Avaya Solution & Interoperability Test Lab

Application Notes for Configuring Avaya Aura® Communication Manager R6.0.1 with Phoneware CallBill 3.0 Using a TCP/IP Connection - Issue 1.0

Abstract

These Application Notes describe the configuration steps for provisioning Avaya Aura® Communication Manager R6.0.1 and Phoneware CallBill 3.0. The Phoneware CallBill will connect to the Avaya Aura® Communication Manager which is configured to output call detail record data over a TCP/IP port. The Call Detail Reporting feature on the Avaya Aura® Communication Manager will be enabled.

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

Phoneware CallBill 3.0 is a Windows-based call accounting software application. Phoneware CallBill collects call records from a telephone system and stores them in a database. Phoneware CallBill Reporting allows the user to use this data to identify and control call costs and traffic activity with reporting options. Phoneware CallBill 3.0 comprises of four main modules. The Phoneware CallBill Logger Module is configured to run in a passive server mode and listens on the TCP/IP port to collect the call records from the Avaya Aura® Communication Manager. The Record Processor Module periodically retrieves call records from the Logger Module and stores these call records in a Phoneware CallBill site database. The cost of each call is calculated during processing and is based on tariffs applicable to the site from which the records were retrieved. The Record Processor can be configured to periodically retrieve call records from multiple sites. The Phoneware CallBill Reports Module allows the user to retrieve information from the Phoneware CallBill databases by running reports. Reports can either be run ad hoc, or they can be attached to a schedule, which will run them automatically when the schedule activates. The Report Design Module allows users to create/modify individual report designs to provide reports in the required format. Each Report is made up of one or more Modules, each Module is made up of one or more Sections, and each Section comprises a selection of Fields, which is chosen from the list of available fields.

2. General Test Approach and Test Results

The interoperability compliance test included both feature and functionality testing. The feature and functionality testing focused on verifying that Call Detailed Records are collected by CallBill and received in the format as generated by the Communication Manager. The CallBill Logger module collects CDR data by listening on a TCP/IP port configured on the Communication Manager.

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 testing included:

- Verification of connectivity between the CallBill and Communication Manager using a TCP/IP connection.
- Verification that Call Detailed Records (CDR) was collected as output by the Communication Manager.
- Link Failure\Recovery was also tested to ensure successful reconnection on link failure.

2.2. Test Results

Tests were performed to insure full interoperability between the CallBill and the Communication Manager. The tests were all functional in nature and performance testing was not included. All the test cases passed successfully.

2.3. Support

Technical support can be obtained for Phoneware Ltd. products as follows:

- E-mail: *support@phoneware.ie*
- Ireland: 0404 68711
- UK Freefone: 0800 169 8618
- USA\Canada Toll Free: 1800 660 9248
- International: +353 404 68711

3. Reference Configuration

Figure 1 illustrates the network diagram of the configuration used during compliance testing. The Avaya Aura® Communication Manager is configured to output call detail records (CDR) data over a TCP/IP port. The CallBill Logger Module is configured to run in a passive server mode and listens on the TCP/IP port to collect the Avaya CDR data. The Communication Manager is configured to output call detail records (CDR) data using a **non- Reliable Session Protocol (RSP)**. The CDR link sends CDR data via IP to the CallBill Logger Module server on a designated TCP port. The CDR format is **customized**

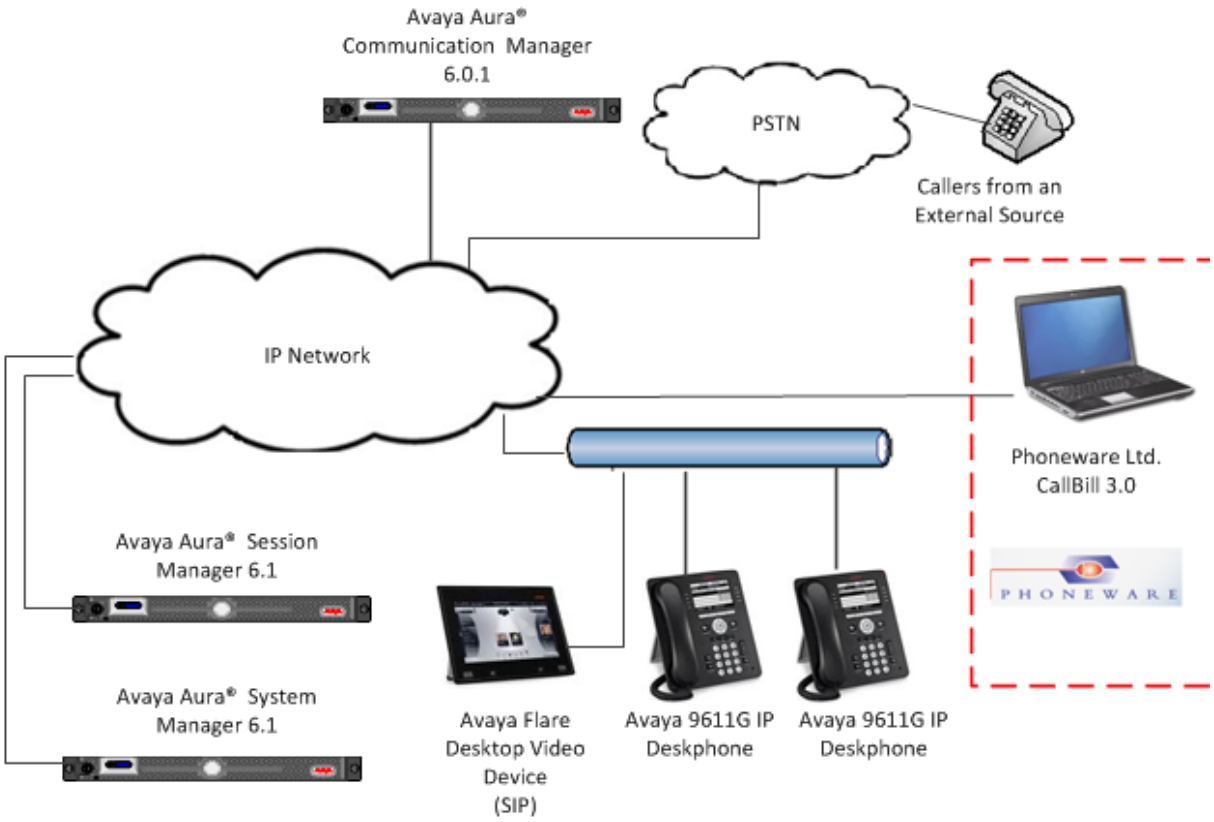


Figure 1: Avaya Aura® Communication Manager R6.0.1 with Phoneware CallBill 3.0 Reference Configuration

4. Equipment and Software Validated

The hardware and associated software used in the compliance testing is listed below.

Equipment	Software Version
Avaya S8800 Media Server	Avaya Aura® Communication Manager R6.0.1 R016x.00.1.510.1
Avaya S8800 Media Server	Avaya Aura® System Manager R6.1 (Build No. - 6.1.0.0.7345-6.1.5.115) Software Update Revision No: 6.1.8.1.1455
Avaya S8800 Media Server	Avaya Aura® Session Manager R6.1.5 VSP: 6.0.3.1.3
Avaya 9611G Hand sets	S6.02.S
Avaya Flare Desktop Video device	1.0.2
Phoneware Ltd. CallBill	CallBill Version 3.0

5. Avaya Aura® Communication Manager Configuration

Configuration and verification operations on the Communication Manager illustrated in this section were all performed using Avaya Site Administrator Emulation Mode. The information provided in this section describes the configuration of the Communication Manager 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:

- Create Node Name for CallBill Logger
- Define the CDR link
- Configure System Parameters CDR
- Configure Trunk Group
- Configure Intra- Switch CDR

Note: Any settings not in **Bold** in the following screen shots may be left as Default.

5.1. Create Node Name for CallBill Logger

A Node Name needs to be created to associate the CallBill Logger module with the Communication Manager. Use the **change node-names ip** command to configure the following:

- **Name** Enter an informative name i.e. **CallBill**
- **IP address** Enter the IP address of the **CallBill Logger Module**

Press **F3** button to save the new settings.

```
change node-names ip                                        Page   1 of   2
                                  IP NODE NAMES
    Name                  IP Address
CallBill                 10.10.6.246
procr                    10.10.6.200
```

5.2. Define the CDR Link

A CDR link needs to be defined between the Communication Manager and CallBill. Use the **change ip-services** command to configure the following:

- **Service Type** Enter **CDR1**
- **Local Node** Enter **procr**
- **Remote Node** Enter **CallBill**
- **Remote Port** Enter **9000**

```
change ip-services                                          Page   1 of   3
                                  IP SERVICES
 Service      Enabled      Local        Local       Remote       Remote
  Type                     Node         Port        Node         Port
CDR1                   procr            0       CallBill        9000
```

Navigate to **Page 3** and set the **Reliable Protocol** field to **n** to disable the use of Avaya's Reliable Session Protocol (RSP) for CDR transmission. In this case, the CDR link will use TCP without RSP.

- **Reliable Protocol** Enter **n**

Press **F3** button to save the new settings.

```
                                                            Page   3 of   3
                            SESSION LAYER TIMERS
  Service      Reliable  Packet Resp   Session Connect  SPDU  Connectivity
   Type        Protocol     Timer        Message Cntr    Cntr     Timer
 CDR1             n          30                3          3         60
```

5.3. Configure System Parameters CDR

Certain parameters changes are required for Communication Manager to interoperate with CallBill. The screen shots below show the settings used during compliance testing. Use the **change system-parameters cdr** command to configure the following:

- **CDR Date Format** Enter **month/day**
- **Primary Output Format** Enter **customized**
- **Primary Output Endpoint** Enter **CDR1**
- **Record Outgoing Calls Only** Enter **n**
- **Intra-Switch CDR** Enter **y**
- **Outg Trk Call Splitting** Enter **y**
- **Inc Trk Call Splitting** Enter **y**

```
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? n
      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? y       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? y                  Inc Attd Call Record? 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: 4
```

Navigate to **Page 2** and enter the following information.

- Enter **Data Item** and **Length** as shown in the screen below

Press **F3** button to save the new settings.

```
change system-parameters cdr                          Page   2 of   2
                          CDR SYSTEM PARAMETERS
    Data Item - Length   Data Item - Length      Data Item - Length
 1: date           - 6   17: code-dial    - 3    33:               -
 2: space          - 1   18: space        - 1    34:               -
 3: time           - 4   19: code-used    - 4    35:               -
 4: space          - 1   20: space        - 1    36:               -
 5: cond-code      - 1   21: dialed-num   - 15   37:               -
 6: space          - 1   22: space        - 1    38:               -
 7: clg-num/in-tac- 10   23: auth-code    - 7    39:               -
 8: space          - 1   24: space        - 1    40:               -
 9: out-crt-id     - 3   25: acct-code    - 4    41:               -
10: space          - 1   26: return       - 1    42:               -
11: in-crt-id      - 3   27: line-feed    - 1    43:               -
12: space          - 1   28:              -      44:               -
13: in-trk-code    - 4   29:              -      45:               -
14: space          - 1   30:              -      46:               -
15: sec-dur        - 4   31:              -      47:               -
16: space          - 1   32:              -      48:               -
                              Record length = 82
```

5.4. Configure Trunk Group

To collect call data on Trunks, CDR Reports need to set. During compliance testing SIP Phones were used therefore **r** was entered in the **CDR Reports** field. The Trunk Group used was **7**. Use the **change trunk-group 7** command to configure the following:

- **CDR Reports** Enter **r**

Press **F3** button to save the new settings

```
change trunk-group 7                                      Page   1 of  21
                              TRUNK GROUP
Group Number: 7                 Group Type: isdn          CDR Reports: r
 Group Name: ISDN to Tom              COR: 1       TN: 1        TAC: 607
  Direction: two-way       Outgoing Display? n        Carrier Medium: PRI/BRI
Dial Access? n              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
```

5.5. Configure Intra-Switch-CDR

Internal CDR is activated on a per set basis. When the **Intra-switch CDR** field is set to **y** in the CDR **System Parameters** then the extensions that will be subject to call detail records need to be defined. During compliance testing extensions **59120, 59211, 59220, 59221, 59310 and 59320** were used. Use the **change intra-switch-cdr** command to define the extensions that will be subject to call detail recording. Configure the following:

- Extension Enter the extensions that will be subject to CDR.

Press **F3** button to save the new settings

```
change intra-switch-cdr                                      Page   1 of   3
                           INTRA-SWITCH CDR
                          Assigned Members:   6    of 5000   administered
   Extension          Extension          Extension          Extension
   59120
   59211
   59220
   59221
   59310
   59320
```

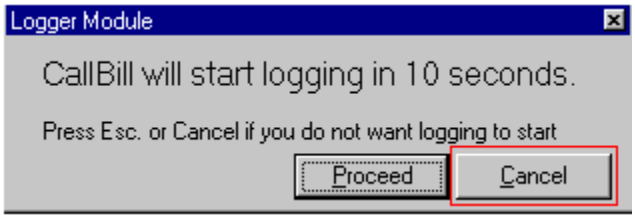
6. Configuring Phoneware CallBill

A number of steps are required to Configure CallBill to interoperate with Communication Manager. The Logger Module uses a TCP/IP port to collect CDR from the Communication Manager. The Record Processor Module retrieves the CDR Data from the Logger Module. It is implied that CallBill 3.0 software is already installed. The configuration operations described in this section can be summarized as follows:

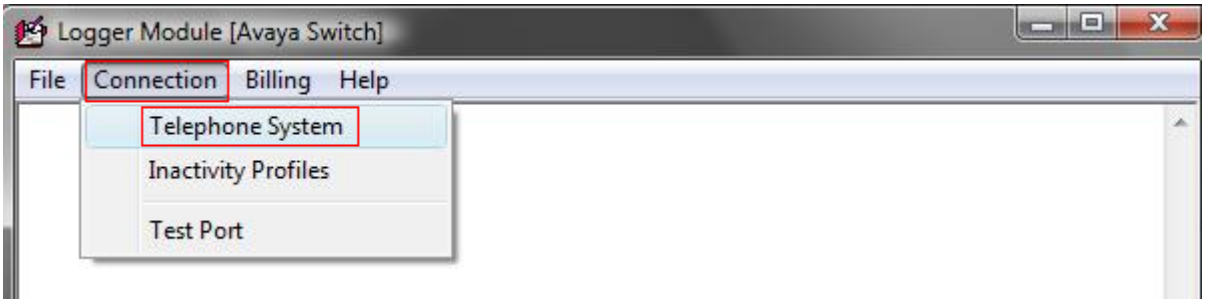
- Configuring the Logger Module Telephone System Connection Settings
- Configuring the Record Processor Module

6.1. Configuring the Logger Module Telephone System Connection Settings

To configure the Telephone System Connection Settings start the **CallBill Logger Module**, a splash screen appears (see screen shot below) informing that CallBill will start logging in 10 seconds. Click the **Cancel** button to cancel logging and allow configuration of the telephone system connection settings.



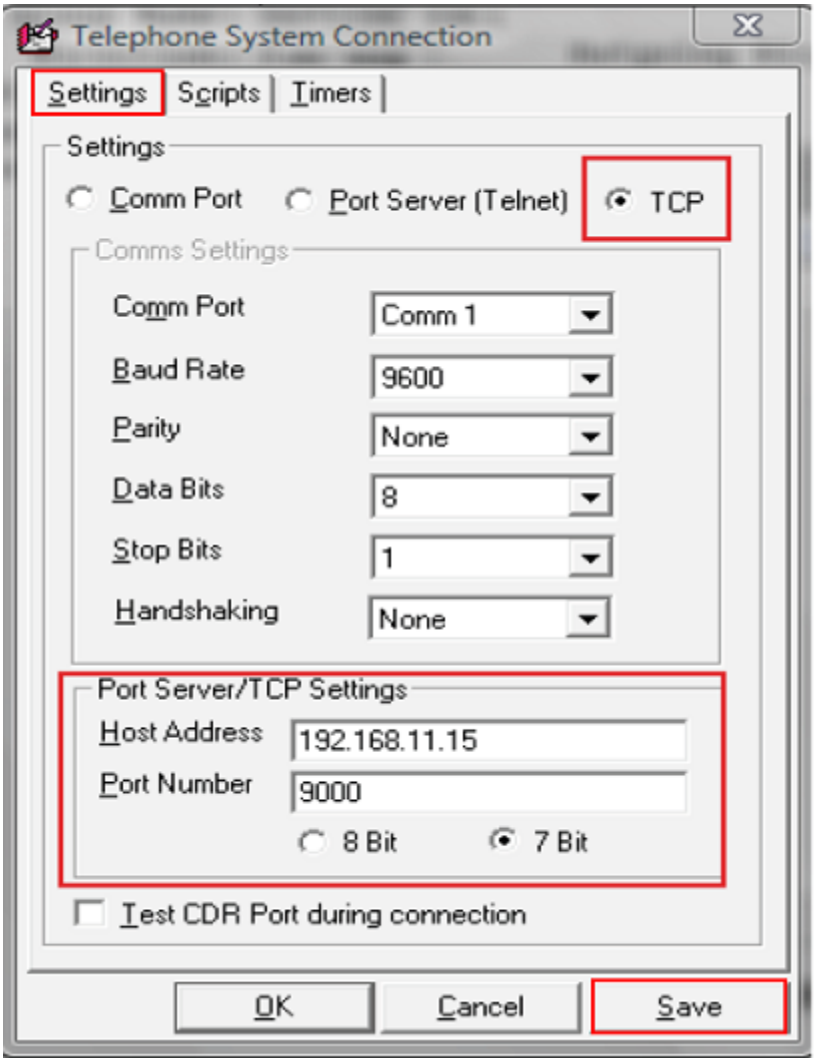
To configure the Logger Module Telephone System Connection Settings choose **Connection →Telephone System** from the **Logger Module** menu bar as shown below.



Choose the **Settings Tab**, the screen shot below shows the settings used during compliance testing. Fill in the following:

- **TCP** Click the **TCP** radio button
- **Host Address** Enter **IP address** of the Communication Manager local node. Note this is the **procr** IP address.
- **Port Number** Enter **9000** Note this is the Remote Port as configured in **Section 5.2**.

Click the **Save** button to save the new settings.



6.2. Configuring the Record Processor Module

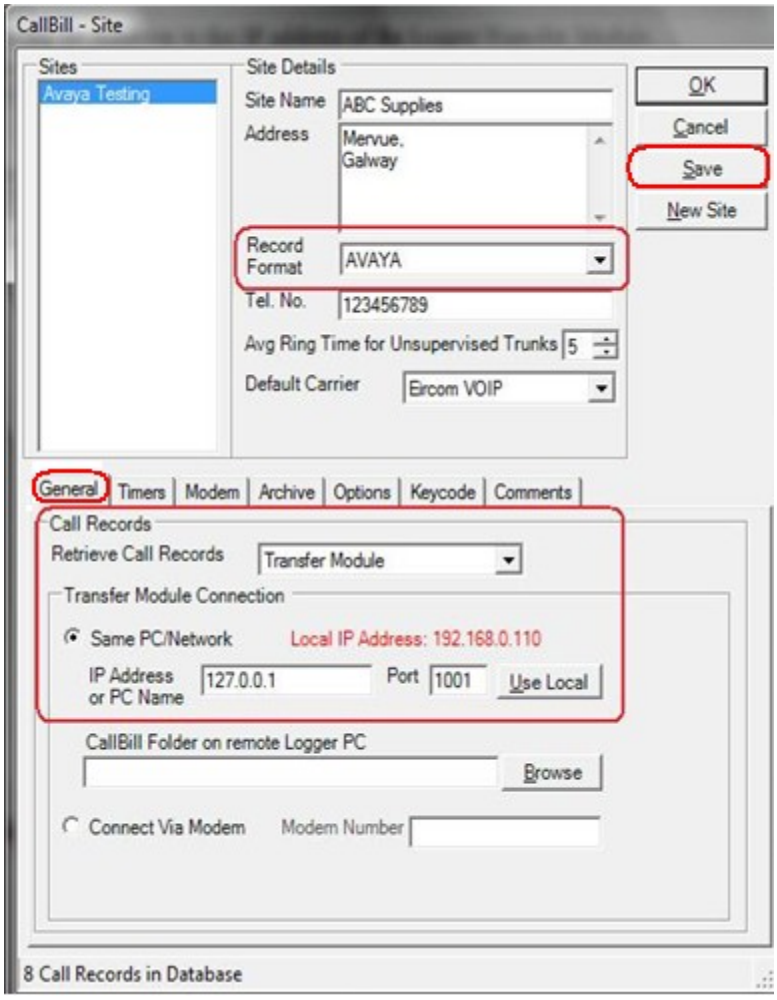
The Record Processor Module retrieves the call records from the Logger Module. During compliance testing the Record Processor Module was installed on the same PC as the Logger Module. Start the CallBill Record Processor Module and use the CallBill Record Processor Site window (not shown) and configure the following:

- **Record Format** Choose **AVAYA** from the drop down box.

Choose the **General** Tab

- **Retrieve Call Records** Choose **Transfer Module** from the drop down box.
- **Same PC/Network** Click the radio button
- **Port** Enter **1001**

Click the **Save** button to save the new settings.



7. Verification Steps

This section provides the tests that can be performed to verify correct configuration of the Communication Manager and CallBill.

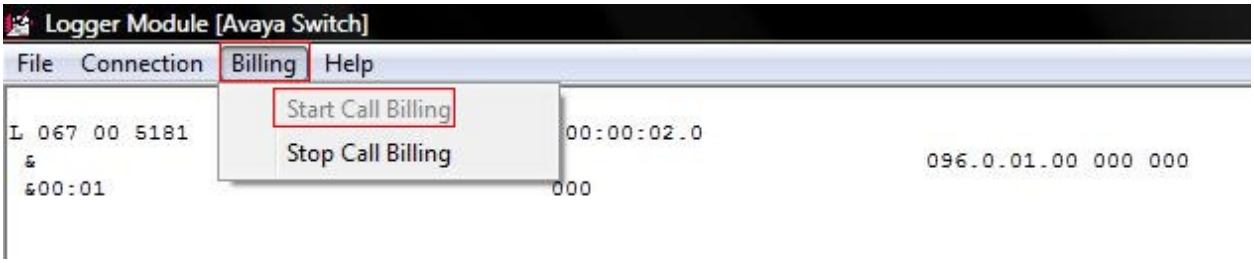
7.1. Verify the CDR Link

Use the **status cdr-link** command to verify that the **Link State** is **up**.

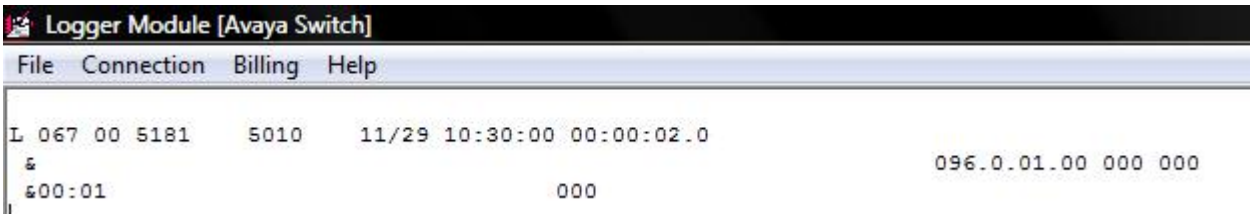
```
status cdr-link
                                CDR LINK STATUS
                    Primary                       Secondary
       Link State: up                          CDR administered
Number of Retries: 999
      Date & Time: 2011/11/29 17:32:12           0000/00/00 00:00:00
  Forward Seq. No: 0                             0
 Backward Seq. No: 0                             0
CDR Buffer % Full:   0.04                          0.00
      Reason Code: OK
```

7.2. Verify Call Records

To ensure that the Logger Module is retrieving Call Records make some calls on the Communication Manager, then open the Logger Module, choose **Billing** from the **Logger Module** menu bar followed by **Start Call Billing**.



Verify that something similar to the following is presented.



8. Conclusion

These Application Notes describe the configuration steps required for Avaya Aura® Communication Manager R6.0.1 to successfully interoperate with Phoneware CallBill 3.0 using a TCP connection. Phoneware CallBill 3.0 is considered compliant with the Avaya Communication Server R7.5. All of the executed test cases have passed and met the objectives outlined in **Section 2.2**.

9. Additional References

This section references the Avaya and Phoneware Ltd. documentation that is relevant to these Application Notes.

Product documentation for Avaya products is available at http*://support.avaya.com*

[1] Administering Avaya Aura® Communication Manager 03-300509 Release 6.0 Issue 6.0 System Management Reference

[2] Administering Avaya Aura® Communication Manager Server Options 03-603479 Release 6.0.1, Issue 2.2

[3] Administering Avaya Aura® Session Manager 03-603324 Release 6.1 Issue 1.0

[4] Maintaining and Troubleshooting Avaya Aura® Session Manager 03-603325 Release 6.1 Issue 4.1

Product Documentation for Phoneware Ltd. can be obtained at *www.phoneware.ie*.

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*.