



Avaya Solution & Interoperability Test Lab

Application Notes for Configuring Avaya IP Office 8.1 with Nu Technologies™ orbi-tel^{XPS} using an IP Buffer - Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Avaya IP Office 8.1 with Nu Technologies orbi-tel^{XPS} 4.0.600 using an IP Buffer.

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-tel^{XPS} call accounting software runs as a Windows Service and all of its functions, configuration, and call reports are accessible through a standard web browser. Nu Technologies orbi-tel^{XPS} collects Station Message Detail Reports data from the Avaya IP Office via an IP Buffer. The IP Buffer is configured via a web interface to receive and buffer Station Message Detail Reports from the Avaya IP Office which then pushes these reports to the orbi-tel^{XPS} at scheduled intervals where they are converted into a common internal format. The web interface of the orbi-tel^{XPS} also allows the system to be updated for additional Avaya IP Offices and for general maintenance. Users can use this web interface for reporting purposes including a full range of self customisable call list reports and full summarised reports for individuals, departments and a whole organisation.

2. General Test Approach and Test Results

The general test approach was to configure the orbi-tel^{XPS} to communicate with the Avaya IP Office (IP Office) as implemented on a customer's premises. Testing focused on verifying that Station Message Detail Reports (SMDR) are collected by the IP buffer and received in the format as generated by the IP Office. The orbi-tel^{XPS} application is able to collect the SMDR data using File transfer Protocol from the IP buffer. Various call scenarios were performed to simulate real call types as would be observed on a customer premises. See **Figure 1** for a network diagram. The interoperability compliance test included both feature functionality and serviceability tests.

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 orbi-tel^{XPS}/IP buffer and IP Office using a TCP connection.
- Verification that SMDR was collected as output by the IP Office.
- Link Failure\Recovery was also tested to ensure successful reconnection after link failure.
- SMDR data collected included:
 - 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
 - Auto Call Back,

Account Codes
Conference Calls

- Daylight Savings
- Handling of calls to and from Avaya IP H323, SIP, Digital and Soft phones
- Handling of calls over SIP and QSIG trunks
- Defence Tests to ensure recovery following LAN interruptions

2.2. Test Results

Tests were performed to insure full interoperability between orbi-tel^{XPS}/IP buffer and IP Office. The tests were all functional in nature and performance testing was not included. All the test cases passed successfully.

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>

3. Reference Configuration

Figure 1 illustrates the network topology used during compliance testing. The Avaya solution consists of an IP Office which is configured to output SMDR. The SMDR feature is configured on the IP Office to point to the Scannex IP buffer on port 9000. SMDR records are sent to and stored on the IP Buffer which retrieved by the orbi-tel^{xps} application at defined periods. During compliance testing to test the Multi-Site feature of the orbi-tel^{xps} multiple sites were configured on the orbi-tel^{xps} server. To ensure that records were collected by the second site the IP address of the IP buffer and SMDR were changed. The orbi-tel^{xps} then collected these records as to simulate a second site. Digital, H323 and Soft phones were configured on the IP Office to generate intra-switch calls (calls between phones on the same system), and outbound/inbound calls to/from the PSTN. QSIG and SIP trunks were configured to connect to the PSTN.

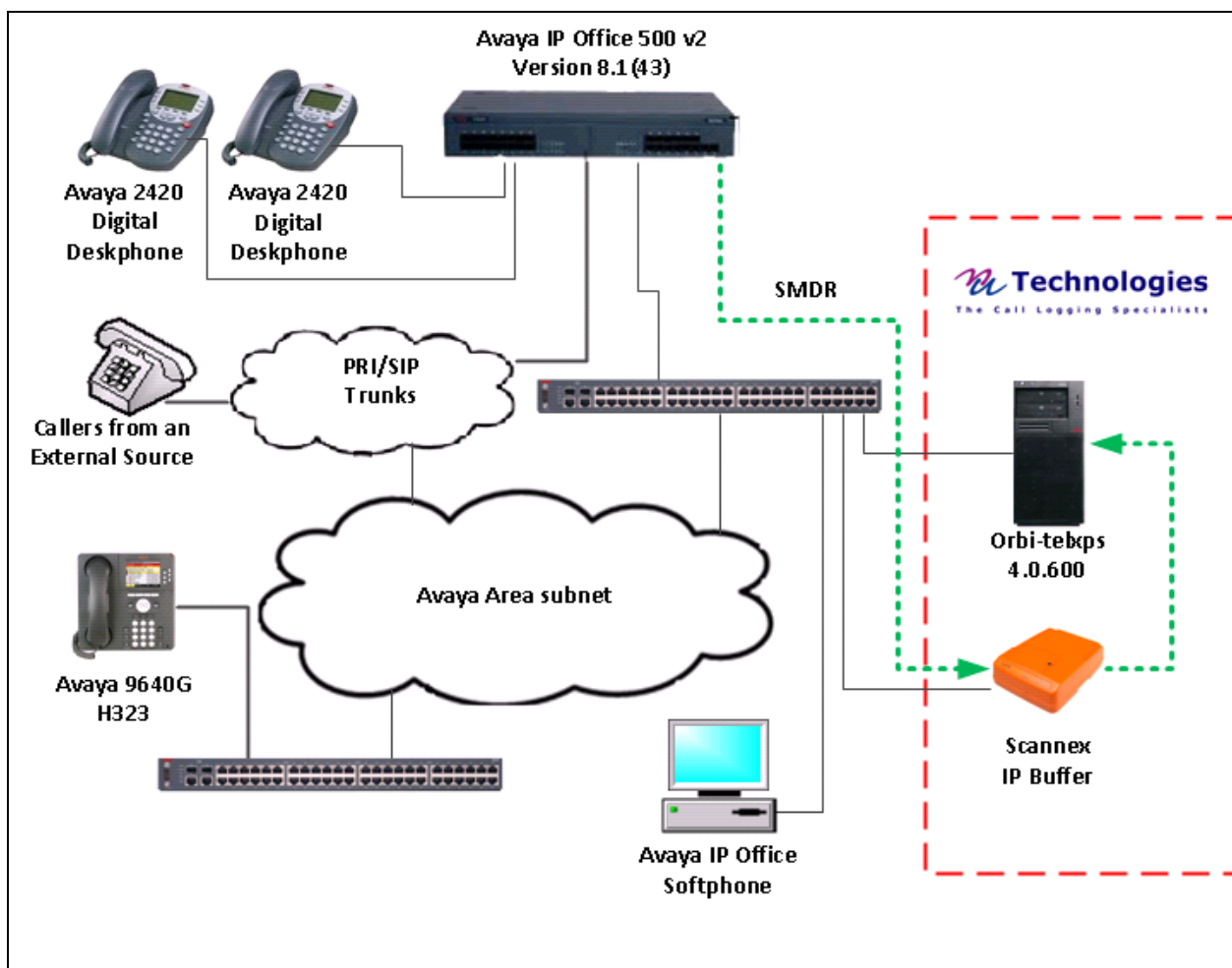


Figure 1: Avaya IP Office and Nu Technologies orbi-tel^{xps} Reference Configuration

4. Equipment and Software Validated

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

Avaya Equipment	Software / Firmware Version
Avaya IPO 500	8.1(43)
Avaya 9640G IP Telephone	H323 S3.104S
Avaya 2420 Digital Telephones	--
Avaya IP Office softphone	3.2.3.48
Nu Technologies Equipment	Software / Firmware Version
Dell PowerEdge running Windows 2003 Server R2	orbi-tel ^{xps} Version 4.0.600.0
Scannex IP Buffer	Version IPBCF2.75.199 2012-02-09 / i5.0.10

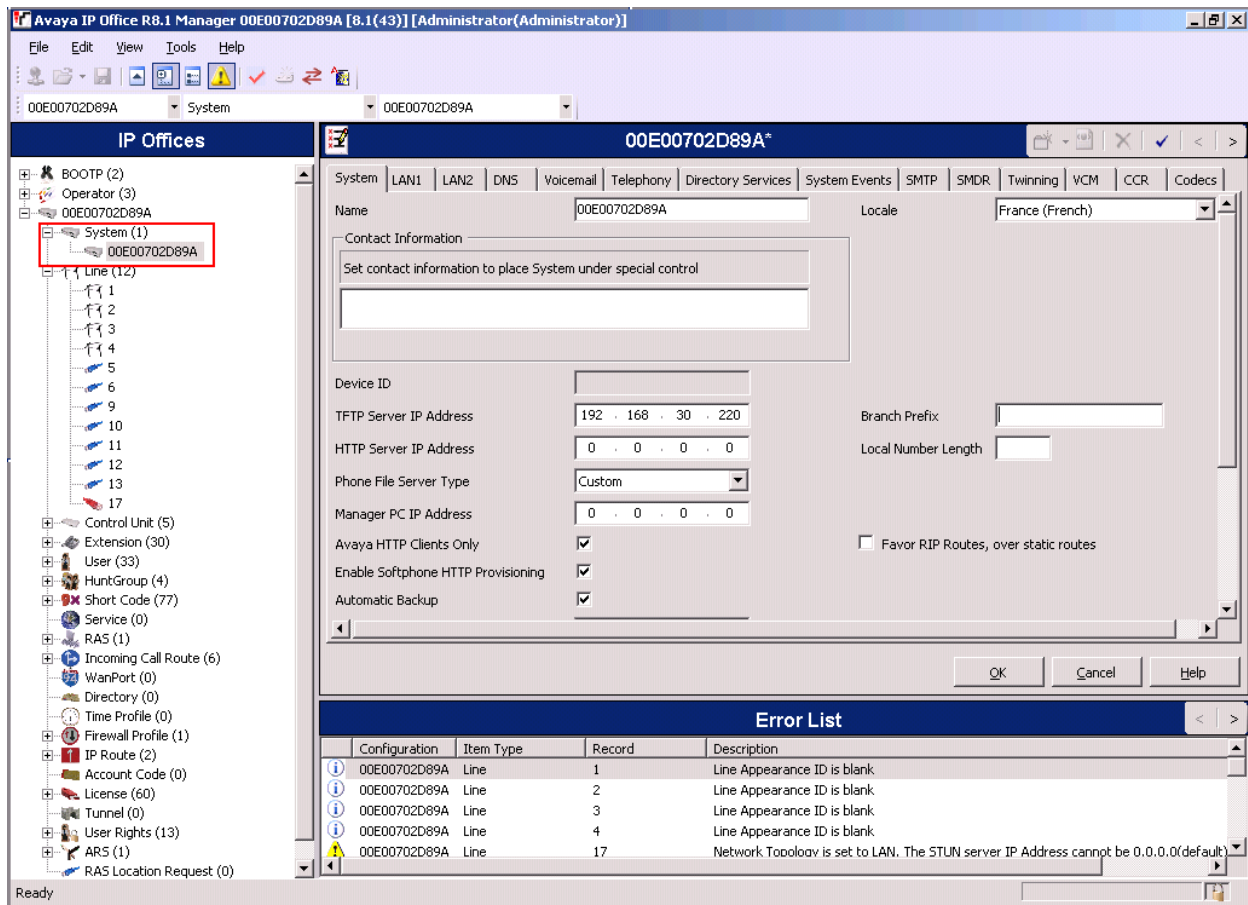
5. Avaya IP Office Configuration

Configuration and verification operations on the Avaya IP Office illustrated in this section were all performed using Avaya IP Office Manager. The information provided in this section describes the configuration of the Avaya IP Office 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:

- Launch Avaya IP Office Manager
- SMDR Configuration
- Save Configuration

5.1. Launch Avaya IP Office Manager

From the Avaya IP Office Manager PC, go to **Start→Programs→IP Office→Manager** to launch the Manager application. Log in to Avaya IP Office using the appropriate credentials to receive its configuration (Not shown). In the IP Offices window expand the Configuration Tree and double-click **System**. During compliance testing the System was called 00E00702D89A



5.2. SMDR configuration

Select the **SMDR** tab and enter the following information:

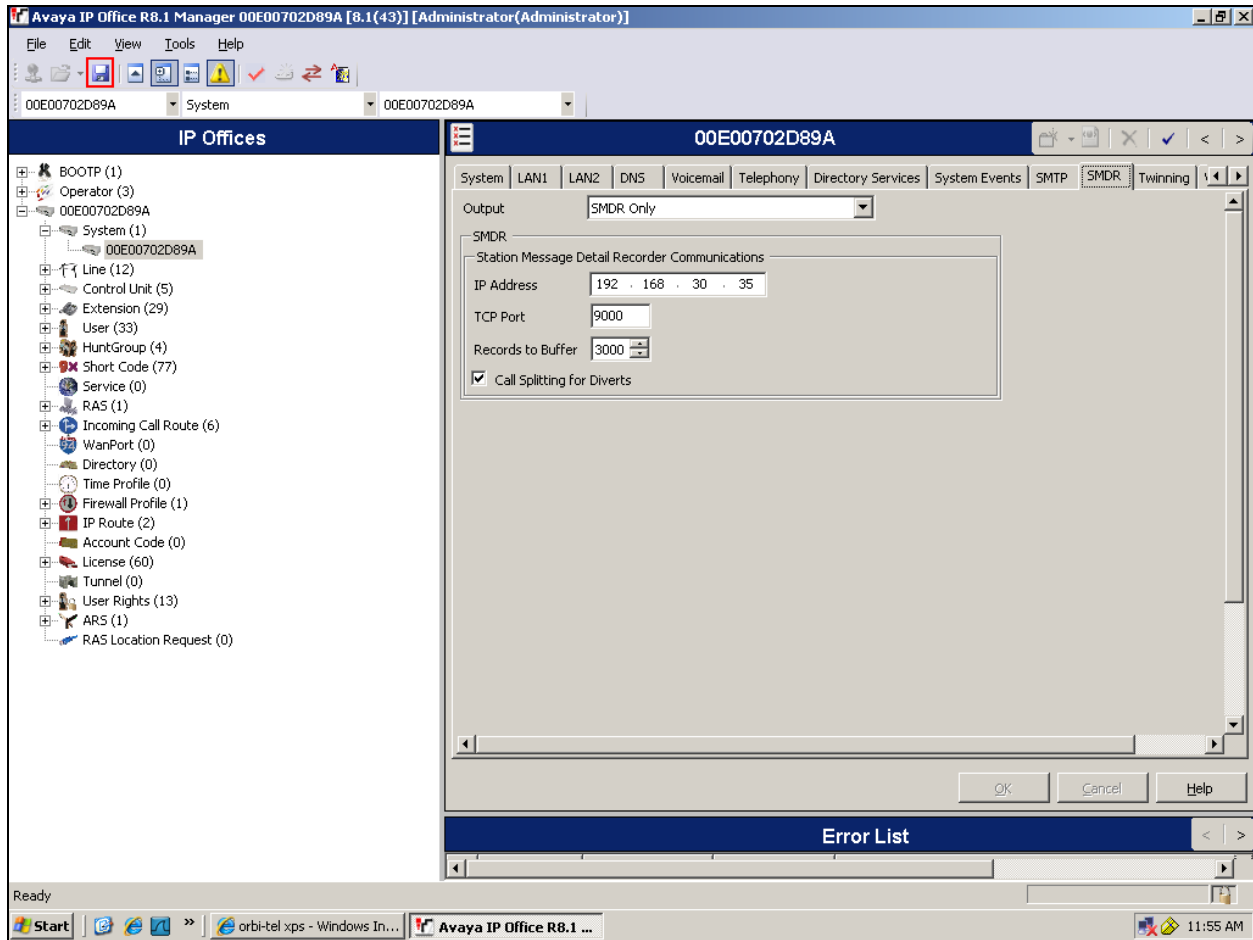
- **Output** Select **SMDR Only** from the drop box
- **IP Address** Enter the IP Address of the IP Buffer
- **TCP Port** Enter **9000**
- **Records to buffer** Enter **3000**. This is maximum available.
- Check the **Call Splitting for Diverts** Check box

Click the **OK** button to save.

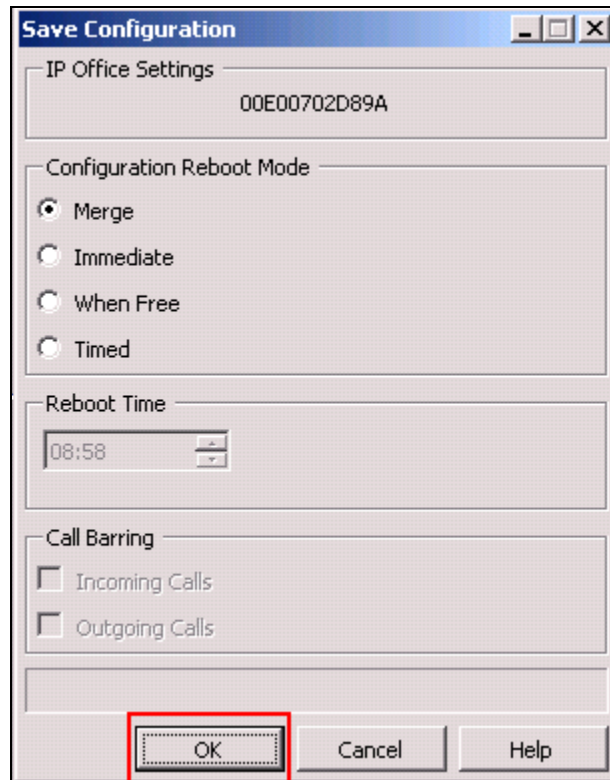
The screenshot shows a software window titled "00E00702D89A" with a menu bar containing "System", "LAN1", "LAN2", "DNS", "Voicemail", "Telephony", "Directory Services", "System Events", "SMTP", "SMDR", and "Twining". The "SMDR" tab is selected and highlighted with a red box. Below the menu bar, there is a section labeled "Output" with a dropdown menu set to "SMDR Only", also highlighted with a red box. Underneath, there is a section titled "SMDR" containing a "Station Message Detail Recorder Communications" box. Inside this box, the following fields are visible and highlighted with red boxes: "IP Address" with the value "192 . 168 . 30 . 35", "TCP Port" with the value "9000", "Records to Buffer" with the value "3000", and a checked checkbox labeled "Call Splitting for Diverts". At the bottom of the window, there are three buttons: "OK", "Cancel", and "Help", with the "OK" button highlighted by a red box.

5.3. Save Configuration

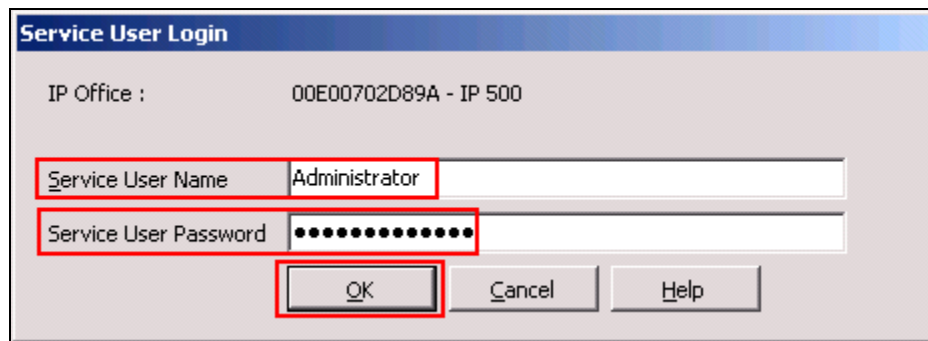
Once all the configurations have been made it must be sent to the IP Office. Click on the **Save** Icon as shown below.



Once the **Save Configuration** Window opens, click the **OK** button.



When the **Service User Login** Window opens enter the appropriate credentials and click the **OK** button.



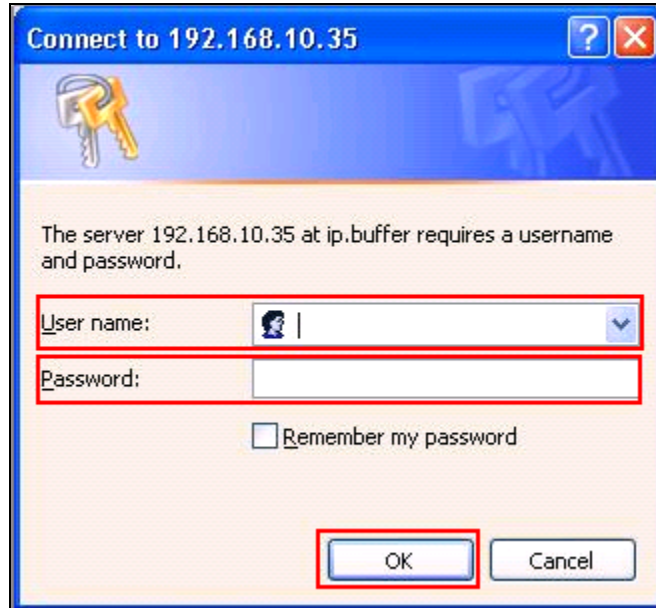
6. Configuration of Scannex IP buffer

This section provides the procedures to configure the Scannex IP buffer. It is implied that the Scannex IP buffer is already in place and configured with an IP address on the same subnet as the IP Office. 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:

- Logging into the Scannex IP Buffer
- Setup Scannex IP Buffer

6.1. Logging into the Scannex IP Buffer

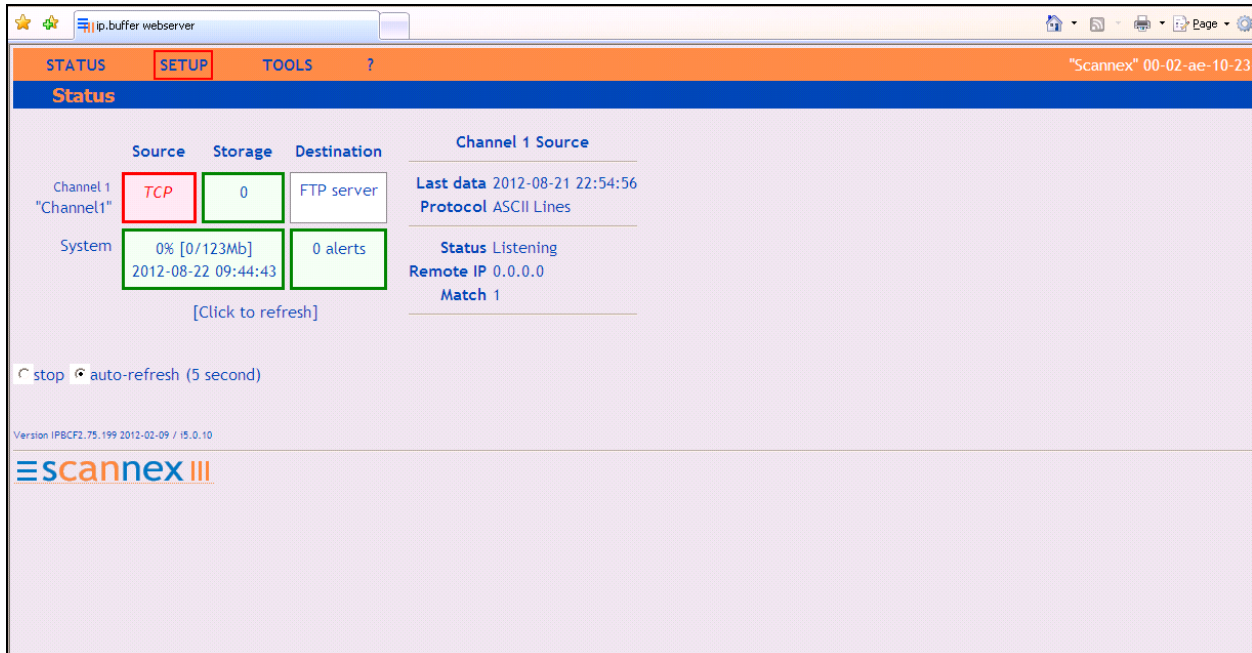
To access the web-based interface of the Scannex IP Buffer, use the URL **http://192.168.10.82**. The **Management Main page** is displayed.



A Windows-style dialog box titled "Connect to 192.168.10.35". It features a blue header bar with a question mark and close button. The main area has a light blue background with a key icon. Text inside says: "The server 192.168.10.35 at ip.buffer requires a username and password." Below this are two input fields: "User name:" with a dropdown arrow and "Password:". A checkbox labeled "Remember my password" is below the password field. At the bottom are "OK" and "Cancel" buttons. Red boxes highlight the "User name:" field, the "Password:" field, and the "OK" button.

6.2. Setup Scannex IP Buffer

After logging in the **Management Main page** is displayed. Select **SETUP** followed by **Channel 1** (Not shown).



A screenshot of a web browser displaying the "Scannex" management interface. The browser address bar shows "ip.buffer webserver". The page has a navigation bar with "STATUS", "SETUP", "TOOLS", and "?". The "SETUP" tab is selected. The main content area is titled "Status" and displays a table with columns: "Source", "Storage", "Destination", and "Channel 1 Source". The "Source" column shows "Channel 1 'Channel1'" with a red box around "TCP". The "Storage" column shows "0" with a green box around it. The "Destination" column shows "FTP server". The "Channel 1 Source" column shows "Last data 2012-08-21 22:54:56", "Protocol ASCII Lines", "Status Listening", "Remote IP 0.0.0.0", and "Match 1". Below the table is a "[Click to refresh]" link. At the bottom left, there is a "stop" button and "auto-refresh (5 second)" option. The Scannex logo is at the bottom center. The footer shows "Version IPBCF2.75.199 2012-02-09 / 15.0.10".

Once the **Channel 1** page is opened, select **TCP** from the **Source** dropdown box, then select **show**.

Channel 1: "Channel1"

Name: Channel1

Source: TCP (show / hide)

Destination: TCP (show / hide)

Storage: FTP server (show / hide)

Press SAVE to store changes!

SAVE Cancel

Version IPBCF2.75.199 2012-02-09 / i5.0.10

scannex III

Once the next page opens enter **9000** in the **TCP/IP port** box. The port number used should match the **TCP Port** configured on the IP Office in **Section 5.2**. From the **Protocol** drop down box enter **Avaya RSP TCP/IP**. Use the scroll bar on the right side of the page and scroll to the bottom.

Channel 1: "Channel1"

Name: Channel1

Source: TCP (show / hide)

TCP/IP

Connect: Device to ipbuffer (passive/server) (multihome / hide)

Address: multihome / hide

Port: 9000

Protocol: Avaya RSP TCP/IP

Time Stamp

Scroll bar

From the **Destination** dropdown box select **TCP server (passive)** and then select **show**.

The screenshot shows the 'ip.buffer webserver' configuration page. The 'Destination' dropdown menu is highlighted with a red box, displaying 'TCP server (passive)' and a 'show' link. The 'Storage' section is also highlighted with a red box. The 'Parameters' section includes 'Allow' (ASCII only) and 'Timeout' (1000). The 'Pass-through' section includes 'Port' (0), 'Allow', 'Client Type' (Auto), 'Prompt' (Password:), 'Password' (password), 'Success' (OK\r\n), and 'Mode' (Not stored). The 'Notification' section includes 'Quiet' (0 minutes) and 'Connects' (Ignore). The 'Storage' section includes 'Storage settings show / hide' and 'SAVE' and 'Cancel' buttons.

Once the **TCP server (passive)** window opens, enter **5001** in the **Port** field. Click on the **Save** button to save changes.

The screenshot shows the 'TCP server (passive)' configuration window. The 'Port' field is highlighted with a red box and contains the value '5001'. The 'On Complete' dropdown menu is set to 'Stay connected (real-time)'. The 'Data Markers' section includes 'Prefix' and 'Suffix' fields. The 'Data Security' section includes 'Data Encryption' (Unencrypted). The 'Storage' section includes 'Storage settings show / hide' and 'SAVE' and 'Cancel' buttons. A red text message 'Press SAVE to store changes!' is displayed above the 'SAVE' button.

7. Configure orbi-tel^{xps} Server

This section describes the steps preformed to configure the orbi-tel^{xps} Server. It is implied that the orbi-tel^{xps} Server software is already installed. For all other provisioning information such as initial installation and configuration, please refer to the product documentation in **Section 10**.

These configurations can be summarised as follows:

- Login to orbi-tel^{xps} Server
- Add a new switch to manage
- Configure Call Accounting
- Restart orbi-tel^{xps}

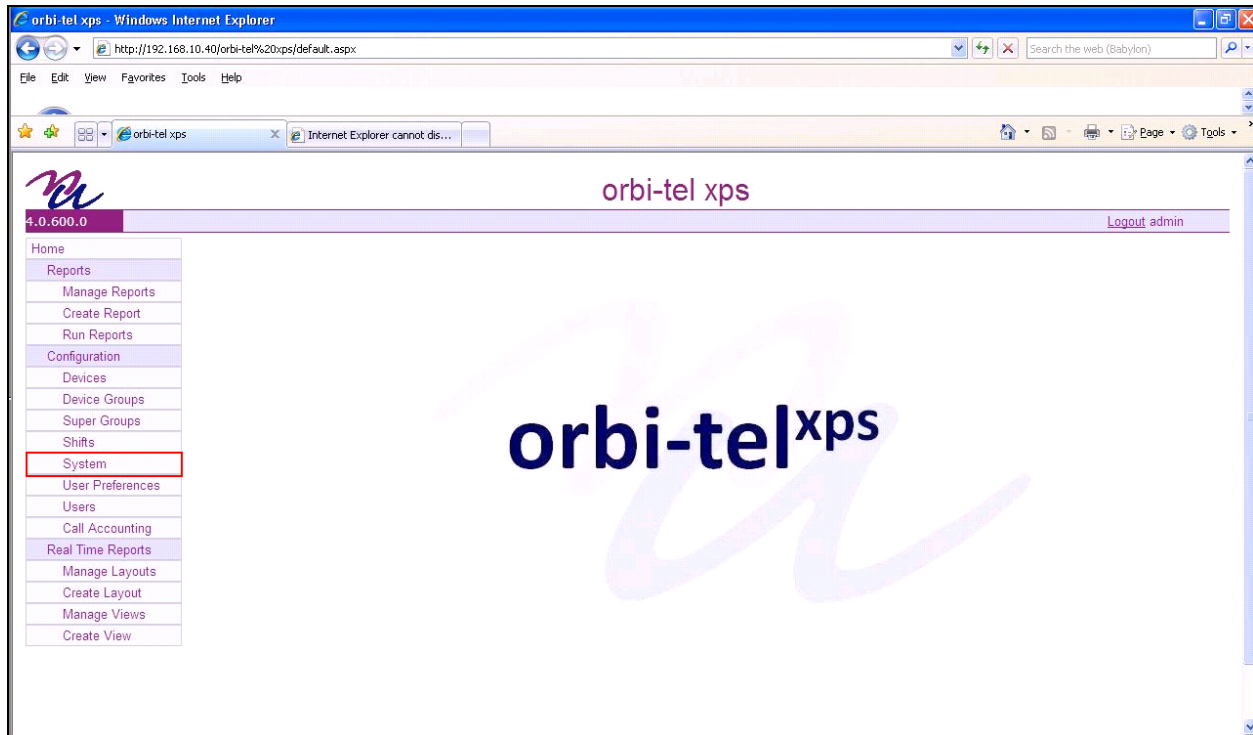
7.1. Login to orbi-tel^{xps} Server

To access the web-based interface of the orbi-tel^{xps} server, use the URL **http://x.x.x.x**, where **x.x.x.x** is the selected IP address of the orbi-tel^{xps} server. Enter the appropriate Login and Password credentials and then click on the **Log In** button.



7.2. Add a new switch to manage

Once the orbi-tel^{xps} is opened select **System**.



Once the new window opens select the **Switches** tab and click on the **New** button and enter the following:

- Enter a **Switch Number**
- Enter a **Short Name** for the switch
- Enter a **Long Name** for the switch.

Click on the **Save** button.

The screen shot below shows what was used during compliance testing.

The screenshot shows the 'orbi-tel xps' web application running in Internet Explorer. The browser address bar shows the URL: `http://192.168.10.40/orbi-tel%20xps/Configuration/ManageSites.aspx?Screen_ID=site_with_smldr_config`. The application interface includes a sidebar menu with options like Home, Reports, Configuration, and Real Time Reports. The main content area is titled 'Manage Switches' and features several tabs: 'Switches', 'Device Auto Config', 'E-Mails', 'Device Name Format', 'Database Request Timeout', 'Licence Admin', and 'Service Status'. The 'Switches' tab is active, displaying a form for adding a new switch. The form includes a 'Switch Name' label, a 'Switch Number' input field (containing '1'), a 'Device Prefix' input field, a 'Short Name' input field (containing 'Site 1'), a 'Long Name' input field (containing 'Site 1'), and a 'Device Prefix Separator' dropdown menu (set to '/'). At the bottom of the form are three buttons: 'New', 'Save', and 'Delete'. The 'New' button is highlighted with a red box.

7.3. Configure Call Accounting

Select **Call Accounting**.

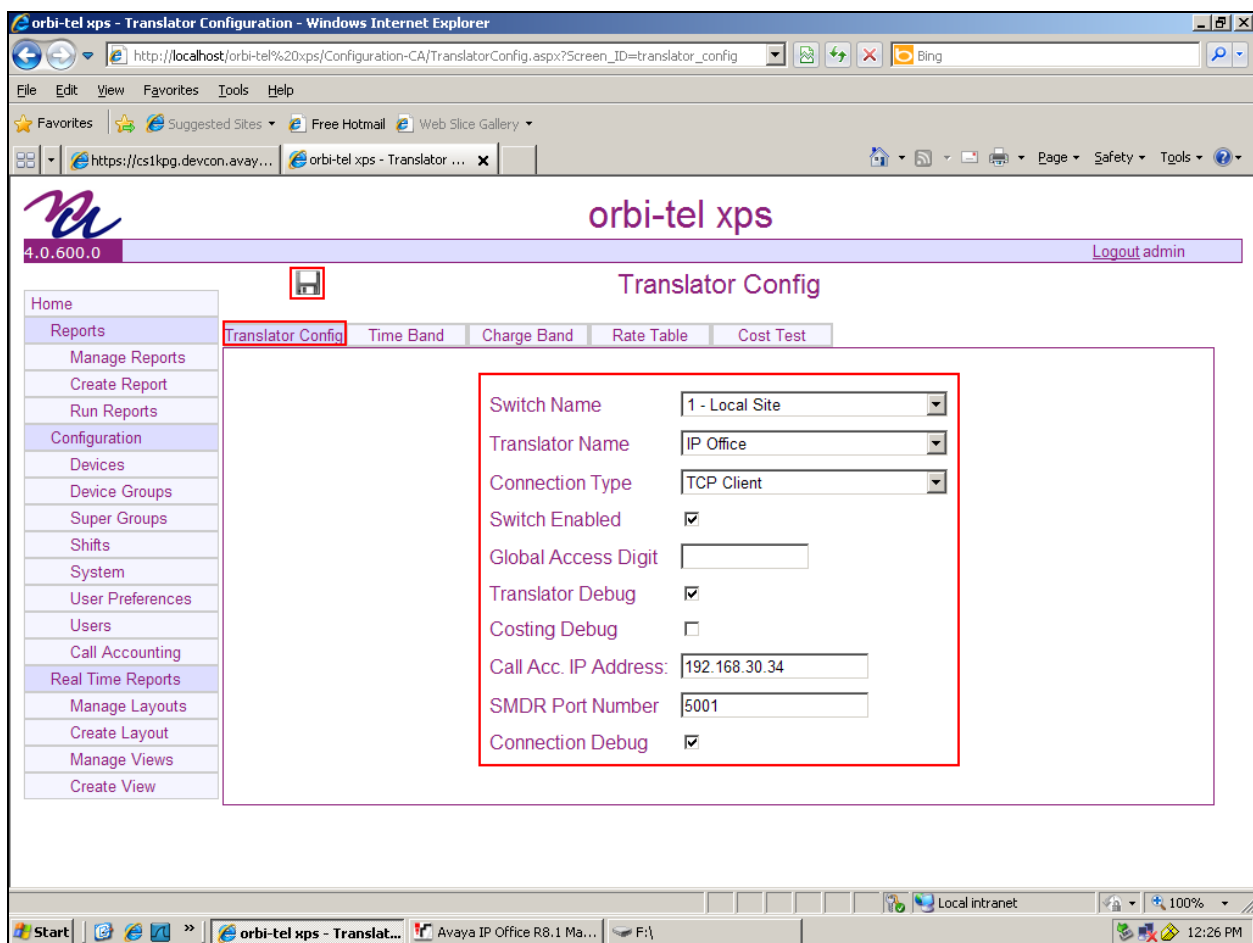


Once the new window opens select the **Translator Config** tab and enter the following:

- Select **Site 1** from the **Switch Name** drop down box. This is the site configured in **Section 7.2**.
- Select **IP Office** from the **Translator Name** drop down box
- Select **TCP Client** from the **Connection Type** drop down box
- Check the **Switch Enabled** check box
- Check the **Translator Debug** check box
- Enter the IP address of the **IP Buffer** in the **Call Acc. IP Address** box
- Enter **5001** in the **SMDR Port Number** box. This is the port number as configured in **Section 6.2**
- Check the **Connection Debug** check box

Click on the **Save** Icon to save the configuration.

The screen shot below shows what was used during compliance testing.

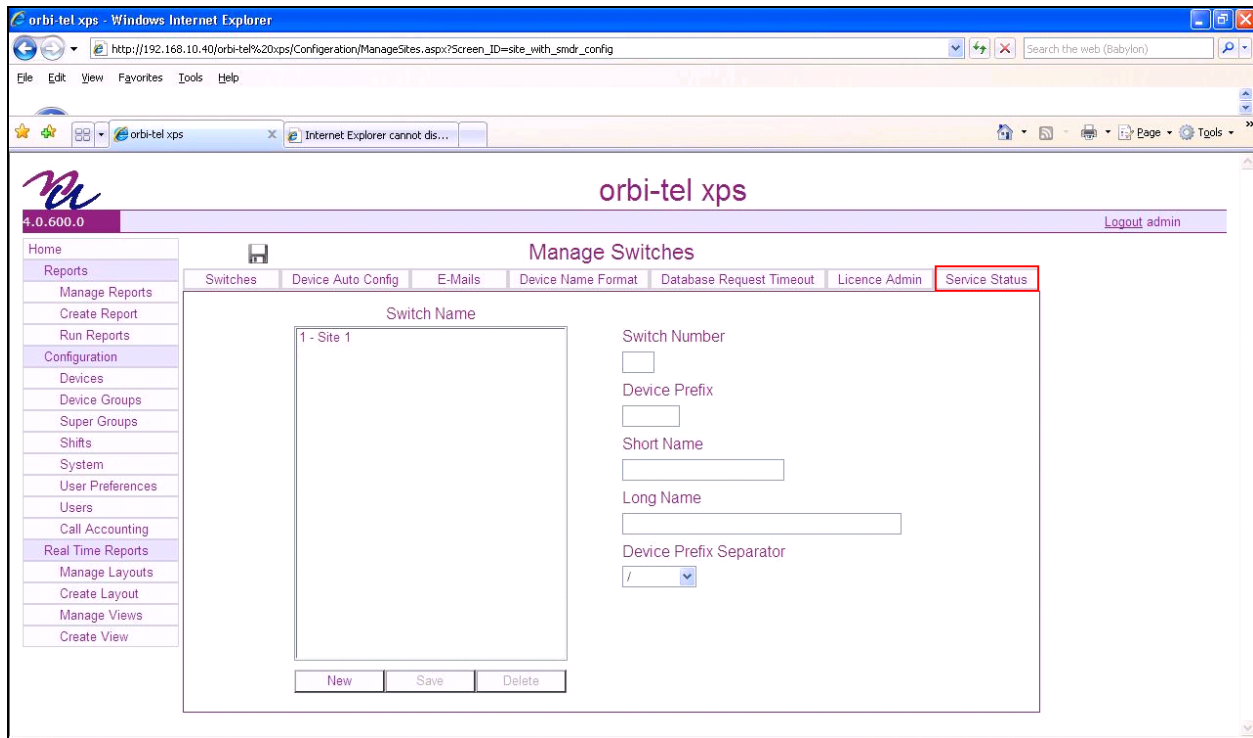


7.4. Restart orbi-tel^{xps}

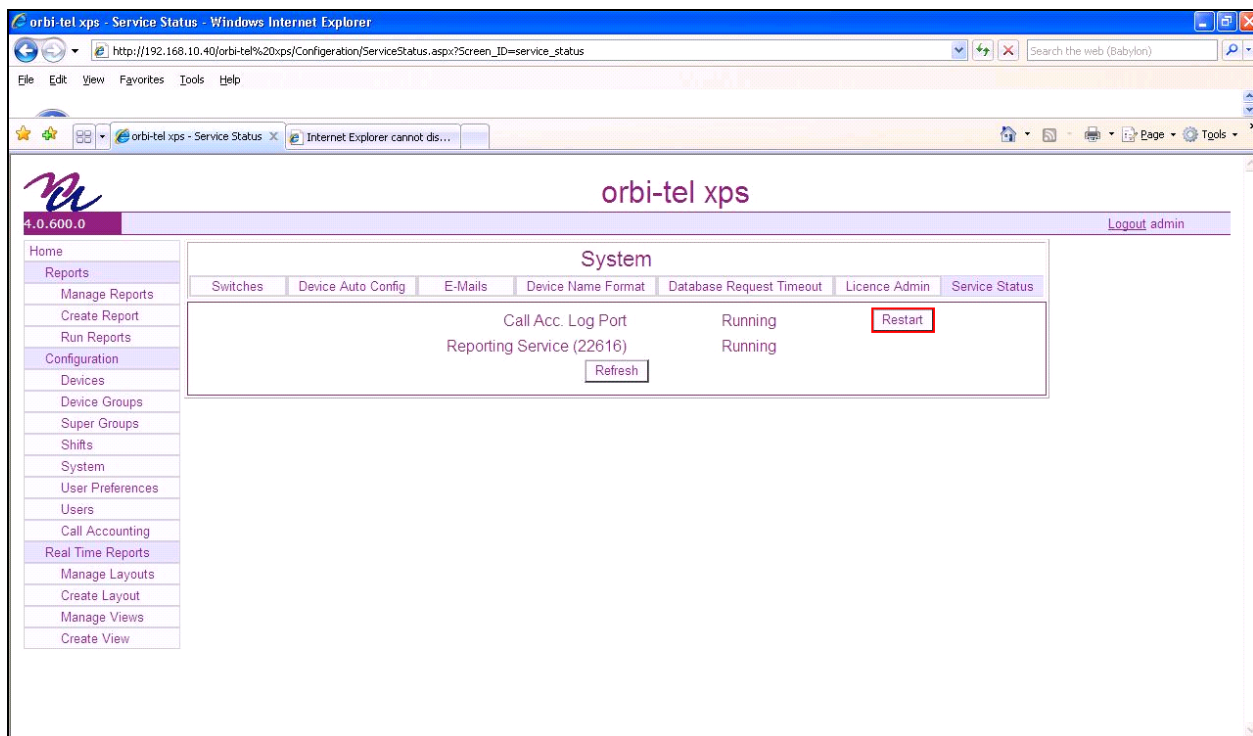
Select **System**.



Once the **Manage Switches** window opens, select the **Service Status** tab.



Click on the **Restart** button to restart orbi-tel^{xps}.

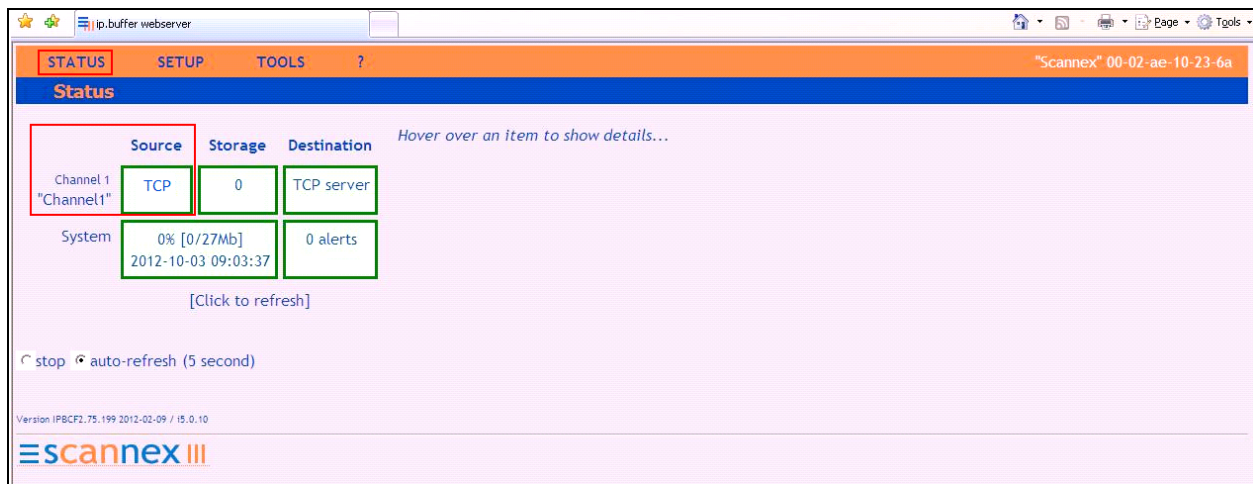


8. Verification Steps

This section provides the tests that can be performed to verify correct configuration of the IP Office and orbi-tel^{xps} solution.

8.1. Verify the Avaya IP Office to Scannex IP buffer connection

In order to verify successful connection of the Scannex IP buffer to the IP Office select **Status**. The **Status** screen is displayed. The **TCP Source** displays in green indicating that the IP Buffer has successfully connected to the IP Office.



8.2. Verify orbi-tel^{xps} is running

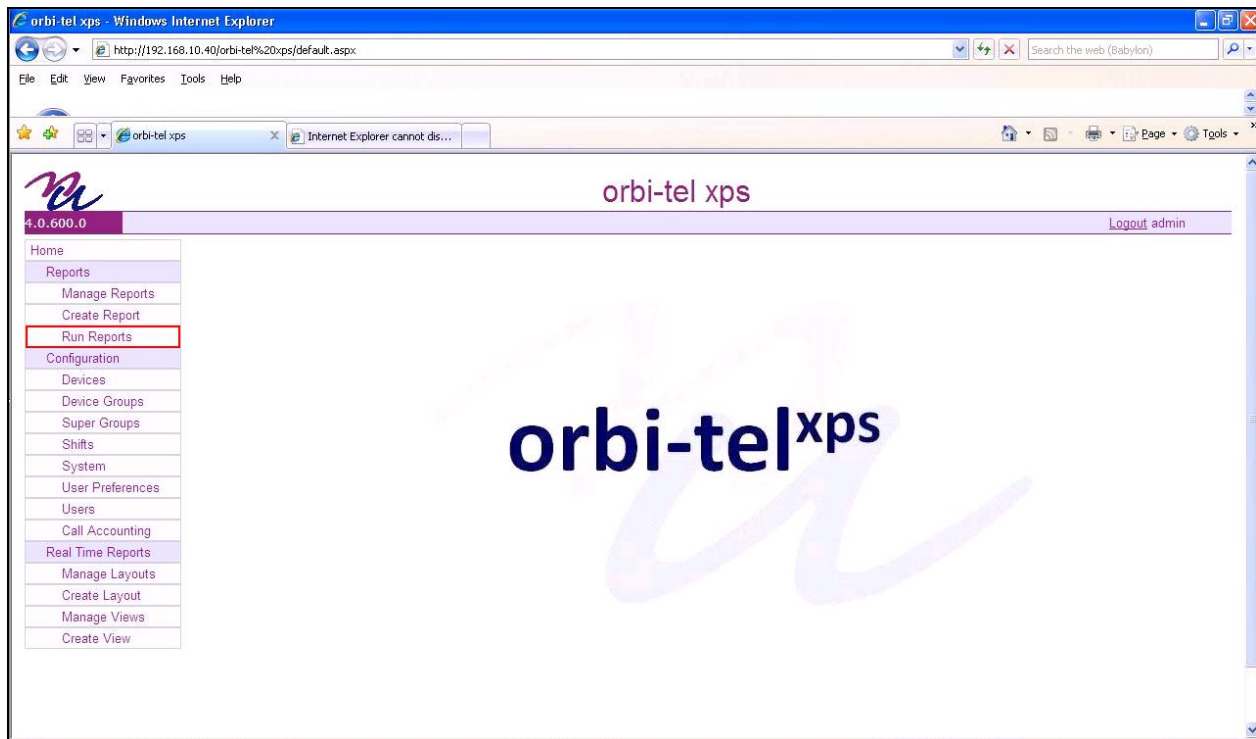
After logging into orbi-tel^{xps} select **System** followed by the **Service Status** tab, verify that **Call Acc. Log Port** and **Reporting Service** is Running.

The screenshot shows the 'orbi-tel xps' web application interface. The browser window title is 'orbi-tel xps - Service Status - Windows Internet Explorer'. The address bar shows the URL 'http://192.168.10.40/orbi-tel%20xps/Configuration/ServiceStatus.aspx?Screen_ID=service_status'. The page header includes the 'orbi-tel xps' logo and version '4.0.600.0', along with a 'Logout admin' link. The left sidebar contains a menu with categories: Home, Reports, Configuration, Real Time Reports, and System. The 'System' menu item is highlighted. The main content area shows the 'System' tab with sub-tabs: Switches, Device Auto Config, E-Mails, Device Name Format, Database Request Timeout, Licence Admin, and Service Status. The 'Service Status' sub-tab is selected. A table displays the status of two services:

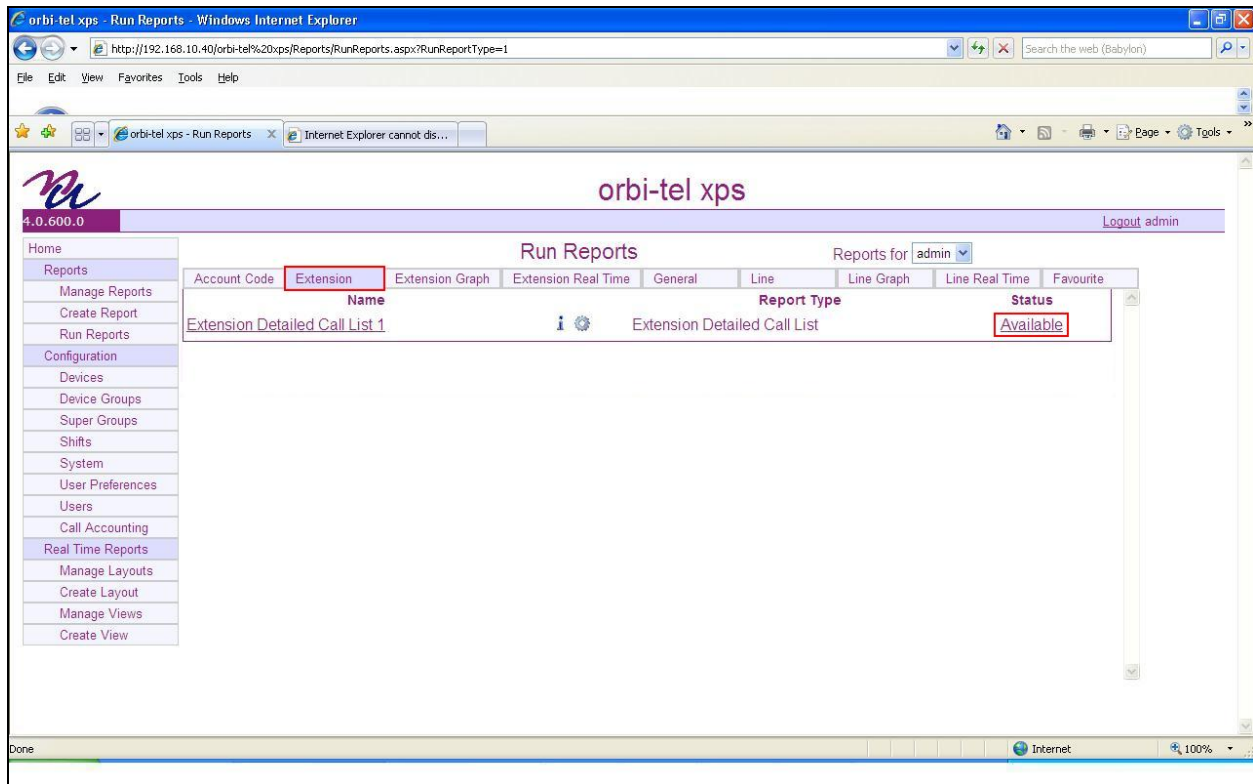
Service	Status	Action
Call Acc. Log Port	Running	Restart
Reporting Service (22616)	Running	Refresh

8.3. Verify Reports

After logging into orbi-tel^{xps} select **Run Reports**.



Once the **Run Reports** window opens, select the **Extension** tab and click on **Available**.



Once the **Extension Detailed Call List** report opens, something similar to the screen shot below should be seen.

Extension Detailed Call List											
From 03/10/12 00:00:00											Run 03/10/12
To											Time 10:12:11
Extension Detailed Call List											
Date	Start Time	End Time	Source Device	Destn Device	Call Type	Call Time	Ring Time	Dialed Digits	Cost	Account Code	Location Name
03/10/2012	08:48:14	08:48:14	Extension 5154	Extension 5190	Intercom	00:00:00	00:04		0.00		
03/10/2012	09:42:08	09:42:13	Extension 5190	Extension 5180	Intercom	00:00:04	00:01		0.00		
Totals			2	Calls		00:00:04			0.00		

9. Conclusion

A full and comprehensive set of feature and functional test cases were preformed during Compliance testing. orbi-tel^{xps} 4.0.600.0 is considered compliant with Avaya IP Office 8.1. All test cases have passed and met the objectives outlined in **Section 2.2**

10. Additional References

These documents form part of the Avaya official technical reference documentation suite. Further information may be had from <http://support.avaya.com> or from your Avaya representative.

[1] *Avaya IP Office R8.1 Manager 10.1, August 3rd 2012, Issue 29o, Document Number 15-601011*

Product Documentation for orbi-tel^{xps} and Scannex IP Buffer can be obtained from Nu Technologies Ltd. or may be requested at <http://www.nut.eu.com/nutech/contactus.html>

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