



Avaya Solution & Interoperability Test Lab

Application Notes for Configuring Nu Technologies ORBi-TEL⁷ using NetBuffer with Avaya AuraTM Communication Manager – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for the Nu Technologies ORBi-TEL⁷ to successfully collect call detail records (CDRs) from Avaya AuraTM Communication Manager over TCP/IP. NetBuffer is a buffer used to collect the call detail records and pass them on to the ORBi-TEL⁷ Server. It is delivered as part of the ORBi-TEL⁷ solution.

ORBi-TEL⁷ is a set of integrated tools to measure quality of service, usage trends, and performance to optimize the network. ORBi-TEL⁷ consists of four modules. Cost Management also referred to as Call Logging and Reporting module was the only module that was tested. Call Logging and Reporting module collects, stores and processes these call records to provide usage analysis, call costing and billing capabilities.

Information in these Application Notes has been obtained through interoperability 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 compliance test is to verify that Nu Technologies ORBi-TEL⁷ solution can interoperate with Avaya AuraTM Communication Manager 5.2.1. ORBi-TEL⁷ with NetBuffer interoperates with Avaya AuraTM Communication Manager over TCP/IP for the collection of Call Detail Records (CDRs). During compliance testing, the CDR collection was verified for Avaya AuraTM Communication Manager running on an Avaya S8500 Server.

ORBi-TEL⁷ is a set of integrated tools to measure quality of service, usage trends, and performance to optimize the network. ORBi-TEL⁷ consists of four modules. Cost Management also referred to as Call Logging and Reporting module was the only module that was tested.

ORBi-TEL⁷ retrieves call details records via a buffer called the NetBuffer from Avaya AuraTM Communication Manager. The NetBuffer is configured via a web interface to receive and buffer call detail records through TCP/IP. ORBi-TEL⁷ polls the NetBuffer and converts the call records into a common internal format.

Avaya AuraTM 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 calls and conference calls. ORBi-TEL⁷ can support any CDR format provided by Avaya AuraTM Communication Manager. ORBi-TEL⁷ creates a custom PBX configuration file to accurately parse the CDR data. For the compliance testing, a customized format was used.

The ORBi-TEL⁷ server and multiple NetBuffers are able to receive CDR outputs from more than one switch as it can listen on the same port configured on separate Avaya AuraTM Communication Manager systems. During compliance testing, the CDR collection was verified for two Avaya AuraTM Communication Managers running on an Avaya S8500 server and an Avaya S8300 server.

1.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing. The feature testing evaluated the ability of Nu Technologies' ORBi-TEL⁷ and NetBuffer to collect and process CDR records for various types of calls: intra-switch calls (calls between phones on the same switch), outbound/inbound calls to/from the PSTN and outbound/inbound calls to/from the phones between the two sites via the IP trunk. The Avaya Reliable Data Test Tool (RD TT) was also used in the interoperability testing to compare the records received by RD TT and those by ORBi-TEL⁷. The serviceability testing introduced failure scenarios to see if ORBi-TEL⁷ and NetBuffer can resume CDR collection after failure recovery.

1.2. Support

Technical support from Nu Technologies can be obtained through the following:

Phone: +44 1582 814700

E-mail: support@nut.eu.com

Web: <http://www.nut.eu.com>

2. Reference Configuration

Figure 1 illustrates a sample configuration that was used to compliance test the interoperability of Nu Technologies' ORBi-TEL⁷ and Communication Manager. The configuration consists of two Avaya Servers running Communication Manager. The first system is comprised of an Avaya S8500 Server with a G650 Media Gateway. This system has connections to the following: Avaya 9600 Series IP Phones, Avaya Digital Phones and a PRI trunk to the PSTN. The second system is comprised of an Avaya S8300 Server with a G250 Media Gateway. This system has connections to Avaya 9600 Series IP phones and is connected to the first system via an IP trunk. ORBi-TEL⁷ uses two NetBuffer systems to connect to and collect CDR records from each site. The phones connected to the two systems will be used to generate call traffic to the Avaya S8500 and S8300 Servers. These phones will be used to generate intra-switch calls (calls between phones on the same system), outbound/inbound calls to/from the PSTN, and outbound/inbound calls to/from the phones between the two systems via the IP trunk. In addition, the Avaya Reliable Data Test Tool (RDTT) will be connected to compare the records received by RDTT with the ORBi-TEL⁷ results.

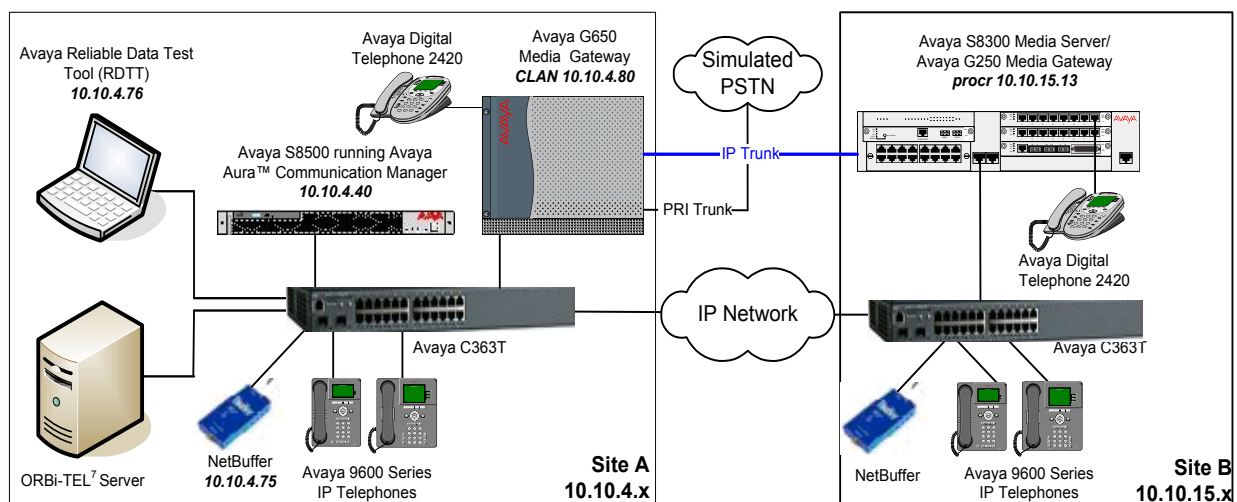


Figure 1: Network Configuration of ORBi-TEL⁷ with Avaya AuraTM Communication Manager

3. Equipment and Software Validated

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

Equipment	Software Version
Avaya S8500B Server	Avaya Aura™ Communication Manager 5.2.1 (R015x.02.1.016.4)
Avaya G650 Media Gateway - IPSI TN2312BP - CLAN TN799DP - IP Media Processor TN2602AP - DS1 Interface TN246CP	HW15, FM49 HW01, FM34 HW02, FM49 HW02, FM024
Avaya S8300B Server	Avaya Aura™ Communication Manager 5.2.1 (R015x.02.1.016.4)
Avaya G250 Media Gateway	28.22.0
Avaya 96xx Telephones (H.323) - 9630 - 9620	3.0
Avaya Digital Telephones - 2420	-
Avaya C363T-PWR Converged Stackable Switch	4.3.12
Nu Technologies - ORBi-TEL ⁷	Release 18
Nu Technologies - NetBuffer	Release 2.38

4. Configure the Avaya Aura™ Communication Manager

This section provides the procedures for configuring Call Data Record (CDR) features in Communication Manager. All the configuration changes in Communication Manager are performed through the System Access Terminal (SAT). These steps describe the procedures used for the Avaya S8500 Server. The steps are repeated for the other Avaya servers. For all other provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 9**. Communication Manager was configured to generate CDR records to the IP address of the NetBuffer over TCP/IP. For the Avaya S8500 Server, the CDR link originates at the IP address of the C-LAN board that connects to the same network where the NetBuffer is located. For the Avaya S8300 Server, the CDR link originates at the IP address of the local server which has node name of “procr”. The configuration operations described in this section can be summarized as follows:

- Configure Node Names
- Configure CDR Links
- Change CDR System Parameters
- Set Intra-Switch Extensions
- Configure Trunks for CDR Reporting

The configuration of the PRI interface to the PSTN is outside the scope of these Application Notes.

4.1. Configure Node Names

Use the **change node-names ip** command to add a new node name for the **NetBuffer** by specifying the **Name** as **NetBuffer** and the **IP Address** as **10.10.4.75**. The RDTT which was used in the compliance test was also added here though this is not necessary for the functioning of the solution. The **RDTT** was given an **IP Address** of **10.10.4.76**.

change node-names ip		Page 1 of 2
IP NODE NAMES		
Name	IP Address	
CLAN	10.10.4.80	
CM2	10.1.0.10	
Gateway001	10.10.4.1	
MEDPRO	10.10.4.90	
NetBuffer	10.10.4.75	
PresAES	10.10.4.20	
RDTT	10.10.4.76	
procr	10.255.255.100	

4.2. Configure CDR Links

Use the **change ip-services** command to define the CDR link over TCP/IP. To define a primary CDR link, the following information should be provided on **Page 1**:

- **Service Type: CDR1** If needed, a secondary link can be defined by setting Service Type to CDR2.
- **Local Node: CLAN** For the Avaya S8500 Server, the Local Node is set to the node name of the C-LAN board. The Avaya S8300 Server on SiteB will set the Local Node to **procr**.
- **Local Port: 0** The Local Port is fixed to 0.
- **Remote Node: NetBuffer** The Remote Node is set to the node name that was created in **Section 4.1** for the ORBi-TEL⁷ server.
- **Remote Port: 9000** The Remote Port may be set to a value between 5000 and 64500 inclusive and must match the port configured on the ORBi-TEL⁷ server in **Section 5.3.2**.

Note: A different port number must be specified for each Server.

Set up a secondary CDR link, **CDR2**, for the **RDTT** in the same way. Specify a **Remote Port** of **9001** and repeat the remaining values.

change ip-services						Page	1 of	4
IP SERVICES								
Service Type	Enabled	Local Node	Local Port	Remote Node	Remote Port			
CDR1		CLAN	0	NetBuffer	9000			
CDR2		CLAN	0	RDTT	9001			

On **Page 3** of the ip-services form, disable the Reliable Session Protocol (RSP) for the CDR link **CDR1**, by setting the **Reliable Protocol** field to **n**. The **CDR2** link is enabled by setting the **Reliable Protocol** to **y**.

change ip-services						Page	3 of	4
SESSION LAYER TIMERS								
Service Type	Reliable Protocol	Packet Resp Timer	Session Connect Message Cntr	SPDU Cntr	Connectivity Timer			
CDR1	n	30	3	3	60			
CDR2	y	30	3	3	60			

4.3. Change CDR System Parameters

Enter the **change system-parameters cdr** command from the SAT to set the parameters and the format of the CDR data including the type of calls and the data included in the call records. The example below shows the settings used during the compliance test. Provide the following information:

- **CDR Date Format:** Set it to **month/day**. The date format will be used for the date stamp that begins each new day of call records.
- **Primary Output Format:** Set this to **customized** format.
- **Primary Output Endpoint:** Set to **CDR1** to correspond with CDR link set in **Section 4.2**.
- **Intra-switch CDR:** Set this to **y** to allow call records for internal calls involving specific stations. Those stations must be specified in the **inter-switch-cdr** form as set in **Section 4.4**.
- **Record Outgoing Calls Only:** Set this to **n** to allow incoming trunk calls to appear in the CDR records along with the outgoing trunk calls.
- **Suppress CDR for Ineffective Call Attempts?** Set this to **n** so that calls that are blocked do not generate CDR records.
- **Outg Trk Call Splitting:** Set this to **y** to allow a separate call record for any portion of an outgoing call that is transferred or conferenced.
- **Inc Trk Call Splitting:** Set this to **y** to allow a separate call record for any portion of an incoming call that is transferred or conferenced.

```
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? 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? 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: 15
```

On the **Page 2** of the **CDR SYSTEM PARAMETERS** form, define the customized CDR format as shown below. The data is entered as it should appear in the customized call records sent over the CDR link. For each field in the CDR record specify the **Data Item** and **Length**.

change system-parameters cdr		Page 2 of 2	
CDR SYSTEM PARAMETERS			
Data Item - Length	Data Item - Length	Data Item - Length	
1: date - 6	17: auth-code - 13	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: isdn-cc - 11	39: -	
8: space - 1	24: space - 1	40: -	
9: code-dial - 4	25: ppm - 5	41: -	
10: space - 1	26: space - 1	42: -	
11: code-used - 4	27: acct-code - 15	43: -	
12: space - 1	28: space - 1	44: -	
13: dialed-num - 23	29: in-trk-code - 4	45: -	
14: space - 1	30: space - 1	46: -	
15: clg-num/in-tac - 15	31: atttd-console - 2	47: -	
16: space - 1	32: return - 1	48: -	
Record length = 135			

4.4. Set Intra-Switch Extensions

If the **Intra-switch CDR** field is set to **y** in the **CDR SYSTEM PARAMETERS** form in **Section 4.3**, use the **change intra-switch-cdr** command to define the extensions that will be subject to call detail records. On **Page 1** of the **INTRA-SWITCH CDR** form, enter a specific extension whose usage will be tracked with a CDR record. Add an entry for each additional **Extension**.

change intra-switch-cdr		Page 1 of 3	
INTRA-SWITCH CDR			
Assigned Members: 0 of 5000 administered			
Extension	Extension	Extension	Extension
3000			
3001			
3002			
3003			

4.5. Configure Trunks for CDR Reporting

For each trunk group for which CDR records are desired, verify that CDR reporting is configured to generate CDR records. Use the **change trunk-group n** command, where **n** is the trunk group number, to verify that the **CDR Reports** field is set to **y**. This applies to all types of trunk groups.

change trunk-group 1		Page 1 of 21	
TRUNK GROUP			
Group Number: 1	Group Type: isdn	CDR Reports: y	
Group Name: ToCM2	COR: 1	TN: 1	TAC: 101
Direction: two-way	Outgoing Display? y	Carrier Medium: PRI/BRI	
Dial Access? y	Busy Threshold: 255	Night Service:	
Queue Length: 0			
Service Type: public-ntwrk	Auth Code? n	TestCall ITC: rest	
	Far End Test Line No:		
TestCall BCC: 4			

5. Configure ORBi-TEL⁷

This section provides the procedures to configure ORBi-TEL⁷ Server and NetBuffer to receive Call Data Records (CDRs) from the Avaya system. The procedures described below are normally carried out by Nu Technologies engineers during installation and subsequent re-configuration.

5.1. Configure the ORBi-TEL⁷ Server

The ORBi-TEL⁷ Server needs to be configured for site details and setting up the collection and translation script for the collection of CDRs.

5.1.1. Add Site Details

Add site details to the ORBi-TEL⁷ Server by logging onto the ORBi-TEL⁷ Linux server with the pre-configured ORBi-TEL⁷ Server username and password. From the UNIX prompt type the following command **isql -f sites**. Select **u** for update and enter the relevant fields as shown below:

- **sitenam** Enter in **AVAYA1** as site name
- **transprog** Set this parameter to **defvx**, which defines the a customized format.
- **transopts** Set it for the **cdm** translator option.

The remainder of the fields can be left as default. Select **esc** to save. The completed screen is displayed below.

```
10.10.4.77 [1] [default] - QVT/Term
File Edit View Setup Keyboard Font Printer Launch Commands Apps Help

PERFORM: Query Next Previous View Add Update Remove Table Screen ...
Searches the active database table. ** 1: sites table**

siteno      [6]
sitenam     [AVAYA1]
sitecode    [AVAYA1]
sitelive    [1]
auditdate   [21/12/2009]
lastesno    [65600]
lasttsno    [1304]
lastpsno    [0]
lastspno    [0]
lastcono    [0]
transprog   [defvx]
transopts   [-cdm]
protprog    [ ]
protdebug   [ ]
trafprog    [ ]
trafopts    [ ]
pbx_id      [ ]
timezone    [ ]
dialno      [ ]
dialno2     [ ]

1 row(s) found

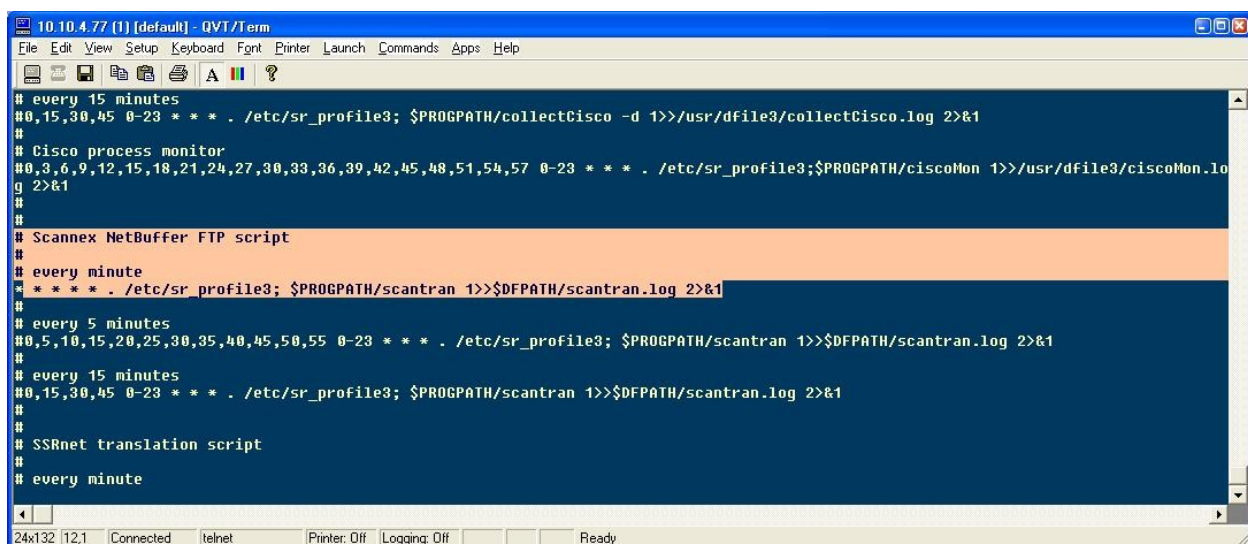
24x132 1.9 Connected telnet Printer: Off Logging: Off Ready
```

5.1.2. Configure Collection and Translation Script

A script is configured for the automatic/on demand CDR collection and translation. From the UNIX prompt edit the file `/usr/prog3/scantran` using an appropriate editor (not shown). Enter in the parameters as follows:

- **sitenam** Enter in **AVAYA1** to match the NetBuffer name in **Section X (5.x)**
- **transprog** This parameter defines the format, set for **defvx**, which is the customized format.
- **transopts** Set it for **cdm** translator option.

The remaining fields can be left as default. Save the file and exit. The completed screen is displayed below.



```
# every 15 minutes
#0,15,30,45 0-23 * * * . /etc/sr_profile3; $PROGPATH/collectCisco -d 1>>/usr/dfile3/collectCisco.log 2>&1
#
# Cisco process monitor
#0,3,6,9,12,15,18,21,24,27,30,33,36,39,42,45,48,51,54,57 0-23 * * * . /etc/sr_profile3;$PROGPATH/ciscoMon 1>>/usr/dfile3/ciscoMon.log 2>&1
#
# Scannex NetBuffer FTP script
#
# every minute
# * * * * . /etc/sr_profile3; $PROGPATH/scantran 1>>$DFPATH/scantran.log 2>&1
#
# every 5 minutes
#0,5,10,15,20,25,30,35,40,45,50,55 0-23 * * * . /etc/sr_profile3; $PROGPATH/scantran 1>>$DFPATH/scantran.log 2>&1
#
# every 15 minutes
#0,15,30,45 0-23 * * * . /etc/sr_profile3; $PROGPATH/scantran 1>>$DFPATH/scantran.log 2>&1
#
# SSRnet translation script
#
# every minute
```

5.2. Add Extensions to the ORBi-TEL⁷ Server Database

The database on the ORBi-TEL⁷ Server must be populated with Communication Manager extensions and trunks prior to running reports. Enter the following url **http://<IPaddr ORBi-TEL⁷>/orbitel.html**. Select **dbAdmin** and then select **New** on the dbAdmin page (not shown) to access the **Add Extension** form.

On the Add Extension form complete the following fields:

- **Site Name** Choose **AVAYA1** as the Site Name to correspond with **Section 5.1.1**
- **Extension** Enter in a valid extension as configured on Communication Manager
- **Status** Choose **Ext Owner**

Click the **Add Extension** button.

Add Extension

Personal		Location	
Name	Unknown	Site Name	AVAYA1
Job Title		Node	AVAYA1 EXTNS
Extension	3000	Code	
Status	Ext Owner		

Contact		Notes
Email		
Mobile		
Fax		

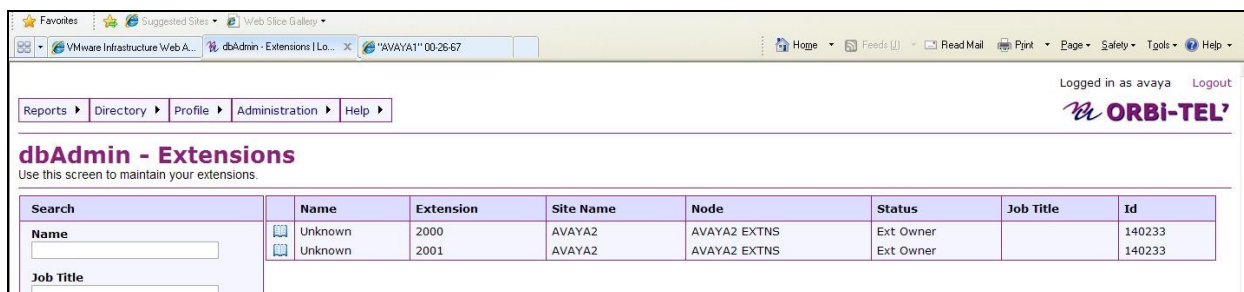
Close Add Extension Clear

Extensions are added for both sites in the multi-site test configuration which are referred to as SiteA and SiteB in **Figure 1**. Repeat the above steps to add all necessary extensions. The complete list of extensions added for SiteA is displayed below.

dbAdmin - Extensions
Use this screen to maintain your extensions.

Search	Name	Extension	Site Name	Node	Status	Job Title	Id
Name	Unknown	3000	AVAYA1	AVAYA1 EXTNS	Ext Owner		140233
Job Title	Unknown	3001	AVAYA1	AVAYA1 EXTNS	Ext Owner		140233
Extension	Unknown	3002	AVAYA1	AVAYA1 EXTNS	Ext Owner		140233
Status	Unknown	3003	AVAYA1	AVAYA1 EXTNS	Ext Owner		140233
	Unknown	3004	AVAYA1	AVAYA1 EXTNS	Ext Owner		140233
	Unknown	3005	AVAYA1	AVAYA1 EXTNS	Ext Owner		140233

The complete list of extensions added for SiteB is displayed below.



Search	Name	Extension	Site Name	Node	Status	Job Title	Id
Name	Unknown	2000	AVAYA2	AVAYA2 EXTNS	Ext Owner		140233
Job Title	Unknown	2001	AVAYA2	AVAYA2 EXTNS	Ext Owner		140233

5.3. Configure the NetBuffer

The NetBuffer is configured to work with ORBi-TEL⁷ and the Avaya solution.

5.3.1. Setting the NetBuffer IP Address

The NetBuffer is shipped with a default factory set IP Address. The NetBuffer IP address is set by associating the NetBuffer with its MAC address. Open a DOS window on the ORBi-TEL⁷ Server by clicking on **Start, Run** and type **cmd** and issue the following command: **arp -s x.x.x.x yy-yy-yy-yy-yy-yy**, where **x.x.x.x** will be the new IP Address of NetBuffer and **yy-yy-yy-yy-yy-yy** is the MAC address found on the NetBuffer. Power off the NetBuffer for 30 seconds and re-connect the power. Ping the new IP address to check the NetBuffer IP configuration and verify a successful reply.

5.3.2. Configuring the NetBuffer

Enter the following URL Address in the web browser (IE) address bar <http://x.x.x.x>, where **x. x. x. x** is the selected IP address of the NetBuffer. Select the Setup Menu tab located on the opening Status screen to access the **Setup Menu**.

In the windows login box that appears, enter the default username and password for the NetBuffer.



A Windows-style login dialog box titled "Connect to 10.68.22.2". It features a blue header bar with a key icon. The main text area contains a warning about insecure authentication. Below this are input fields for "User name:" and "Password:", a "Remember my password" checkbox, and "OK" and "Cancel" buttons at the bottom.

Connect to 10.68.22.2

The server 10.68.22.2 at NetBuffer 00-18-F3 requires a username and password.

Warning: This server is requesting that your username and password be sent in an insecure manner (basic authentication without a secure connection).

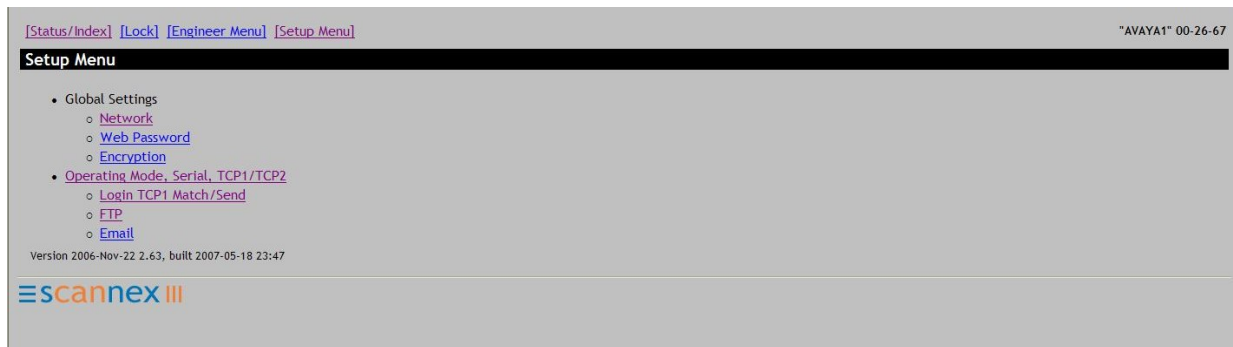
User name:

Password:

☐ Remember my password

OK Cancel

After a successful login the Setup Menu screen is shown.



A web-based "Setup Menu" screen. It has a navigation bar at the top with links: [Status/Index], [Lock], [Engineer Menu], and [Setup Menu]. The main content area lists configuration options under "Global Settings" and "Operating Mode, Serial, TCP1/TCP2". The Scannex logo is at the bottom.

[Status/Index] [Lock] [Engineer Menu] [Setup Menu]

AVAYA1 00-26-67

Setup Menu

- Global Settings
 - Network
 - Web Password
 - Encryption
- Operating Mode, Serial, TCP1/TCP2
 - Login TCP1 Match/Send
 - FTP
 - Email

Version 2006-Nov-22 2.63, built 2007-05-18 23:47

scannex

In the **Setup Menu** screen select **Network** under **Global Settings**. The following screen is displayed. In the **Name** field enter the name that matches the ORBi-TEL⁷ site name configured on the ORBi-TEL⁷ Server in **Section 5.1.1**. Select the **Static** option button for **IP**. The **IP address** of the NetBuffer is pre-populated with the **arp** command issued in **Section 5.3.1**. Enter the **Gateway** and **Subnet** IP address as shown below. The remaining fields can be left with the default values. Click on **Save**.

The screenshot shows the 'Network' configuration screen. At the top, there are navigation links: [Status/Index], [Lock], [Engineer Menu], and [Setup Menu]. The title bar says 'AVAYA1" 00-26-67'. The main heading is 'Network'. Below it, there are several input fields with labels and descriptions:

- Name:** AVAYA1 (Unique identifier)
- IP:** DHCP (selected) or Static (selected). Description: DHCP=automatic IP assignment.
- IP address:** 10.10.4.75 (IP address (changes effective on powerup))
- Gateway:** 10.10.4.1 (IP address of the gateway. Default=0.0.0.0)
- Subnet:** 255.255.255.0 (Default=255.255.255.0)
- SNMP:** 255.255.255.255 (Name/IP address to get traps. Default=255.255.255.255)
- Domain Name Servers:**
 - DNS 1:** 255.255.255.255 (IP address)
 - DNS 2:** 0.0.0.0 (IP address)

At the bottom, there are 'Save' and 'Cancel' buttons. The footer text is 'Version 2006-Nov-22 2.63, built 2007-05-18 23:47' and the Scannex logo is at the bottom left.

In the Setup Menu screen, select the option **Operating Mode, Serial, TCP1/TCP2** option to display the **Operating Mode** screen shown. Set **Data Transfer** to **TCP1 -> FTP only**. Leave the first field on the **TCP1 IP+port** address parameter blank because the NetBuffer will accept connections from any IP address. It is possible to increase security by entering # followed by the IP address of the Communication Manager though this is not used in this configuration. Enter a port number in the second field on the **TCP1 IP+port** where **9000** is the default. The port number used should match the **Remote Port** configured on the Communication Manager in **Section 4.2**. The remaining fields can be left with the default values. Click on **Save**.

The screenshot shows the 'Operating Mode' configuration screen. At the top, there are navigation links: [Status/Index], [Lock], [Engineer Menu], and [Setup Menu]. The title bar says '"MK2" 00-26-67'. The main heading is 'Operating Mode'. Below it, there are several input fields with labels and descriptions:

- Data Transfer:** TCP1 -> FTP only (selected). Description: Left side has the buffer x 50ms. 0=off
- Data pause:** 0
- Source:** Input & Output (selected) or Input only
- Data:** ASCII (selected) or Binary. Description: ASCII strips D7 (when ASCII)
- ASCII:** Text only (selected) or All. Description: Default=Circular.
- Memory:** Linear (selected) or Circular
- IP settings:**
 - TCP1 IP+port:** 9000 (Active=name/Ipaddress.Listen=blank/#name/#Ipaddress)
 - TCP2 IP+port:** 0 (Port=0 disables)
 - Live UDP output:** 0 (Port=0 for no live output)
- Serial port settings:**
 - RX/TX:** Auto (selected). Description: Default=Auto
 - Baud rate:** 9600 (selected). Description: bits per second
 - Protocol:** 8 None (selected). Description: data length and parity
 - Autobaud:** Enabled (selected) or Disabled. Description: Default=Enabled

At the bottom, there are 'Save' and 'Cancel' buttons. The footer text is 'Version 2006-Nov-22 2.63, built 2007-05-18 23:47' and the Scannex logo is at the bottom left.

On the Setup Menu screen select the **Login TCP1** screen. Ensure all fields are blank. Click on **Save**.

On the Setup Menu screen select **FTP** to display the **FTP** screen. The ORBi-TEL⁷ Server acts as the FTP client with the NetBuffer being the FTP server. Leave **Port** set to the default value of **21** and set to **Filename** to **download.dat**. Change **Username** and **Password** to the FTP client (ORBi-TEL⁷ Server) required values. Click on **Save**.

Select **Status/Index** and the completed **Status** screen is displayed. The **TCP Source** displays a **Connected** link indicating that the NetBuffer has successfully connected to the Avaya solution.

6. General Test Approach and Test Results

The general test approach was to manually place intra-switch calls, inter-switch calls, inbound and outbound PSTN trunk calls to and from telephones attached to the Avaya Servers, and verify that ORBi-TEL⁷ with NetBuffer collects the CDR records and properly classifies and reports the attributes of the call. For serviceability testing, logical links were disabled/re-enabled, and the servers were rebooted.

All executed test cases were passed. NetBuffer successfully collected the CDR records from Communication Managers via CDR link for all types of calls generated including intra-switch calls, inbound / outbound PSTN trunk calls, inbound/outbound inter-switch IP trunk calls, transferred calls, and conference calls. It passed them on to the ORBi-TEL⁷ Server. For serviceability testing, the ORBi-TEL⁷ server was able to resume collecting CDR records automatically after failure recovery, including buffered CDR records for calls that were placed during the outages. However, as expected when the NetBuffer was disconnected the CDR records were lost.

7. Verification Steps

This section provides the tests that can be performed to verify correct configuration of Communication Manager and ORBi-TEL⁷ solution.

7.1. Verify Avaya Aura™ Communication Manager

The following steps can ensure that the communication between Communication Manager and the ORBi-TEL⁷ is functioning correctly.

- Use the **ping** utility on the ORBi-TEL⁷ server to verify the IP connectivity to the Avaya S8500 and S8300 Servers.
- On the SAT of each Avaya S8500 Server, enter the **status cdr-link** command and verify that the CDR **Link State** shows **up** for both the **Primary** and **Secondary** links. This represents the CDR link of the NetBuffer and the CDR link for the RDTT. Data is only shown in the Secondary column only when there is a second CDR link.

status cdr-link	
CDR LINK STATUS	
Primary	Secondary
Link State: up	up
Date & Time: 2010/1 /27 12:49:12	2010/1 /26 17:20:43
Forward Seq. No: 0	20
Backward Seq. No: 0	0
CDR Buffer % Full: 0.00	0.00
Reason Code: OK	OK

7.2. Verify ORBi-TEL⁷ and the NetBuffer

Verify the connection between ORBi-TEL⁷ Server and the NetBuffer through the following steps.

7.2.1. Connection Between ORBi-TEL⁷ Server and the NetBuffer

Access the NetBuffer from a DOS or UNIX prompt and issue the following command:

#ftp x.x.x.x where **x.x.x.x** is the IP address of NetBuffer.

Enter Username and Password of the ftp server (NetBuffer).

Ensure that you received the following message:

#Connected

Enter in the following:

DIR

The return will display

#download.dat

Enter BYE to return to return to Unix or DOS.

BYE

7.2.2. Connection Between Communication Manager and the NetBuffer

Log into the ORBi-TEL⁷ system as per **Section 5.3.2**. Select the **Status** screen from the Setup Menu. In the section source, look for the **Connected** value. It should be **1**. If it is zero, the NetBuffer has not connected to Communication Manager.

The screenshot displays the 'Status' screen of the ORBi-TEL system. At the top, there are navigation links: [Status/Index], [Lock], [Engineer Menu], and [Setup Menu]. The status 'MK2 00-26-67' is shown in the top right corner. The main section is titled 'Source TCP1(Input & Output, ASCII)' and contains a table with connection data:

Connected	Address:Port	Actual Address:Port
1	Listen:9000	10.10.4.80:14724

Below the table, it shows 'Login Okay' and '0-00:03:58 since data'. A section for 'Up time' shows '0-02:39:49', 'Bytes 0 / 16760832 (0%)', and 'Status Circular'. The 'Destination' is listed as 'FTP' with a table showing 'Active' and 'File size' both as '0'.

Active	File size
0	0

At the bottom, the version information 'Version 2006-Nov-22 2.63, built 2007-05-18 23:47' is displayed, along with the 'scannex' logo.

Once some test calls, including internal, inbound trunk and outbound trunk calls, have been produced then run the ORBi-TEL⁷ report to ensure correct collection of results. Compare to the RDTT output if configured. The following screen shows a report after some calls were made.

Report Name: AVAYA1and2
 Title: AVAYA1and2
 Format: Call List
 Start Period: 29/01/2010
 End Period: 29/01/2010
 Structure Type: Bothway
 Node Structure: AVAYA1 EXTNS, AVAYA2 EXTNS
 Run On: 29/01/2010 15:42:01

Date	Start Time	End Time	Duration (hh:mm:ss)	Ring Time	Source Extn	Source Trunk	Dest Extn	Dest Trunk	Dialed Digits	OLI	Auth Code	Cost
29/01/2010	10:43:58	10:44:00	00:02		3000		3005		3005			0.00
29/01/2010	10:47:38	10:48:00	00:22		3000		3002		3002			0.00
29/01/2010	10:47:29	10:48:00	00:31		3000		3005		3005			0.00
29/01/2010	10:50:45	10:51:00	00:15		3005		3002		3002			0.00
29/01/2010	10:50:36	10:51:00	00:24		3000		3005		3005			0.00
29/01/2010	10:52:48	10:53:00	00:12			106001	3003			106		0.00
29/01/2010	10:52:38	10:53:00	00:22		2000			101005	1013000			0.00
29/01/2010	10:52:37	10:53:00	00:23			106001	3000			106		0.00
29/01/2010	10:55:39	10:56:00	00:21			101002	2001			101		0.00
29/01/2010	10:55:39	10:56:00	00:21		3000			106002	1062001			0.00
29/01/2010	10:55:24	10:56:00	00:36			106001	3000			106		0.00
29/01/2010	10:55:24	10:56:00	00:36		2000			101001	1013000			0.00
29/01/2010	11:03:33	11:04:00	00:27			106001	3000			106		0.00
29/01/2010	11:03:33	11:04:00	00:27		2000			101002	1013000			0.00
29/01/2010	11:03:14	11:05:00	01:46			101001	2001			101		0.00
29/01/2010	11:03:14	11:05:00	01:46		3000			106003	1062001			0.00
29/01/2010	11:07:43	11:08:00	00:17		3005		3000		3000			0.00
29/01/2010	11:07:58	11:08:00	00:02		3000			101002	10162501			0.00
29/01/2010	11:07:33	11:08:00	00:27		3005			101002	10162501			0.00
29/01/2010	11:08:42	11:09:00	00:18		3005		3005		3005			0.00
29/01/2010	11:08:37	11:09:00	00:23			101003	3000			018702501		0.00
29/01/2010	11:09:43	11:10:00	00:17			101004	3005			018702501		0.00
29/01/2010	11:09:23	11:10:00	00:37			101004	3000			018702501		0.00
29/01/2010	11:13:48	11:14:00	00:12		3000		3005		3005			0.00
29/01/2010	11:13:20	11:14:00	00:40		3000			101003	10162501			0.00
29/01/2010	11:15:37	11:16:00	00:23			101005	3003			018702501		0.00
29/01/2010	11:15:24	11:16:00	00:36			101005	3005			018702501		0.00
29/01/2010	11:17:38	11:18:00	00:22			101001	3005			018702501		0.00
29/01/2010	11:17:53	11:18:00	00:07			101001	3003			018702501		0.00

8. Conclusion

These Application Notes describe the procedures for configuring Nu Technologies ORBi-TEL⁷ and NetBuffer to collect call detail records from Avaya AuraTM Communication Manager running on Avaya S8500 and S8300 Servers. ORBi-TEL⁷ successfully passed compliance testing.

9. Additional References

The following Avaya product documentation can be found at <http://support.avaya.com>.

[1] *Avaya AuraTM Communication Manager Feature Description and Implementation*, Release 5.2, May 2009, Document Number 555-245-205.

[2] *Administering Avaya AuraTM Communication Manager*, Release 5.2, May 2009, Document Number 03-300509.

The Nu Technologies documentation can be found at <http://www.nut.eu.com>

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