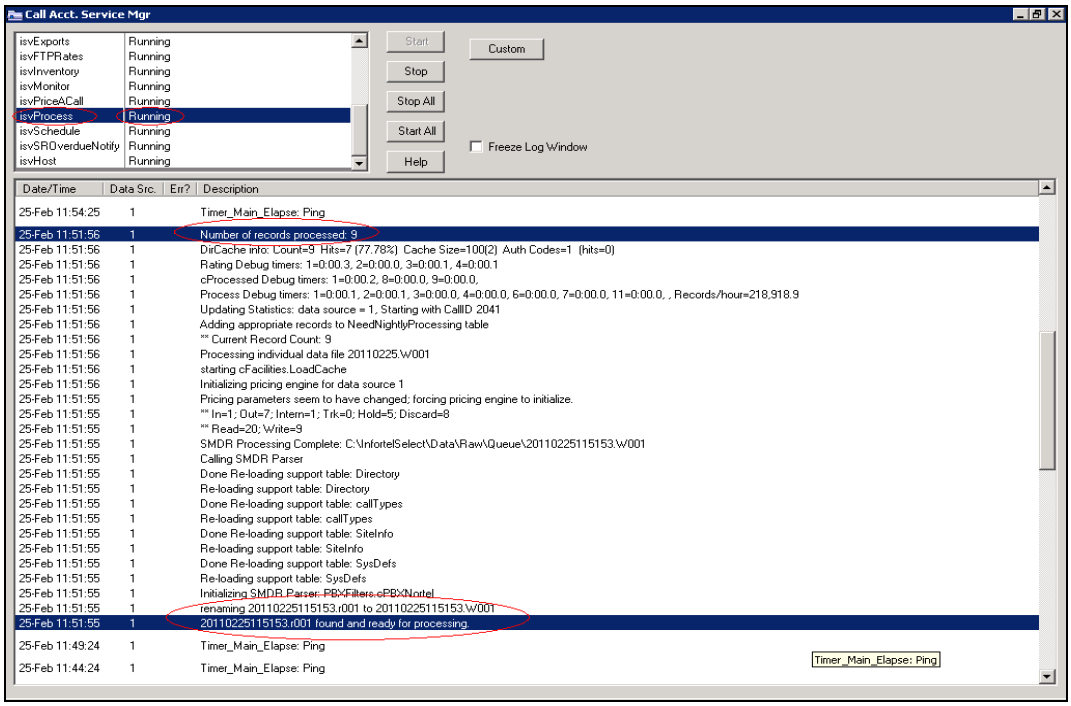


**Figure 27: Manage Background Services showing isvProcess service and logs**

## 6.4. Configuring Reports

Once the CDR records has been collected and processed, the Infortel Select Sever is now ready to output the results in reporting format. This section explains a few samples of these various reports that are generated by the Infortel Select Server. Assumption is made here that prior to generating the reports; relevant Pricing Tables have been uploaded and configured into the Infortel Select Server. For further information as how to configure the Pricing, refer to **Section 9 [3]**.

To access the Reports application of Infortel Select Server, navigate to, **Reports > Call Accounting Reports** from the main screen of the Control Center as shown in **Figure 28** below.

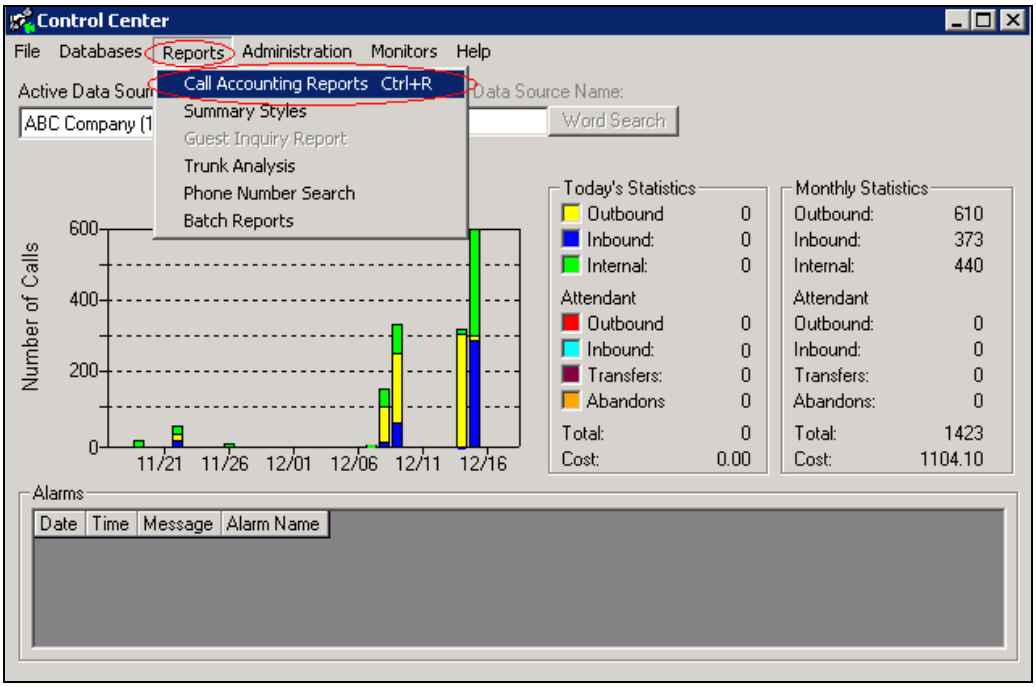


**Figure 28: Accessing Reports Application**

**Figure 29** shows the main Select Report screen. From here various reports can be selected, for example, *Detail by Extension, Detail by Authorization Codes, Detail by Trunks, Detail by Account code* etc. Once a required report has been selected, then click on the **Continue** button.

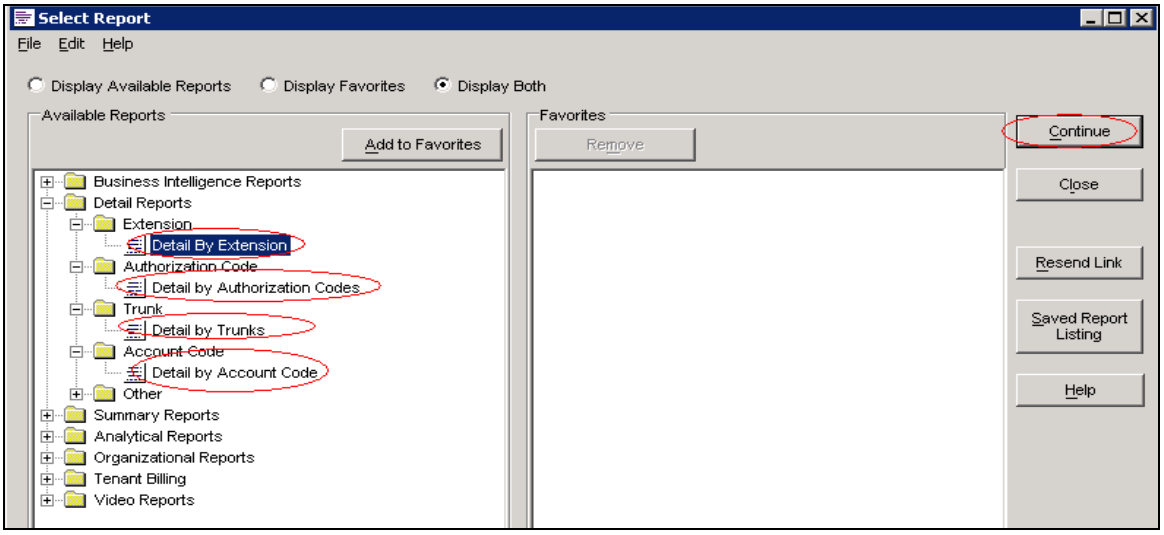


**Figure 29: Select Report Main Screen**

In the Reports Parameters screen as shown in **Figure 30** below, various parameters can be set as per the requirement of the report. In the example below, a **Date Range** parameter was chosen. Click on the **Run Now** button once the required parameters have been configured.

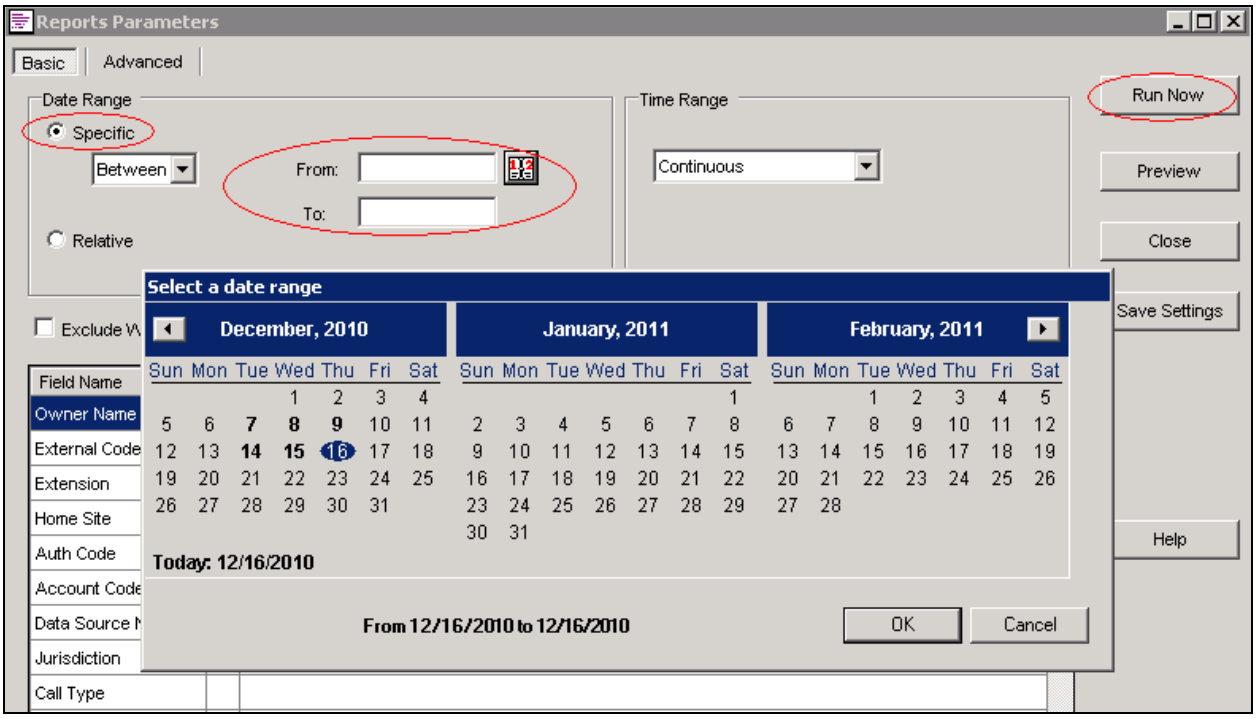


**Figure 30: Reports Parameters Screen**

**Figures 31a** through **31d** show examples of various reports with the Date Range parameter configured.

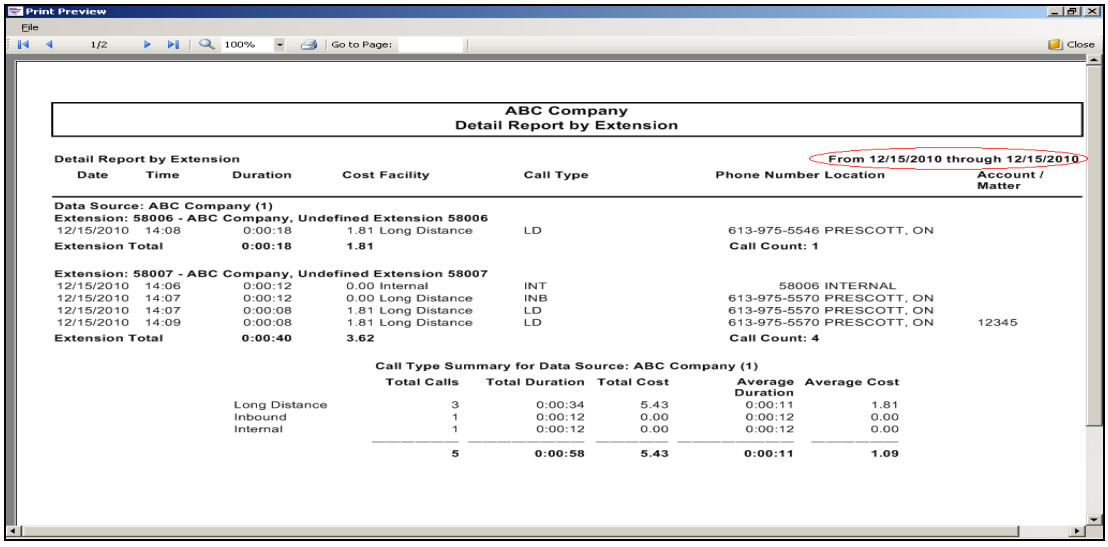


**Figure 31a: Detail Report by Extension**

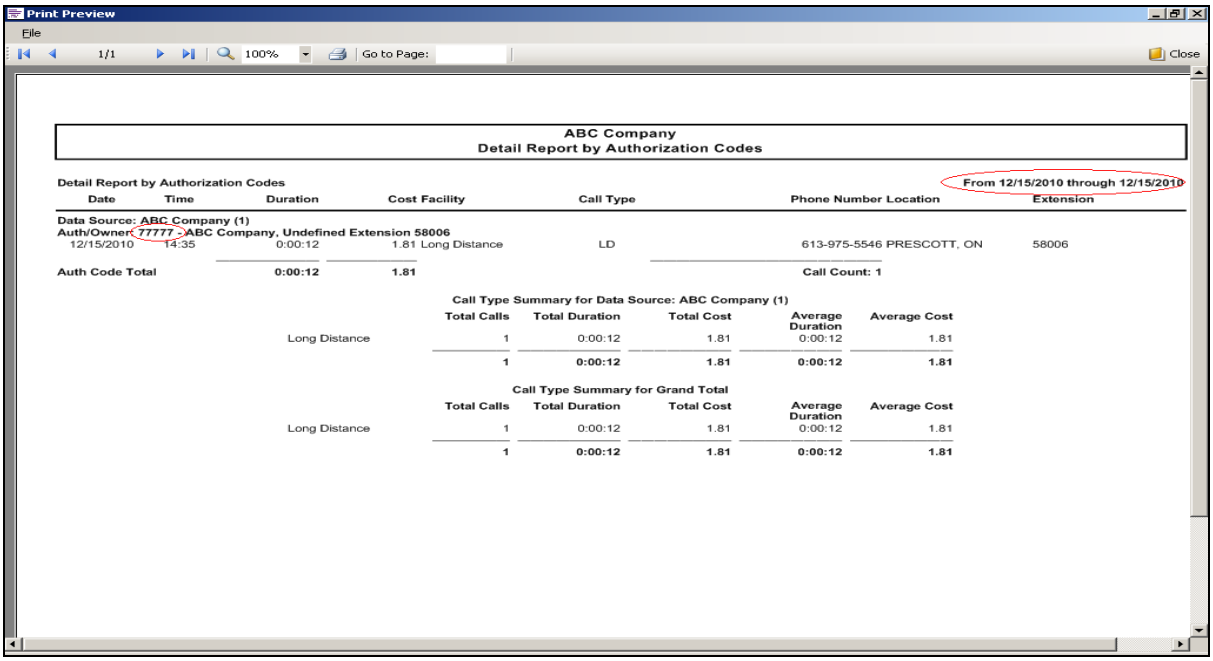


**Figure 31b: Detail Report by Authorization Codes**

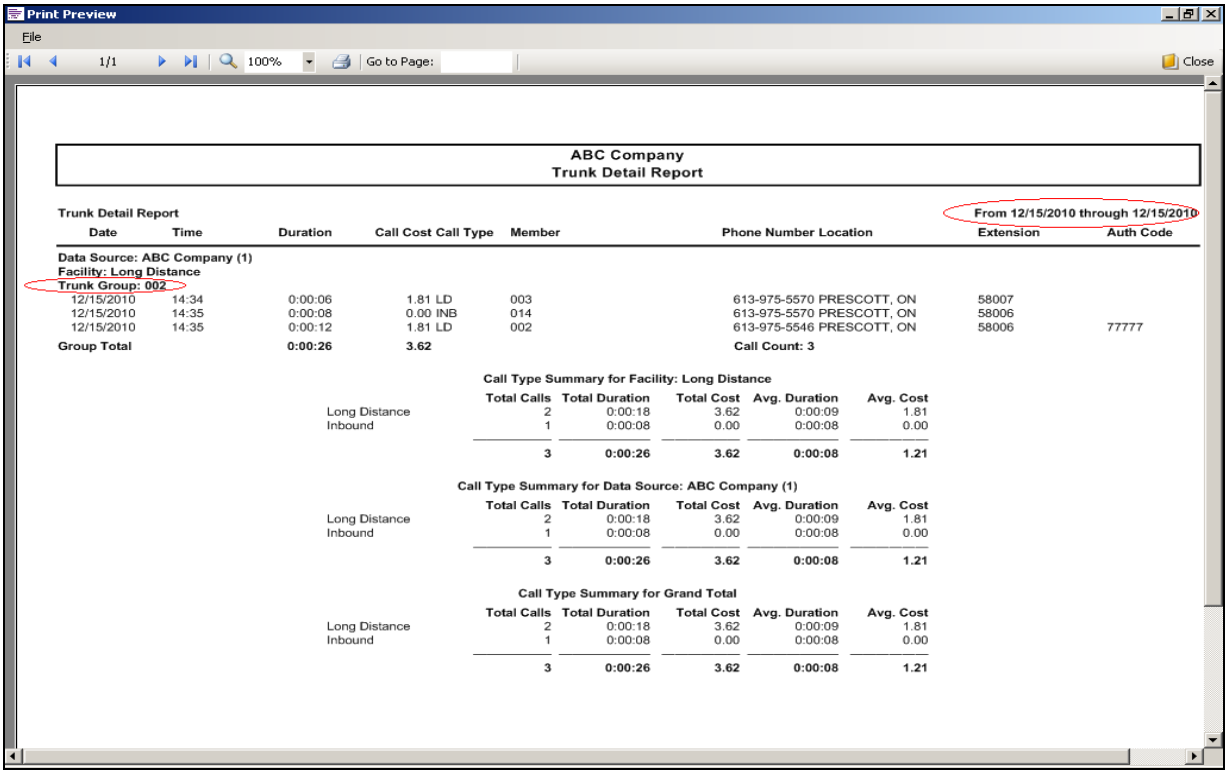


**Figure 31c: Trunk Detail Report**

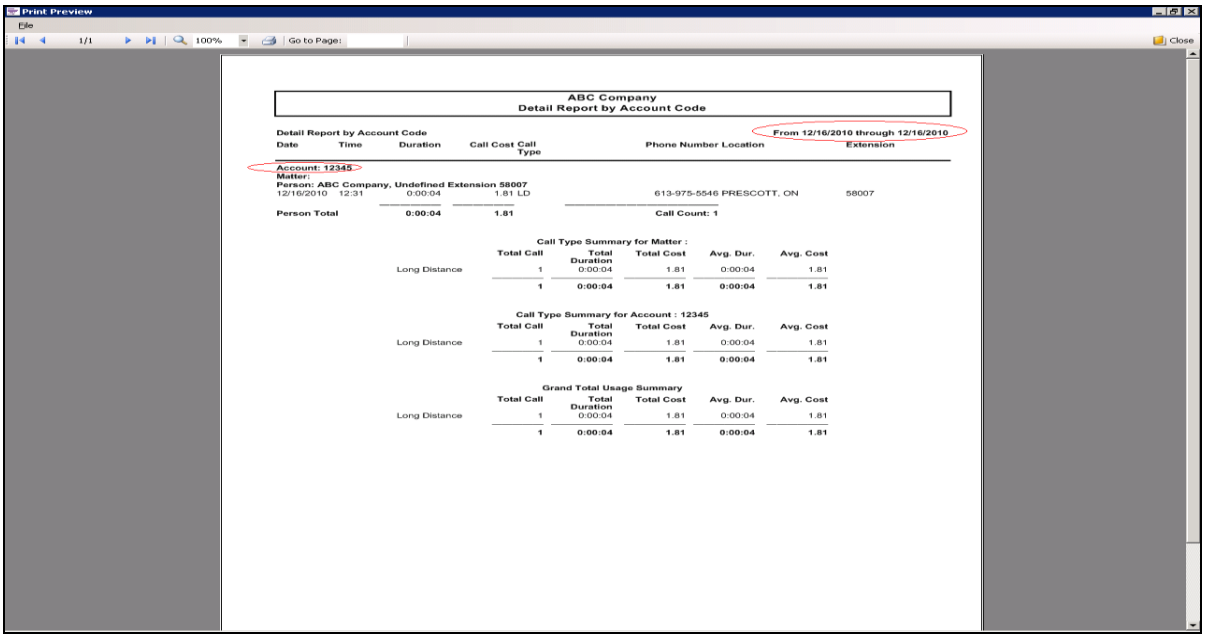


**Figure 31d: Detail Report by Account Code**

# 7. Verification Steps

This section includes some steps that can be followed to verify that the solution is working.

- Configure the Infortel Select Server to collect the CDR data that has been buffered in the buffer box.
- Verify if *isvCollect* and *isvProcess* services are running on the Infortel Select Server.
- Run various reports and compare the data of the report with the original raw CDR data for reliability.
- Disconnect the serial connectivity between the Infortel Select Server and the buffer box. Verify if Infortel Select Server is able to start back the collection and process data once the connection between Infortel Select Server and the buffer box has been re-established.

# 8. Conclusion

All of the executed test cases have passed and met the objectives outlined in **Section 2**. The Infortel Select Server version 8.1 is considered compliant with Avaya Communication Server 1000 Release 7.0.

# 9. Additional References

[1] Product documentation for Avaya products may be found at:
https://support.avaya.com/css/Products/

[2] Product documentation for Scannex IP buffer box may be found at:
http://www.scannex.co.uk/

[3] Product documentation for Infortel Select may be found at:
http://www.isi-info.com/support/support_customer_quick.htm

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.