



Avaya Solution & Interoperability Test Lab

Application Notes for Configuring Nu Technologies ORBi-TEL⁷ using ip.buffer with Avaya Communication Server 1000E System - 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 Communication Server 1000E system using ip.buffer.

Nu Technologies ORBi-TEL⁷ is a set of integrated tools to measure quality of service, usage trends and performance to optimize the network. Nu Technologies 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 DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

Nu Technologies ORBi-TEL⁷ is a set of integrated tools to measure quality of service, usage trends and performance to optimize the network. Nu Technologies 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. The other modules, that were not tested, include Performance management, Traffic management, Operations management and Alarm management. Nu Technologies ORBi-TEL⁷ retrieves call details records via a buffer called the ip.buffer from Avaya Communication Server 1000E system. The ip.buffer is configured via a web interface to receive and buffer call detail records via serial cable connection. Nu Technologies ORBi-TEL⁷ polls the ip.buffer and converts the call records into a common internal format. Avaya Communication Server 1000E system 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. Nu Technologies ORBi-TEL⁷ creates a custom PBX configuration file to accurately parse the CDR data. The Nu Technologies ORBi-TEL⁷ server and multiple ip.buffers are able to receive CDR outputs from more than one switch.

2. General Test Approach and Test Results

The CS1000E R7.0 with Nu Technologies testing was carried out in the Avaya Interoperability Lab. Test cases were executed jointly by an Avaya and a Nu Technologies representative. All Tests were manual tests and all results were discussed and agreed following execution.

2.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing. The feature testing evaluated the ability of ORBi-TEL⁷ and ip.buffer to collect and process CDR records for various types of calls: intra-switch calls (calls between phones on the same site), outbound/inbound calls to/from the PSTN and outbound/inbound calls to/from the phones between the two sites via the IP trunk. The serviceability testing introduced failure scenarios to see if ORBi-TEL⁷ and ip.buffer can resume CDR collection after failure recovery.

The testing focused on the following areas:

- Local internal call handling
- Handling of Incoming Network calls over PRI and SIP trunks
- Handling of External Calls
- Call Forwarding on busy or No Answer
- Transfers – Blind and Supervised
- Call Park and Call Pick Up
- Authorization Codes and Daylight Savings
- Handling of calls to and from Avaya IP UNISTim, SIP, Digital phone sets and Softphones
- Defense Tests to ensure recovery following LAN or Serial connection interrupts
- Local internal call handling
- Incoming external call handling
- Handling of Network calls over PRI and SIP trunks

2.2. Test Results

All tests related to the listed features passed. No issues were encountered.

Note: The test cases do not exhaustively test every possible feature of ORBi-TEL⁷ functionality in an Avaya CS1000E environment.

2.3. 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>

Technical support for the Avaya products can be obtained from Avaya. See the support link at <http://support.avaya.com> for contact information.

3. Reference Configuration

The configuration in **Figure 1** is used to compliance test the interoperability of the ORBi-TEL⁷ and CS1000E Switch. ORBi-TEL⁷ is connected to two CS1000E's and collects CDR records from both of these CS1000E systems. Varieties of phone types are connected to the two systems and are used to generate call traffic to both CS1000E's. These phones 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.

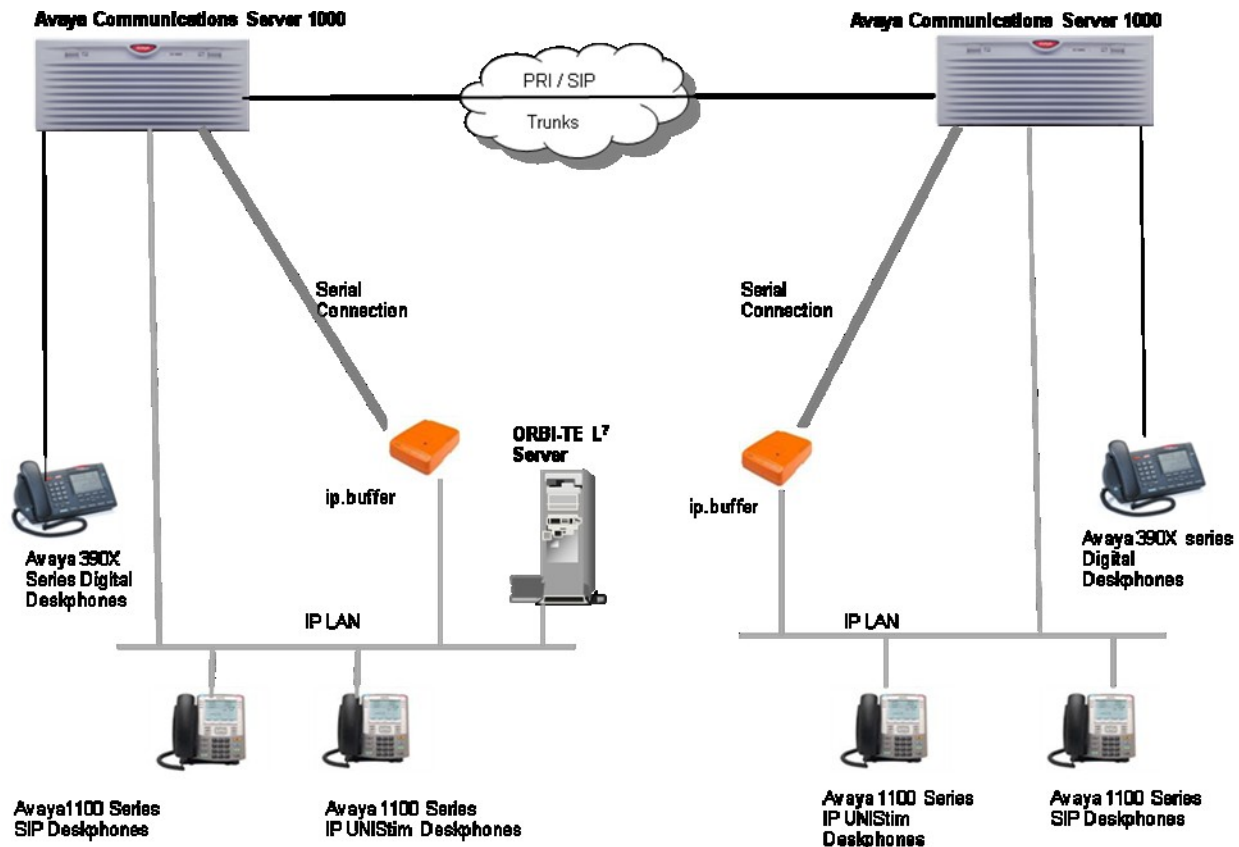


Figure 1: Test Configuration for ORBi-TEL⁷ with Avaya Communications Server 1000E

4. Equipment and Software Validated

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

Equipment	Software/Firmware
<i>Avaya PBX Products</i>	
Avaya Communication Server 1000E	Avaya Communication Server 1000E R7.0 Patches are listed in the Appendix
Avaya Communication Server 1000E Media Gateway	CSP Version: MGCC AO01 MSP Version: MGCM AB01 APP Version: MGCA AA07 FPGA Version: MGCF AA15 BOOT Version: MGCB AL60 DSP1 Version: DSP1 AB01 DSP2 Version: DSP2 AB01
<i>Avaya Internal Deskphones</i>	
Avaya 1100 series IP Deskphones <ul style="list-style-type: none"> • 1140e • 1120e Avaya M3900 series Digital Deskphones <ul style="list-style-type: none"> • M3904 Avaya 1100 series SIP Deskphone <ul style="list-style-type: none"> • 1140 	0625C7M (UNISTim 4.2) 0624C7M (UNISTim 4.2) Version: AA93 SIP 2.2 - 1120 2.02.21.00
<i>Avaya External Deskphones</i>	
Avaya 1100 series IP Deskphones <ul style="list-style-type: none"> • 1140e Avaya M3900 series Digital Deskphones <ul style="list-style-type: none"> • M3904 	0625C7M (UNISTim 4.2) Version: AA93
Nu Technologies Equipment	
Nu Technologies Desktop PC	ORBi-TEL ⁷ Release 18.0.6, Windows XP, VMware running Linux Fedora12.
Nu Technologies Buffer	ip.buffer Release 2.41.133
Nu Technologies Server	Dell Laptop

Table 1: Hardware and Software Version Numbers

5. Configure Avaya Communication Server 1000E

This section provides the procedures for configuring CDR features in CS1000E system. For all other provisioning information such as initial installation and configuration, please refer to **Section 9** for product documentation. The following sections are configured using the command line interface (CLI) for the CS1000E, please refer to **Section 9** for more information regarding CLI. The CS1000E system is configured to generate CDR to the serial port of the ip.buffer. The Ip.buffer ftp's CDR to the ORBi-TEL⁷ server.

- Configure CDR in the Configuration Record
- Configure CDR in the Customer Data Block
- Configure CDR in the Route Data Block
- Configure CDR for Meridian 1 proprietary phones

Notes: The configuration and verification operations illustrated in these sub-sections were all performed using terminal access to the CS1000E over a serial link into a TTY port on the CS1000E using the program “Reflections”. The information provided in these sections describes the configuration of the CS1000E for this solution.

5.1. Configure CDR in the Configuration Record

A number of configuration changes are required on the CS1000E Configuration Record.

Note: Not all of the following prompts need an answer. Only answers in bold characters are mandatory for a basic configuration. Accept the default responses for each prompt by pressing the **Return** key except for those that are highlighted in **bold**.

5.2. Direct the Call Data to the Avaya Communication Server 1000E Serial Port

In order to make changes to the serial connections, overlay 17 is used. In the screenshot below, at the prompt '>'; **LD 17** was typed. The configuration changes in LD 17 directs the call data to the required serial port the following configuration changes are required:

LD 17

> LD 17	Press Return
REQ CHG	Change
TYPE ADAN	Action Device And Number
ADAN NEW TTY 12	New Teletype port number. (any number)
CTYP MGC	Media Gateway
IPMG 4 0	IP Media Gateway – The IPMG on which the TTY is being configured. 4 = Superloop, 0= Shelf
PORT 0	Port Number for TTY. (0-4)
DNUM	
DES CDR-PORT	Designator, can be any name
BPS	
BITL	
STOP	
PARY	
FLOW	
USER CTY	CDR TTY - The TTY port only outputs CDR records
TTYLOG	
BANR	

5.3. Configure the format of the Call Detail Records

To change the format of the Call Records make the following change on the CS1000E.

LD 17

REQ CHG	Change System Parameters
TYPE PARM	
...	
FCDR NEW	Utilises 'NEW' CDR format. Information field locations are fixed. Requires package 234
PCDR	
TPO	
...	
SBA_ADM_INS	
SBA_USER	

5.4. Configure CDR in the Customer Data Block

There are a number of call types to be enabled in the Customer Data Block.

LD 15

REQ: CHG	
TYPE: CDR	Change the Call Detail Records
TYPE CDR_DATA	
CUST 0	
CDR YES	Yes to change CDR
IMPH YES	CDR enabled for incoming calls
OMPH YES	CDR enabled for outgoing calls
AXID YES	Auxiliary Identification provide the TN when the call involves a multiple appearance DN
TRCR YES	Carriage Return sent after each CDR message
CDPR	
ECDR YES	Send End-to-End Signalling digits in CDR format
BDI	
OTCR	
PORT 12	Enter the port number that was configured in Section 5.1
PORT	
CNI	
BCAP	
CHLN	
FCAF	

5.5. Configure CDR in the Route Data Block

Enable CDR records to be transferred from Inter-switch trunks.

LD 16

REQ **CHG**
TYPE **RDB**
CUST 0
ROUT 14
DES
TKTP
M911P
...
CNTL
DRNG
CDR **YES**
INC **YES**
LAST **YES**

QREC **YES**

OAL **YES**
AIA **YES**
OAN **YES**
OPD **YES**
NDP
NATL
SSL
CFWR
...
TRRL
CCBA
ARDN

Yes to change CDR
CDR enabled for all incoming calls
The terminating ID field in the CDR record will
contain the last party.
Initial connection (Q) record will be output for
incoming calls.

5.6. Configure CDR for Avaya Phonesets

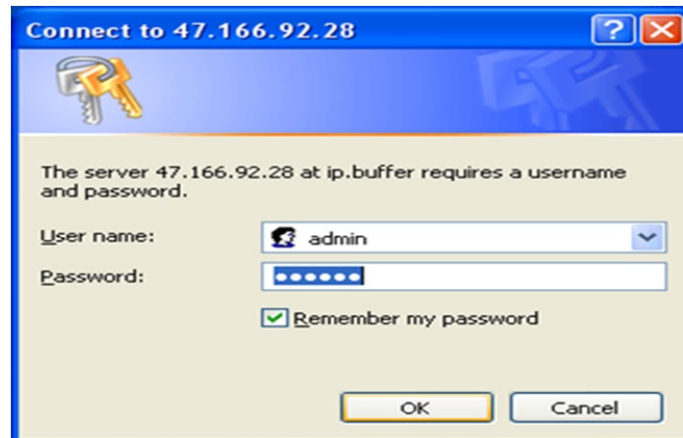
CDR is enabled on individual phonesets in LD11 or LD20.

LD 20

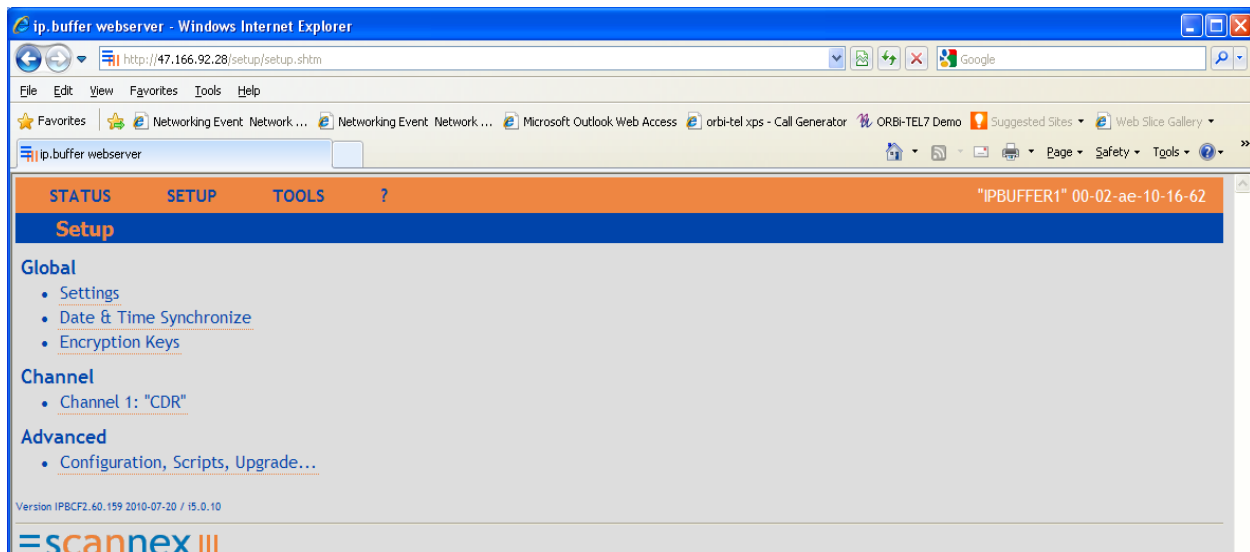
REQ: CHG	Set type to be configured
TYPE: 1140	Terminal Number of the set
TN 96 0 1 20	
ECHG YES	
ITEM CLS ABDA ICDA CDMA	Class of Service to be applied to the phoneset
	ABDA – Abandoned call record and time to answer allowed
	ICDA – Internal Call Detail Recording Allowed
	CDMA – allows external station activity records to be generated for the set.
	Note: The phoneset will output D records whenever a trunk is accessed by, or terminates on, the phone. The D record is output regardless of the CDR settings in the Route Data Block (LD 16).

6.1.2. Configuring the ip.buffer with Internet Explorer (IE)

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 ip.buffer. 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 **User name** and **Password** for the ip.buffer.



After a successful login the **Setup** menu screen is shown.



From the **Setup** screen, select **Settings, Network, show**. The following screen is displayed. In the **Device Name** field enter the name that matches the ORBi-TEL⁷ site name configured on the ORBi-TEL⁷ Server. Select the **Fixed IP** option button for Assignment. Enter the **Gateway** and **Subnet** mask as shown below. The remaining fields can be left with the default values. Click on **Save** at the bottom of the screen.

The screenshot displays the 'ip.buffer webservice' settings page in a Windows Internet Explorer browser. The address bar shows the URL 'http://47.166.92.28/setup/settings.shtm#networkall'. The page has a navigation bar with 'STATUS', 'SETUP', and 'TOOLS' tabs. The 'Global: Settings' section is active, and the 'Network' tab is selected. The 'Device Name' is 'IPBUFFER1'. The 'LAN/Ethernet' section shows the 'Assignment' set to 'Fixed IP'. The 'Fixed IP' is '47.166.92.28', the 'Subnet' is '255.255.255.128', and the 'Gateway' is '47.166.92.126'. The 'Name Servers' section shows 'DNS 1' as '10.68.1.20' and 'DNS 2' as '10.68.1.22'. The 'Proxy Server' section shows the 'Type of proxy' set to 'None (no proxy)'. The page also includes a status bar at the bottom showing 'Internet' and '100%' zoom.

From the **Setup** menu under **Channel**, select the option **Channel 1:"CDR"** followed by **Source**, **show** to configure the connection to the CS1000E. Set **Source** to **Com1 Serial**. For **Baud** select **9600** from the dropdown list to match that baud rate that is set on the CS1000E. The remaining fields can be left with the default values. Click on **Save** (not shown).

The screenshot shows the 'Channel 1: "CDR"' configuration window. The 'Source' is set to 'COM1 Serial'. Under the 'Serial' section, 'Autobaud' is 'Enabled', 'Baud' is '9600', 'Protocol' is '8N', 'Rx/Tx' is 'Auto', 'Rx Flow' is 'None', and 'On Passthrough' is 'None'. Under 'Serial transmit', 'Tx Flow' is 'None', 'Tx Size' is '16', and 'Tx Pause' is '0'. Under 'Serial diagnostics', 'Loopback' is 'Normal'. Help text is provided for each setting.

From the **Setup** menu under **Channel**, select the option **Channel 1:"CDR"** followed by **Destination**, **show** to configure the connection to ORBi-TEL⁷. Set **Destination** to **FTP push (client)**. The remaining fields can be left with the default values. Click on **Save** (not shown).

The screenshot shows the 'Channel 1: "CDR"' configuration window with 'Destination' set to 'FTP push (client)'. Under the 'FTP push (client)' section, 'Address' is '47.166.92.26', 'Port' is '21', 'Username' is 'logman3', 'Password' is 'srclient', 'Directory' is '/usr/dfile3/SSR/CS10001', 'Command' is 'Append', 'Filename' is 'FILE1', 'Compression' is 'none', 'Limit' is '0', 'Info Filename' is blank, and 'Event Filename' is blank. Help text is provided for each setting. The 'Data Markers' section is partially visible at the bottom.

6.2. Configure the Nu Technologies 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 CDR's.

6.3. Add Extensions to the Nu Technologies ORBi-TEL⁷ Server Database

The database on the ORBi-TEL⁷ Server must be populated with CS1000E extensions and trunks prior to running reports. Enter the following url **http://<IPaddr ORBi-TEL⁷>/ oribitel.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 **CS10001** as the **Site Name**
- **Extension** Enter in a valid extension as configured on CS1000E
- **Status** Choose **Ext Owner**

Click the **Add Extension** button.

dbAdmin - Add Extension | Logged in as cs1000 - Windows Internet Explorer

http://47.166.92.16:8090/oribitel/DbAdmin

File Edit View Favorites Tools Help

dbAdmin - Add Extension | Logged in as cs1000

Add Extension

Personal	Location
Name: UNKNOWN	Site Name: CS10001
Job Title:	Node: CS10001 EXTNS
Extension: 3004	Code:
Status: Ext Owner	

Contact	Notes
Email:	
Mobile:	
Fax:	

Close Add Extension Clear

Repeat the above steps to add all necessary extensions. The complete list of extensions added for the site is displayed below.

dbAdmin - Extensions | Logged in as cs1000

Reports | Directory | Profile | Administration | Help

Logged in as cs1000 Logout

dbAdmin - Extensions

Use this screen to maintain your extensions.

Search	Name	Extension	Site Name	Node	Status	Job Title	Id
Name	UNKNOWN	3004	CS10001	CS10001 EXTNS	Ext Owner		2
	UNKNOWN	3006	CS10001	CS10001 EXTNS	Ext Owner		2
Job Title	UNKNOWN	3012	CS10001	CS10001 EXTNS	Ext Owner		2
	UNKNOWN	3017	CS10001	CS10001 EXTNS	Ext Owner		2
Extension	UNKNOWN	3019	CS10001	CS10001 EXTNS	Ext Owner		2
	UNKNOWN	3024	CS10001	CS10001 EXTNS	Ext Owner		2
Status	UNKNOWN	3054	CS10001	CS10001 EXTNS	Ext Owner		2
All Types	UNKNOWN	3056	CS10001	CS10001 EXTNS	Ext Owner		2
Site Name	UNKNOWN	3057	CS10001	CS10001 EXTNS	Ext Owner		2
CS10001	UNKNOWN	3075	CS10001	CS10001 EXTNS	Ext Owner		2
Node	UNKNOWN	3092	CS10001	CS10001 EXTNS	Ext Owner		2
Code							
Sorted By							
Extension							

Search Clear New Delete Modify Select All Deselect All << >>

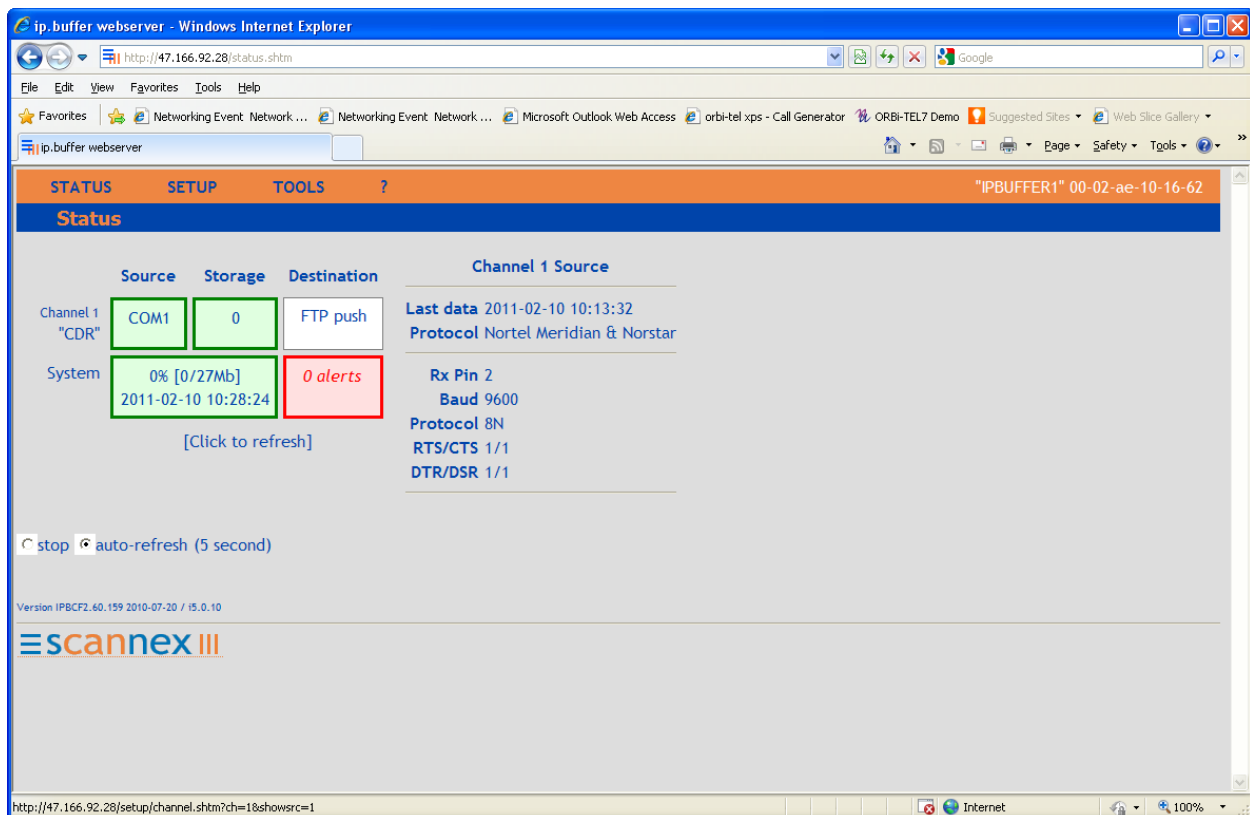
Done Internet 100%

7. Verification Steps

This section provides the tests that can be performed to verify correct configuration of CS1000E and ORBi-TEL⁷ solution.

7.1. Verify AvayaTM Communication Server 1000E

In order to verify successful connection to the CS1000E select **Status**. The **Status** screen is displayed. The **COM1 Source** displays in green indicating that the ip.buffer has successfully connected to the CS1000E.



7.2. Verify Nu Technologies ORBi-TEL⁷ and IP.buffer

Verify the connection between ORBi-TEL⁷ Server and the ip.buffer by ensuring that the connection between the server and the buffer is good and then placing some call to ensure the correct reporting of those calls by ORBi-TEL.

7.2.1. Verify connection between Nu Technologies ORBi-TEL⁷ Server and the IP buffer.

On the ip.buffer status page click on the FTP push square. Ensure connection was established with no errors

7.2.2. Verify operation of Nu Technologies ORBi-TEL⁷ Solution

Place some test calls, including internal, inbound trunk and outbound trunk calls through the CS1000E. Run the ORBi-TEL⁷ report to ensure correct collection of results. The following screen shows a report after some calls were made.

The screenshot shows a web browser window displaying the ORBi-TEL⁷ application. The page title is "Report Output". The user is logged in as "logman3". The navigation menu includes Reports, Directory, Profile, Administration, and About. The report is for "Test1" and shows call details for the period 09/02/2011 09:00:00 to 10:59:59. The report includes a table of call details and a summary table.

Date	Start Time	End Time	Duration (hh:mm:ss)	Ring Time	Source Extn	Source Trunk	Dest Extn	Dest Trunk	Auth Code	Dialled Digits	OLI	TLI	Destination	Exch	Cost
09/02/2011	10:19:07	10:19:11	00:04		3016		3032								0.00
09/02/2011	10:36:30	10:36:46	00:16		3016		3032								0.00
09/02/2011	10:40:04	10:40:18	00:14		3909		4901								0.00
09/02/2011	10:49:47	10:49:55	00:08		3909		4621								0.00
09/02/2011	10:52:52	10:53:00	00:08		2025		4621								0.00
09/02/2011	10:53:14	10:53:18	00:04		4621		2025								0.00

Totals		
Calls	6	
Extn To Trunk	0	
Extn To Extn	6	
Trunk To Extn	0	
Trunk To Trunk	0	
Total Cost	0.00	
Total Duration (hh:mm:ss)	00:54	

8. Conclusion

These Application Notes describe the procedures for configuring Nu Technologies ORBi-TEL⁷ and ip.buffer to collect call detail records from Avaya Communication Server 1000E. ORBi-TEL⁷ successfully passed all compliance testing.

9. Additional References

The documentation that is relevant when administering the solution is outlined below. Product documentation for Avaya products is available at <http://support.avaya.com>.

[1] Nortel Communication Server 1000, Library Reference, NN43001-100 04.01 4 June 2010

[2] Nortel Communication Server 1000, Call Detail Recording Fundamentals, Release: 7.0, Document Revision: 04.01 - NN43001-550

Product Documentation for ORBi-TEL⁷ can be obtained from Nu Technologies Ltd. or may be requested from <http://www.nut.eu.com/nutech/contactus.html>

Appendix

Appendix 1 – Call Server Patches

>ld 143

.mdp issp

VERSION 4121

RELEASE 7

ISSUE 00 Q +

DepList 1: core Issue: 01 (created: 2010-09-14 13:43:30 (est))

IN-SERVICE PEPS

PAT#	CR #	PATCH REF #	NAME	DATE	FILENAME	SPECINS
000	Q02162391	ISS1:1OF1	p30272_1	08/12/2010	p30272_1.cpl	NO
001	Q02151971-01	ISS1:1OF1	p30183_1	08/12/2010	p30183_1.cpl	NO
002	Q02152936-01	ISS1:1OF1	p30249_1	08/12/2010	p30249_1.cpl	NO
003	Q02162037	ISS1:1OF1	p30266_1	08/12/2010	p30266_1.cpl	YES
004	Q02149076-01	ISS1:1OF1	p30206_1	08/12/2010	p30206_1.cpl	NO
005	Q02158718-01	ISS1:1OF1	p30311_1	08/12/2010	p30311_1.cpl	NO
006	Q02143641-01	ISS1:1OF1	p30159_1	08/12/2010	p30159_1.cpl	NO
007	Q02159250-01	ISS1:1OF1	p30280_1	08/12/2010	p30280_1.cpl	NO
008	Q02156594	ISS1:1OF1	p30276_1	08/12/2010	p30276_1.cpl	YES
009	Q02143605-02	ISS1:1OF1	p30089_1	08/12/2010	p30089_1.cpl	NO
010	Q02152254	ISS1:1OF1	p30271_1	08/12/2010	p30271_1.cpl	NO
011	Q02159545	ISS1:1OF1	p30277_1	08/12/2010	p30277_1.cpl	YES
012	Q02145107-02	ISS1:1OF1	p30126_1	08/12/2010	p30126_1.cpl	NO
013	Q02161860	ISS2:1OF1	p30263_2	08/12/2010	p30263_2.cpl	NO
014	Q02152968-01	ISS1:1OF1	p30168_1	08/12/2010	p30168_1.cpl	NO
015	Q02157114	ISS1:1OF1	p30251_1	08/12/2010	p30251_1.cpl	NO
016	Q02154023	ISS1:1OF1	p30157_1	08/12/2010	p30157_1.cpl	NO
017	Q02154408	ISS1:1OF1	p30162_1	08/12/2010	p30162_1.cpl	NO
018	Q02165164	ISS1:1OF1	p30304_1	08/12/2010	p30304_1.cpl	NO
019	Q02156744	ISS2:1OF1	p30248_2	08/12/2010	p30248_2.cpl	NO
020	Q02150582-02	ISS2:1OF1	p30144_2	08/12/2010	p30144_2.cpl	NO

MDP>LAST SUCCESSFUL MDP REFRESH :2010-10-12 14:18:19(Local Time)

MDP>USING DEPLIST ZIP FILE DOWNLOADED :2010-10-12 09:11:33(est)

Appendix 2 – Linux Patches

```
[0]truane@cores1:~[truane@cores1 ~]$ pstat
```

Product Release: 7.00.20.00

In system patches: 2

PATCH#	NAME	IN_SERVICE	DATE	SPECINS	TYPE	RPM
22	p30179_1	Yes	08/10/10	NO	FRU	nortel-cs1000-OS-1.00.00.00-00.noarch
23	p30181_1	Yes	08/10/10	NO	FRU	nortel-cs1000-OS-1.00.00.00-00.noarch

In System service updates: 22

PATCH#	IN_SERVICE	DATE	SPECINS	REMOVABLE	NAME
0	Yes	08/10/10	NO	yes	nortel-cs1000-linuxbase-7.00.20.09-00.i386.000
1	Yes	08/10/10	NO	YES	nortel-cs1000-patchWeb-7.00.20.04-00.i386.000
2	Yes	08/10/10	YES	YES	nortel-cs1000-csv-7.00.20.01-00.i386.000
3	Yes	08/10/10	YES	YES	nortel-cs1000-tps-7.00.20.01-00.i386.000
4	Yes	08/10/10	YES	YES	nortel-cs1000-shared-tpselect-7.00.20.01-00.i386.000
5	Yes	08/10/10	NO	YES	nortel-cs1000-cnd-3.2.22-00.i386.000
6	Yes	08/10/10	NO	YES	nortel-cs1000-mscAnnc-7.00.20-01.i386.000
7	Yes	08/10/10	NO	YES	nortel-cs1000-mscTone-7.00.20-01.i386.000
8	Yes	08/10/10	NO	YES	nortel-cs1000-mscConf-7.00.20-01.i386.000
9	Yes	08/10/10	NO	yes	nortel-cs1000-cppmUtil-7.00.20.01-00.i686.000
10	Yes	08/10/10	NO	YES	nortel-cs1000-mscMusc-7.00.20-01.i386.000
11	Yes	08/10/10	NO	YES	nortel-cs1000-dbcom-7.00.20-01.i386.000
12	Yes	08/10/10	NO	YES	nortel-cs1000-mscAttn-7.00.20-02.i386.000
13	Yes	08/10/10	NO	YES	nortel-cs1000-dmWeb-7.00.20.01-00.i386.001
14	Yes	08/10/10	NO	YES	nortel-cs1000-csmWeb-7.00.20.03-00.i386.000
15	Yes	08/10/10	NO	YES	nortel-cs1000-ftpkg-7.00.20.01-00.i386.000
16	Yes	08/10/10	NO	YES	nortel-cs1000-cs1000WebService_6-0-7.00.20.03-00.i386.000
17	Yes	08/10/10	NO	YES	nortel-cs1000-Jboss-Quantum-7.00.20.04-00.i386.001
18	Yes	08/10/10	NO	YES	nortel-cs1000-emWeb_6-0-7.00.20.04-00.i386.000
19	Yes	08/10/10	NO	YES	nortel-cs1000-bcc-7.00.20.06-00.i386.000
20	Yes	08/10/10	NO	YES	nortel-cs1000-vtrk-7.00.20-08.i386.000
21	Yes	08/10/10	NO	YES	nortel-cs1000-sps-7.00.20-07.i386.000

```
[0]truane@cores1:~[truane@cores1 ~]$ spstat
```

There is no SP in loaded status.

The last applied SP: Service_Pack_Linux_7.00_20_20100914.ntl

It is a STANDARD SP.

Has been applied by user nortel on Fri Oct 8 14:57:26 2010.

spins command completed with no errors detected.

Appendix 3 – Software Version

truane@cores1:~\$ [truane@cores1 ~]\$ swVersionshow

Product Release: 7.00.20.00

Base Applications

base	7.00.20	[patched]
NTAFS	7.00.20	
sm	7.00.20	
nortel-Auth	7.00.20	
Jboss-Quantum	n/a	
lhmonitor	7.00.20	
baseAppUtils	7.00.20	
dfoTools	7.00.20	
nnnm	7.00.20	
c ppmUtil	n/a	[patched]
oam-logging	7.00.20	
dmWeb	n/a	
baseWeb	7.00.20	
ipsec	7.00.20	
Snmp-Daemon-TrapLib	7.00.20	
ISECSH	7.00.20	
patchWeb	n/a	[patched]
EmCentralLogic	7.00.20	

Application configuration: CS+SS+EM

Packages: CS+SS+EM

Configuration version:	7.00.20-00
cs	7.00.20
dbcom	7.00.20
cslogin	7.00.20
sigServerShare	7.00.20 [patched]
csv	7.00.20.01 [patched]
tps	7.00.20.01 [patched]
vtrk	7.00.20
pd	7.00.20
sps	7.00.20
ncs	7.00.20
gk	7.00.20
EmConfig	7.00.20
emWeb_6-0	7.00.20
emWebLocal_6-0	7.00.20
csmWeb	7.00.20
bcc	7.00.20
ftprkg	7.00.20
cs1000WebService_6-0	7.00.20
managedElementWebService	7.00.20

mscAnne	7.00.20	[patched]
mscAttn	7.00.20	
mscConf	7.00.20	[patched]
mscMusc	7.00.20	
mscTone	7.00.20	[patched]

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