



## **Avaya Solution & Interoperability Test Lab**

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# **Application Notes for FCS Unicorn Property Management System Version 1.2 with Avaya Communication Server 1000 Release 7.5 – Issue 1.0**

### **Abstract**

These Application Notes describe the procedures for configuring FCS Unicorn application to interoperate with Avaya Communication Server 1000. FCS Unicorn is a Windows-based integrated billing and interface solution that supports all major Property Management System Interfaces in PABX systems.

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

These Application Notes describe the procedures for configuring FCS Unicorn to interoperate with Avaya Communication Server 1000. FCS Unicorn is a Windows-based integrated billing and interface solution that supports all major Property Management Systems (PMS). FCS Unicorn provides a real-time multitasking interface between Avaya Communication Server 1000 (CS 1000) and a hotel's 3<sup>rd</sup> party Property Management System (PMS). In addition to functioning as a call charge and billing system that manages the costs of telephony and service usage, FCS Unicorn supports standard Hospitality feature requests to/from a PMS (guest room check-in/check-out/moves, Do Not Disturb (DND), Automatic Wake-Up (AWU), Message Waiting Lamp (MWL) control, Housekeeping/Room Status changes). The Hospitality features are enabled by a PMS data link to Avaya Communication Server 1000. The data link used between Avaya CS 1000 and Unicorn server is Embedded LAN (ELAN) via TCP/IP.

## 2. General Test Approach and Test Results

Feature functionality testing was performed manually. Inbound calls were made to the Avaya IP Telephones (i.e. the guest telephones) over PRI and SIP trunks, as well as from other local extensions (analog, digital, and IP Telephone). A simulated PMS application was used to launch changes to telephone message waiting lamps and phone privileges during room check in / checkout / move requests, receive room status updates, and activate/deactivate DND.

DevConnect Compliance Testing is conducted jointly by Avaya and DevConnect members. The jointly-defined test plan focuses on exercising APIs and standards-based interfaces pertinent to the interoperability of the tested products and their functionalities. DevConnect Compliance Testing is not intended to substitute a full product performance or feature testing performed by third party vendors, nor is it to be construed as an endorsement by Avaya of the suitability or completeness of a third party solution.

### 2.1. Interoperability Compliance Testing

Interoperability compliance testing focused on FCS Unicorn's ability to work with Avaya Communication Server 1000. FCS Unicorn features and capabilities that were verified included the following:

- Property Management System features: check-in/check-out/room change for guest extensions, receipt of Housekeeping/Room Status changes initiated at guest telephones and forwarding to a simulated Property Management System, MWL activation for incoming voicemail, and DND activation/deactivation.

### 2.2. Test Results

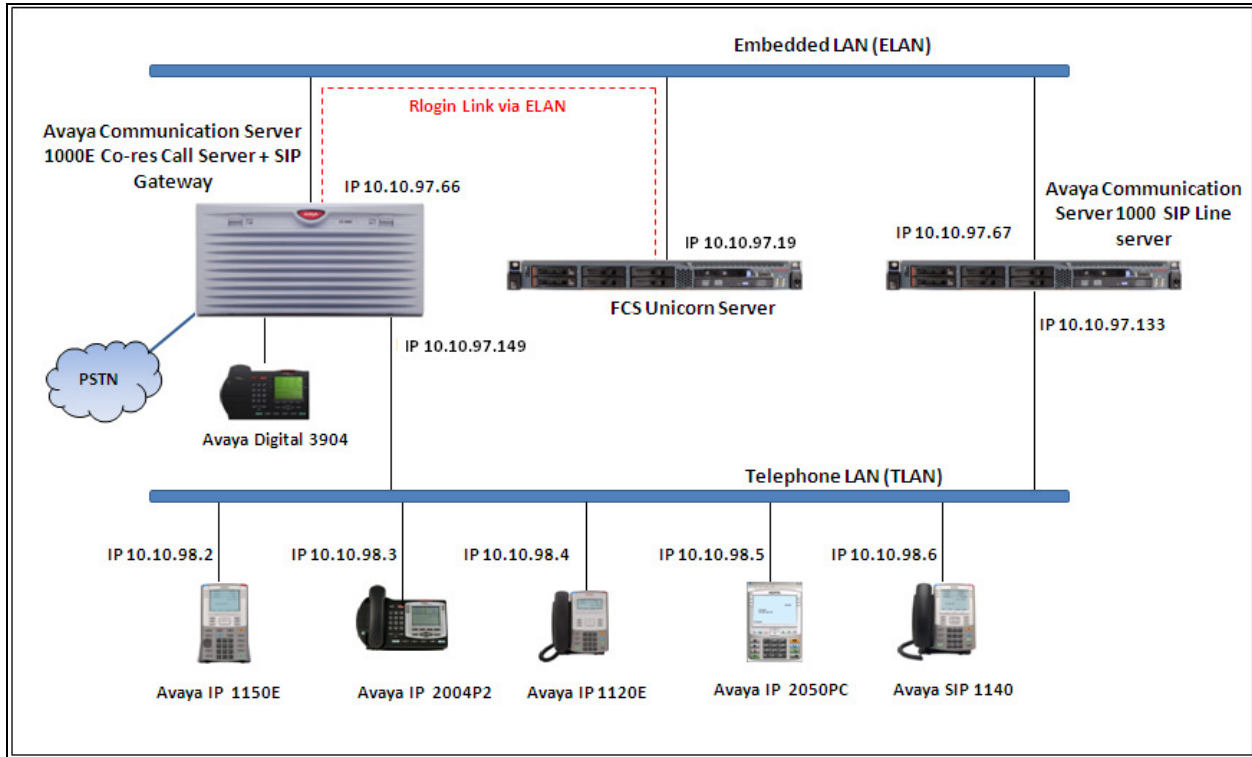
All executed test cases were completed successfully.

### 2.3. Support

For technical support on FCS Unicorn, contact FCS Computer Systems at Support Hotline at [+632-857-4000](tel:+632-857-4000).

### 3. Reference Configuration

**Figure 1** below illustrates the test configuration diagram that has an ELAN link connected from ELAN of Call Server CS1000 and to the Unicorn server. The diagram also has the T1 trunk from the main CS 1000 to the simulated PSTN. The T1 trunk is used for outbound and inbound calls to the main CS 1000.



**Figure 1: Test Configuration Diagram**

## 4. Equipment and Software Validated

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

Equipment	Software
Avaya Communication Server 1000E/CPPM	Avaya Communication Server Release 7.5 Q+ Deplist 1 (created: 2012-09-20) and Service Update 1 (Created: Sept 19, 2012)
Avaya IP SIP Phone 1140E	4.3
Avaya IP Unistim Phone 1165E	0x25C8J
Avaya IP Unistim Phone 1150E	0x27C8J
Avaya IP Unistim Phone 2004	0604DCN
FCS Unicorn IBM Server x3350	Windows 2008 64-bit R2 Standard SP1
FCS Unicorn software	1.2.11.13*
FCS Unicorn Nortel.PBX Version	1.1.2.9

\* This version included a patch for a packet fragmentation issue uncovered under heavy load at a customer's site.

## 5. Configure Avaya Communication Server 1000

This document assumes that the CS 1000 system used for the compliance test was already installed and configured. This section provides the procedure to configure for CS 1000 to work with Unicorn application. For more detail on how to administer the CS 1000 system, please refer to **Section 9**.

## 5.1. Configure Property Management System Interface (PMSI)

The Property Management System Interface is an optional software package that allows the CS1000 system to interface directly with a customer-provided Property Management System (PMS) through a Serial Data Interface (SDI) port. This provides an effective means of information between the PMS and the CS 1000 system.

This section provides the procedure how to check the software package and to configure the Property Management System Interface on the CS 1000.

1. Use overlay **LD 22** to print all necessary software packages that are required for the PMS feature on the CS 1000.

```
>ld 22

REQ prt
TYPE pkg
DNDI          9 (Do Not Disturb Individual package)
DNDG          16 (Do Not Disturb Group package)
MWC           46 (Message Waiting Center package)
CCOS          81 (Controlled Class of Service package)
BGD           99 (Background Terminal package)
RMS           100 (Room Status package)
MR            101 (Mange Registration package)
AWU           102 (Automatic Wake UP package)
PMSI          103 (Property Management Service Interface)
```

2. Use overlay **LD 17** to create a TTY port number for a PTY connection on the CS 1000. This PTY port was used for Unicorn application to connect to the Call Server via ELAN.

```
>ld 17
Req chg
Type adan
ADAN new tty 7
CTYP PTY
  DNUM 7
  PORT 7
  DES PMS
  FLOW NO
  USER BGD PMS
  TTYLOG
  BARN Yes
```

3. Use overlay **LD 17** to enable the PMS interface in the CS 1000 system.

```
>ld 17
REQ chg
TYPE parm
PMSI yes
  MANU PMS1
  PMCR 20
  PORT 7
  XTMR 2
  XNUM 1
  PMIN YES
  PTMR 0
```

4. Use overlay **LD 15** to enable the Controlled Class of Service (CCOS) feature in the customer data block.

```
>ld 15
MEM AVAIL: (U/P): 36345352      USED U P: 8362512 172005      TOT:
44879869
DISK SPACE NEEDED: 157 KBYTES
REQ: chg
TYPE: ccs

TYPE CCS_DATA
CUST 0
CCRS UNR
ECC1 FRE
ECC2 UNR
CNCS
PELK NO
```

5. Use overlay (LD) 15 to enable Automatic Wake Up feature in the customer data block.

```
>ld 15
CDB000
MEM AVAIL: (U/P): 36345352      USED U P: 8362512 172005      TOT:
44879869
DISK SPACE NEEDED: 157 KBYTES
REQ: chg
TYPE: AWU

TYPE AWU_DATA
CUST 0
AWU YES
ATRC NO
RANF 016
RAN1 017
RAN2 018
```

6. User overlay **LD 15** to enable Do Not Disturb feature in the customer data block (CDD).

```
>ld 15
CDB000
MEM AVAIL: (U/P): 36345352      USED U P: 8362512 172005      TOT:
44879869
DISK SPACE NEEDED: 157 KBYTES
REQ: chg
TYPE: FTR

TYPE FTR_DATA
CUST 0
DNDL YES
```

7. Use overlay **LD 15** to enable Message Waiting Indicator feature in the customer data block (CDB).

```
>ld 15
CDB000
MEM AVAIL: (U/P): 36345352      USED U P: 8362512 172005      TOT:
44879869
DISK SPACE NEEDED: 157 KBYTES
REQ: chg
TYPE: FTR

TYPE FTR_DATA
CUST 0
OPT MCI
```

8. Use overlay **LD 10** and **LD 11** to administer analog, digital and IP phone.

```
>ld 11
REQ: chg
TYPE: 1165
TN 96 0 0 17
ECHG yes
ITEM cls ccsa mwa
ITEM Key 1 RMK --> Room status key
ITEM key 2 WUK --> Wake up key
```

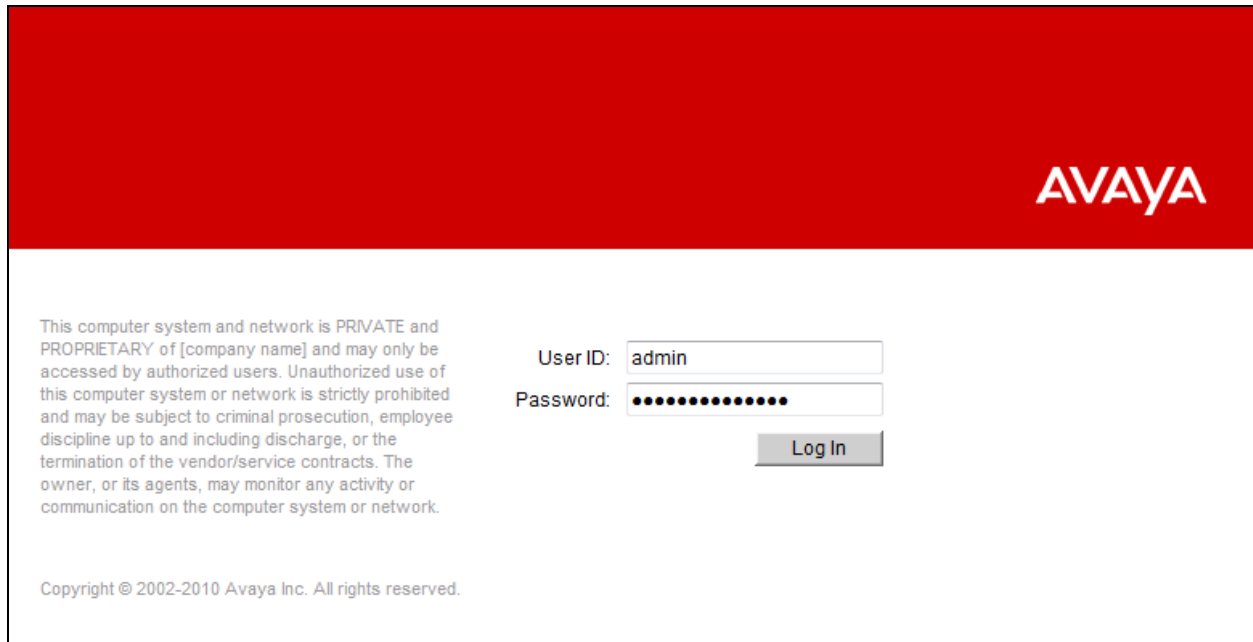
With definitions for class of services:

- **CCSA:** Controlled Class of service Allowed.
- **MWA:** Messaging Waiting Indicator Allowed.

## 5.2. Configure Username in Unified Communications Management

In order integrate Unicorn application logs in to the Call server via Rlogin with the dedicated PTY port 7 above they must use a dedicated username created in the Unified Communications Management (UCM). This special username has to be named like “**pty7**” which is matched with port 7 in the PTY port above. (See **Section 5.1** – Steps 2 and 3).

Log in to the UCM by using administrator privilege; enter the user name **admin** in the **User ID** field and the password in to the **Password** field. Click **Log In** button.



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User ID:

Password:

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The Avaya Unified Communications Management homepage is displayed as per the screen shot below. Click on the **Administrative Users** in the left navigation pane.

**AVAYA** Avaya Unified Communications Management [Help](#) | [Logout](#)

Host Name: 10.97.132 Software Version: 02.20.0035.00(5868) User Name admin

### Elements

New elements are registered into the security framework, or may be added as simple hyperlinks. Click an element name to launch its management service. You can optionally filter the list by entering a search term.

<input type="checkbox"/>	Element Name	Element Type	Release	Address	Description
1 <input type="checkbox"/>	<a href="#">EM on cppm1</a>	CS1000	7.5	10.97.66	New element.
2 <input type="checkbox"/>	<a href="#">ss3.bwdev.com (member)</a>	Linux Base	7.5	10.97.38	Base OS element.
3 <input type="checkbox"/>	<a href="#">ucm1.bwdev.com (primary)</a>	Linux Base	7.5	10.97.132	Base OS element.
4 <input type="checkbox"/>	<a href="#">cppm1.bwdev.com (member)</a>	Linux Base	7.5	10.97.131	Base OS element.
5 <input type="checkbox"/>	<a href="#">nrs2.bwdev.com (member)</a>	Linux Base	7.5	10.97.186	Base OS element.
6 <input type="checkbox"/>	10.97.68	Media Gateway Controller	7.0	10.97.68	New element.
7 <input type="checkbox"/>	<a href="#">NRSM on nrs2</a>	Network Routine Service	7.5	10.97.100	New element.

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The **Administrative Users** page is displayed in the right. Click on **Add** button to add a new user name (not shown). The **Add New Administrative User** page is displayed. Enter “**pty7**” in the **User ID** field and select “**Local**” radio option. Enter a descriptive name in the **Full Name** field and a password in the **Temporary password** and **Re-enter password** fields. Click on **Save and Continue** button to go to next page.

### Add New Administrative User

**Step1: Identify the new user.**  
Enter the user's full name and select an authentication type and User ID. Locally authenticated users also required a temporary password.

User ID:  (1-31) (Allowed characters are a-z, A-Z, 0-9, - and \_)

Authentication Type:  Local  
 External

Full Name:

Temporary password:

Re-enter password:

The user will be required to change this password when logging in.

Allowed characters in the password are: a-zA-Z0-9[{}|()<>./!\$%&-+":?'\; The length of your password must be at least 4 characters.

**Note:** The new user must be saved before you may assign roles.

In the **Step2: Assign Role(s)** page, assign **CS1000\_Admin2** and **Network Administrator** roles to this user as shown below. Click on **Finish** button to save and complete.

**Add New Administrative User**

**Step2: Assign Role(s)**

Selected roles authorize the user for associated features and element permissions.

**Roles**

Role	Description
<input checked="" type="checkbox"/> CS1000_Admin2	All elements of type: CS1000
	All elements of type: Call Server
	All elements of type: Deployment Manager
	All elements of type: IPsec Manager
	All elements of type: Linux Base
	All elements of type: Media Card

General OAM and Security Administration (call server and related elements)

**Finish** **Cancel**

The temporary password of the new **pty7** user must be changed before it can be used to Rlogin to CS1000 Call server. To change the temporary password, launch the UCM webpage and use the “**pty7**” username and its temporary password to log in. Enter a new password in both **New Password** and **Confirm Password** fields and click on the **Change** button to change it to new one.

**AVAYA**

This computer system and network is PRIVATE and PROPRIETARY of [company name] and may only be accessed by authorized users. Unauthorized use of this computer system or network is strictly prohibited and may be subject to criminal prosecution, employee discipline up to and including discharge, or the termination of the vendor/service contracts. The owner, or its agents, may monitor any activity or communication on the computer system or network.

You must change your temporary password to continue

New Password:

Confirm Password:

**Change** **Cancel**

New passwords are limited to characters in the set a-zA-Z0-9[()<>./=|^\_@\$%&-+~:~?~';

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## 6. Configure FCS Unicorn Application

This section details the essential portion of the FCS Unicorn configuration to interoperate with Avaya Communication Server 1000. These Application Notes assume that the FCS Unicorn application has already been installed by qualified FCS services personnel. Further details of the FCS Unicorn setup can be found in the Unicorn (Standard) v1.1 - Installation Manual v1.0 in **Section 9**.

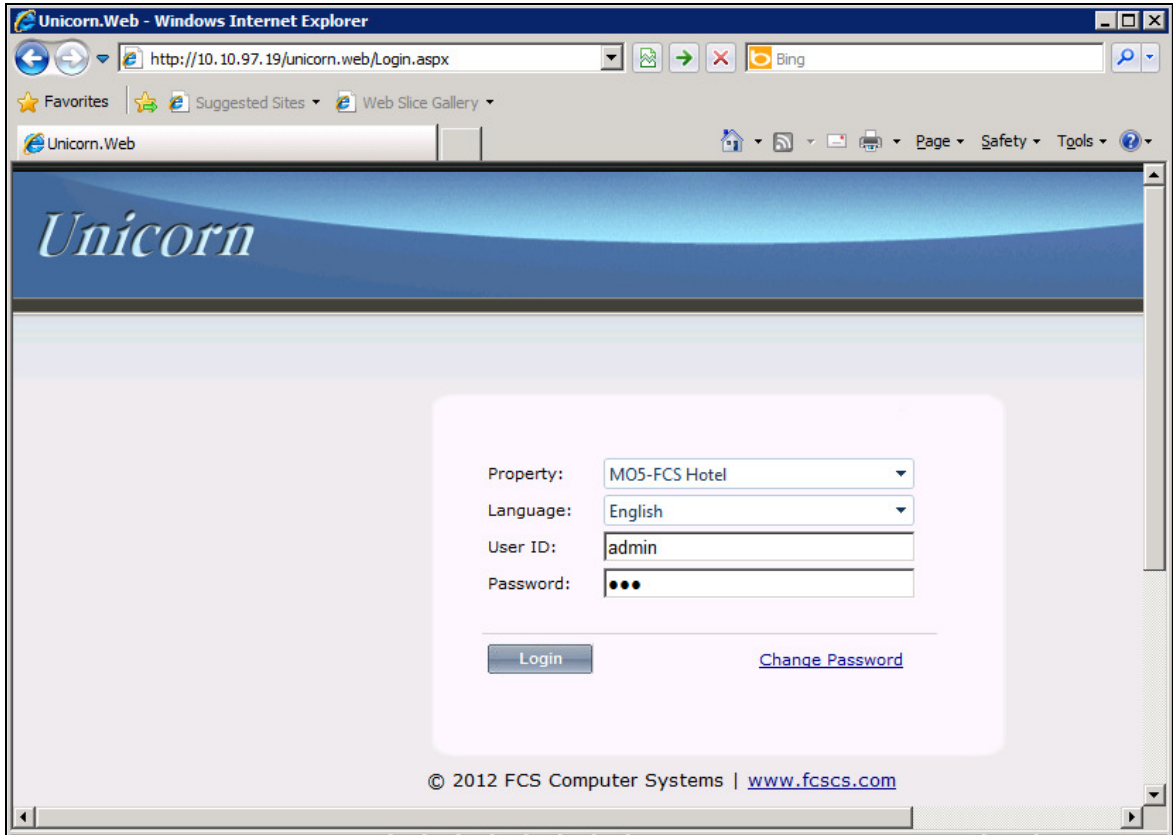
1. The Unicorn Avaya PMS interface module port and data configuration is defined in the Nortel-PBX.xml located in "C:\Program Files (x86)\FCS\Unicorn\Control\" directory. The parameter of the TCPIP and IPPort setting has to be matched with the TTY connection configured in **Section 5.1**.

```
?xml version="1.0" encoding="utf-8"?>
<!-- <?xml version="1.0"? -->
<PBX ID="Nortel">
  <CommunicationSetting>
    <Name>Nortel PMS</Name>
    <InterfaceType>2</InterfaceType>
    <ProtocolFormat>2</ProtocolFormat>
  <InterfaceSetting>C,10.10.97.66:513</InterfaceSetting>
    <UDPSvrInterfaceSetting></UDPSvrInterfaceSetting>
    <CheckDTRSignal>No</CheckDTRSignal>
    <CheckCTSSignal>No</CheckCTSSignal>
    <CheckSumMethod>1</CheckSumMethod>
    <ReceiveCheckSum>Yes</ReceiveCheckSum>
    <InterCharDelay>10</InterCharDelay>
    <InterStringDelay>100</InterStringDelay>
    <SendRetry>1</SendRetry>
    <SendTimeout>3</SendTimeout>
  </CommunicationSetting>
```

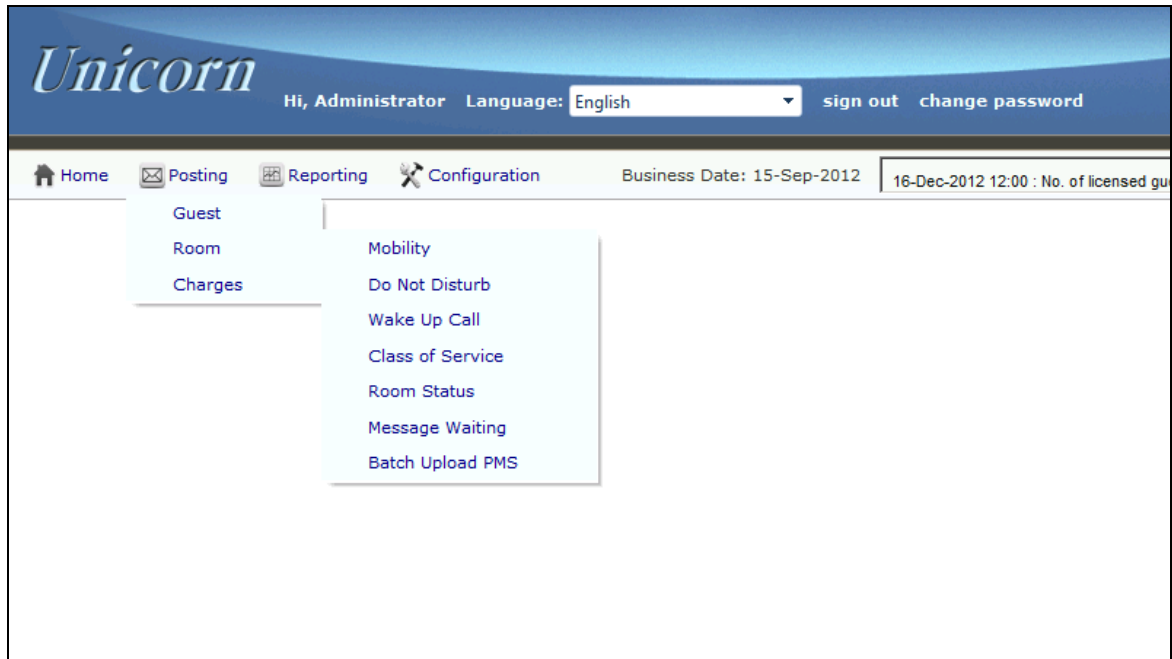
And modify on the child PBX1:

```
<Child Id="PBX1">
  <PropertyId>PropertyID</PropertyId>
  <EXEName>Nortel.PBX.exe</EXEName>
  <LogFilePattern>PBX\PBX1-</LogFilePattern>
  <Description>Nortel PMS</Description>
  <XMLFile>Nortel-PBX.xml</XMLFile>
  <IntfInQueueName>.\Private$\PBX2In</IntfInQueueName>
  <IntfOutQueueName>.\Private$\PBX2Out</IntfOutQueueName>
  <IntfOutQueueFilterThresholdInHour>99999
</IntfOutQueueFilterThresholdInHour>
  <UnicornMotherIPPort>9203</UnicornMotherIPPort>
  <MemoryPage>3</MemoryPage>
</Child>
```

2. FCS Unicorn provides a web interface for posting and reporting. Administrator can login with the appropriate credentials from <http://<ipaddress>/Unicorn.Web/Login.aspx> as shown below by substituting the appropriate server IP address where the FCS Unicorn is installed.



- The **Posting** tab below shows the various PMS features such as DND, Check In/Out, Guest Profile, etc., that can be administered from the web interface. For further details refer to the “Unicorn (Standard) v1.1 - User Manual v1.0” in **Section [9]**.



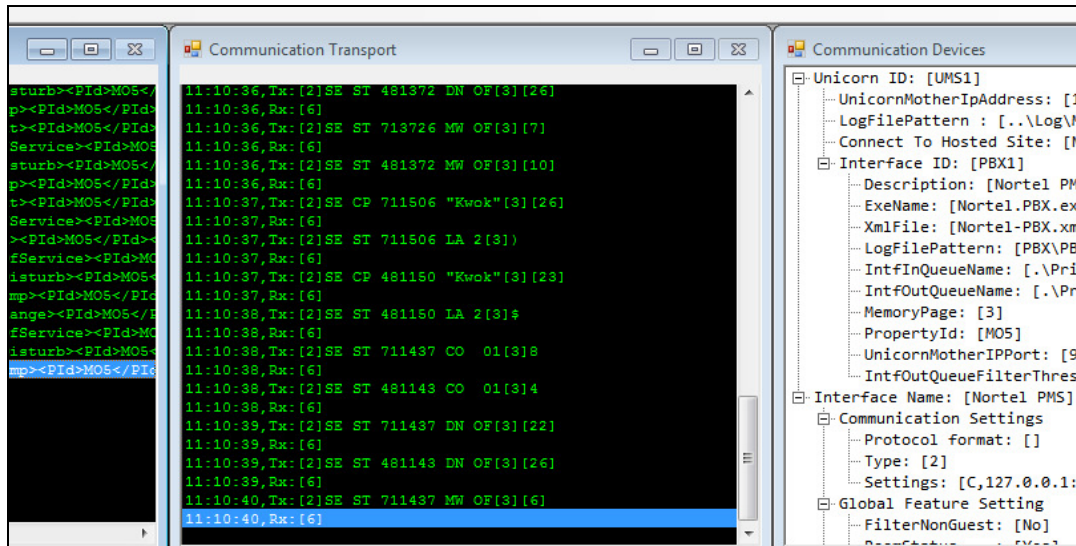
## 7. Verification Steps

The following steps can be used to verify the serial connection between Avaya CS 1000 switch and Unicorn and the configuration.

- To verify the Unicorn can successfully Rlogin to ELAN of Call server with the “pty7” user, in the Call server use overlay **LD 37** to print all status of TTY ports in the Call Server. The TTY port 7 should be shown as “ENBL”.

```
>ld 37
IOD000
.stat
TTY 0 : DSBL
TTY 1 : DSBL
TTY 2 : DSBL
TTY 3 : DSBL
TTY 4 : ENBL
TTY 5 : DSBL
TTY 6 : DSBL   DES: TTY1
TTY 7 : ENBL   DES: pms
TTY 8 : DSBL ( MGC 4 0 )   DES: CDR
TTY 9 : DSBL   DES: pty9
TTY 10 : ENBL   DES: PTY10
```

2. To verify basic functions for PMS, from the Unicorn webpage perform a “room check-in” with guest name for an extension and verify that the Call Party Name Display CPND name is updated on this extension. The screen below shows the Unicorn terminal console with the check-in command sent to the switch.



## 8. Conclusion

This Application Note describe the procedures for configuring FCS Unicorn to interoperate with Avaya Communication Server 1000. All interoperability compliance test cases executed against such a configuration were completed successfully.

## 9. Additional References

Product documentation for Avaya products may be found at <http://support.avaya.com>

[1] Hospitality Features Fundamentals, Release 7.0, Issue 04.01, Date June 2010.

[2] Call Detail Recording Avaya Fundamentals, Release 7.5, Issue 05.03, date Sep 2011.

Product documentation for Unicorn products may be found at <http://www.fscs.com>

[1] Unicorn (Standard) v1.1 - Installation Manual v1.0.

[2] Unicorn (Standard) v1.1 - User Manual v1.0.

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