Avaya Solution & Interoperability Test Lab

Application Notes for Phybridge UniPhyer with Avaya Communication Server 1000E 7.6 – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for Phybridge UniPhyer to interoperate with Avaya Communication Server 1000E 7.6. In the compliance testing, the Phybridge UniPhyer leveraged the existing single-pair telephony wiring to provide dedicated Ethernet voice path and Power over Ethernet (PoE) to Avaya UNIStim and SIP IP telephones registered to Avaya Communication Server 1000E (Avaya CS 1000E).

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 a compliance-tested configuration consisting of Phybridge UniPhyer, Phybridge PhyAdapters, Avaya Communication Server 1000E (Avaya CS 1000E) and Avaya IP telephones (UNIStim and SIP).

The Phybridge UniPhyer is a LAN appliance that leverages the existing single-pair telephony wiring to provide dedicated Ethernet and Power over Ethernet to Avaya IP telephones.

2. General Test Approach and Test Results

The compliance testing focused on the interoperability between Phybridge UniPhyer and Avaya IP telephones to ensure that the phones work as expected. Serviceability testing was also performed.

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

Testing consisted of typical call scenarios involving Avaya endpoints connected to UniPhyer. External call scenarios were also tested with a simulated PSTN connection. All tests were performed manually and the focus was on verifying interoperability compliance.

Feature testing included, registration, audio codec, basic calls, hold/reconnect, conference, transfer, display, DTMF, and message waiting indicator (MWI) scenarios.

The serviceability testing focused on verifying the ability of Phybridge UniPhyer to recover from adverse conditions, such as disconnecting and reconnecting the Ethernet cables to the Phybridge UniPhyer and to the Avaya IP telephones. Reboots and power cycling of Phybridge UniPhyer were also tested.

2.2. Test Results

All applicable test cases were executed and passed with the following observation:

The Avaya B179 Conference Phone (B179) and Avaya 2007 IP Deskphone (2007) were powered with their local power supplies and connected to their PhyAdapters with an Ethernet cable as per **Reference 4** in **Section 10**. This configuration was used because the B179 and 2007 phones required more PoE power than could be supplied by UniPhyer. Other Class 3 endpoints may also require this configuration. UniPhyer Switches can power Class 1, Class 2 and some Class 3 IEEE 802.3af compliant IP devices.

2.3. Support

Technical support for Phybridge UniPhyer can be obtained through the following:

- **Phone:** (888) 901-3633
- **Email:** Support@Phybridge.com

3. Reference Configuration

In the test configuration shown in **Figure 1**, Avaya IP telephones (UNIStim and SIP) are connected to the network via the Phybridge UniPhyer leveraging the existing CAT3 cabling that was previously used for Analog and Digital phones. For each station user, one end of the CAT3 cable is changed to connect to the Phybridge UniPhyer instead of the Analog or Digital Line circuit pack on Avaya CS 1000E. The other end of the CAT3 cable connects to a Phybridge PhyAdapter with an RJ11 connector. Each PhyAdapter is connected using a standard CAT5 Ethernet cable to an Avaya IP telephone.

The Phybridge UniPhyer provides power to the Avaya IP telephones, and is transparent to the telephones in terms of the telephones' network settings.

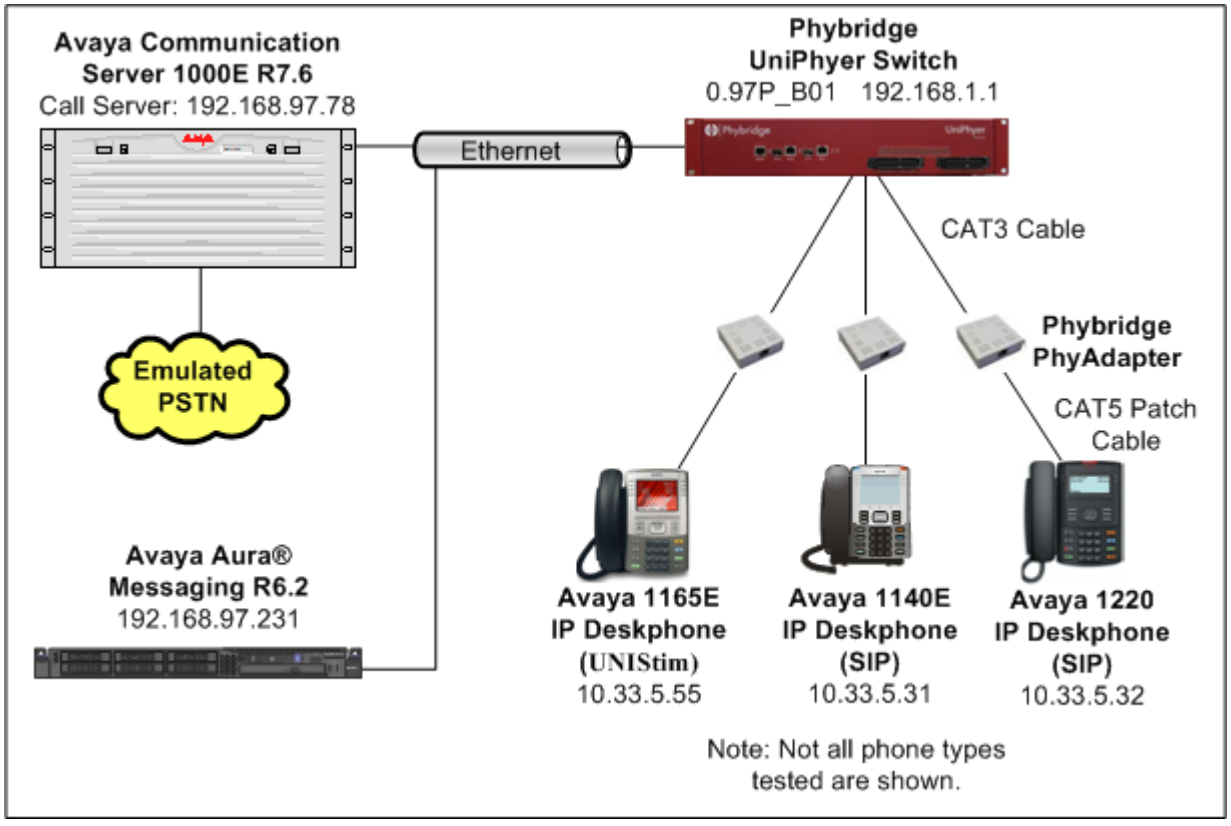


Figure 1: Phybridge UniPhyer with Avaya Communication Server 1000E

4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya Communication Server 1000E CPPM co-resident server	Call Server (CPPM): 7.65 P + Signaling Server (CPPM): 7.65.16.00
Avaya Aura® System Manager running on S8800 Server	6.3.0 - FP2 Build No. - 6.3.0.8.5682-6.3.8.1627
Avaya 2007 IP Deskphone (UNIStim)	5.5.1 (0621C8T)
Avaya 1165E IP Deskphone (UNIStim)	5.5.1 (0626C8T)
Avaya 1140E IP Deskphone (SIP)	4.4 (SIP1140e04.04.10.00)
Avaya 1210 IP Deskphone (UNIStim)	5.5.1 (062AC8T)
Avaya 1220 IP Deskphone (SIP)	4.4 (SIP12x004.04.10.00)
Avaya B179 Conference Phone (SIP)	2.3.8
Phybridge PhyAdapter	LB-PA111
Phybridge UniPhyer Switch LB-UA2324	0.97P_B01

5. IP Phone Configuration on Avaya Communication Server 1000E

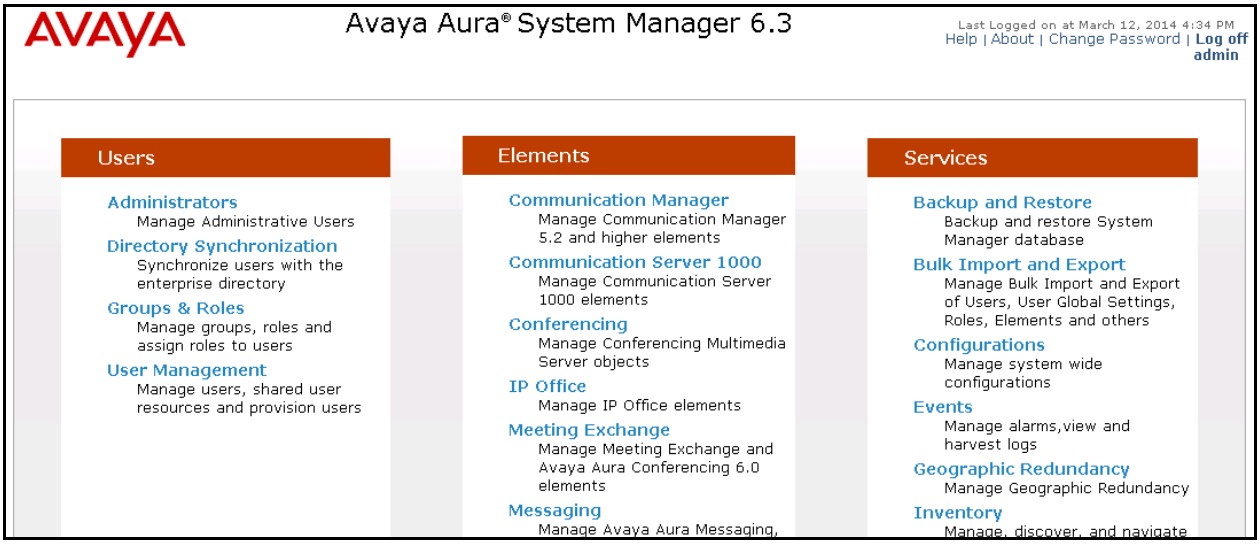
No special configuration is required for Avaya UNIStim and SIP IP phones to interoperate with the UniPhyer switch. It is assumed that Avaya CS 1000E has already been installed and is functioning. For more information refer to documents listed in **Section 10**.

In a typical installation of Phybridge UniPhyer, analog and digital telephones using existing CAT3 cabling would be replaced with new IP telephones as described in **Section 3**. This section shows an example of configuring a new Avaya UNIStim IP telephone.

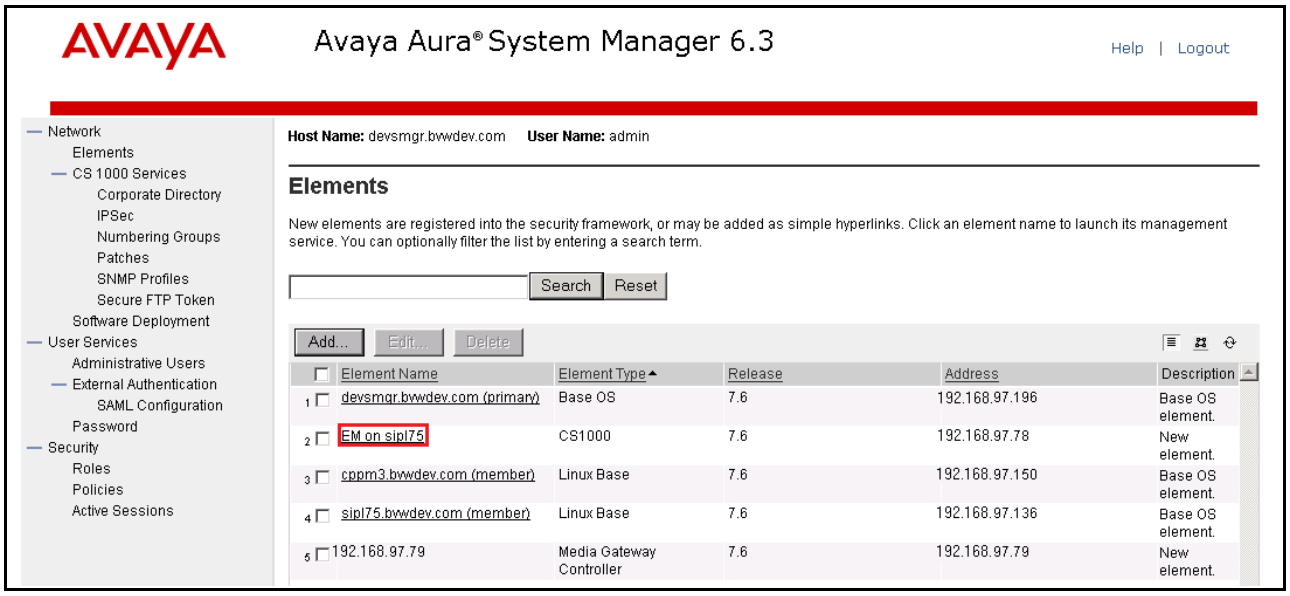
5.1. Log in to Avaya Communication Server 1000E Element Manager

Access the browser-based GUI of System Manager, using the **URL http://<FQDN >/SMGR**, where <FQDN> is the fully qualified domain name of System Manager. Log in to System Manager with the appropriate credentials (not shown).

On the System Manager home screen under the **Elements** column select **Communication Server 1000**.



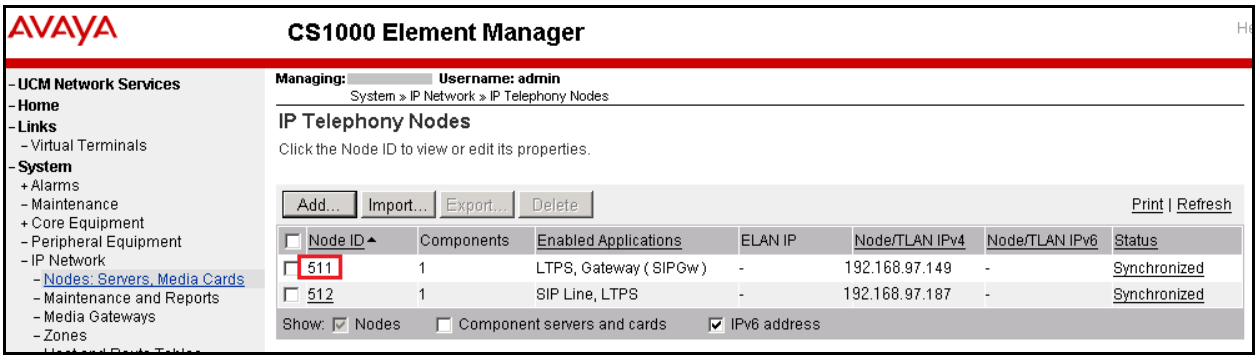
The **Elements** screen is then displayed. Click on the element Name of the Avaya CS 1000E **Element Manager (EM)** as in the figure below.



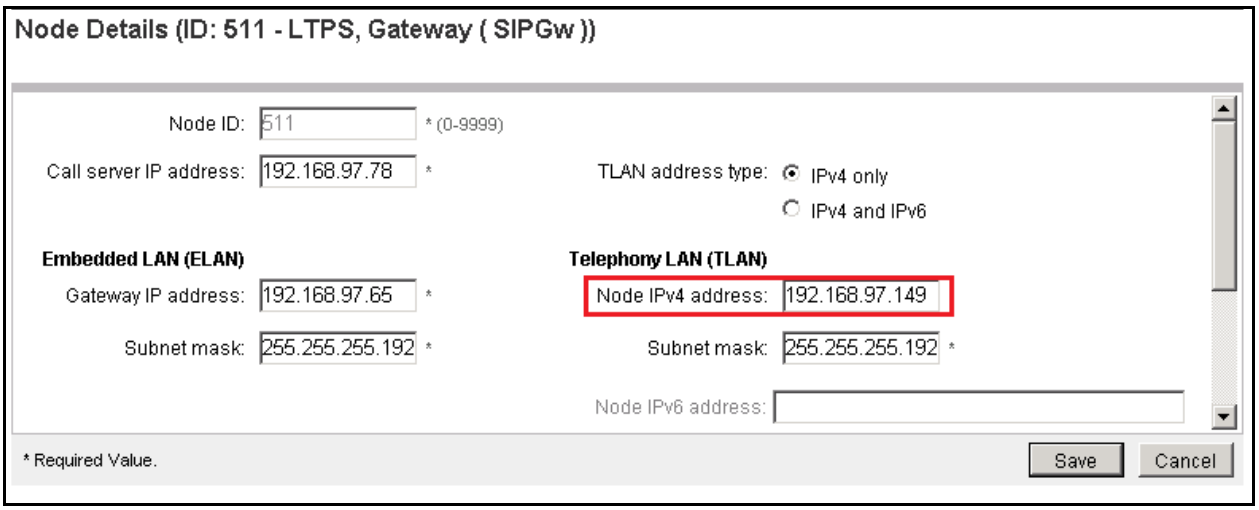
5.2. Confirm Node and IP Address

These Application Notes assume that the basic configuration has already been administered and a Node has already been created. This section describes the steps to obtain the Node ID of the Avaya CS 1000E IP network to be used with this sample configuration. For further information on Avaya Communications Server 1000E, please consult references in **Section 10**.

From the Element Manager page, Select **System → IP Network →Nodes: Servers, Media Cards** and then click on the appropriate **Node ID**. In this sample configuration Node **511** was used.



Click on the Node number link. The **Node Details** screen is then displayed with additional details as shown below. Make a note of the **Node IPv4 address** below as it will be used in other sections of this document. In this sample configuration it is **192.168.97.149**.



5.3. IP Sets Configuration

To create an IP Set on Avaya CS 1000E, use an SSH terminal emulator to connect to Avaya CS 1000E and log in with the appropriate credentials. Overlay 11 is used to enter the new set configuration. Enter **ld 11** to enter overlay 11 and then enter the appropriate data as shown in red below. In this sample configuration defaults were used for the remaining prompts.

```
>ld 11
...
REQ: new              ← Enter new to add a new phone
TYPE: 1210            ← Enter the phone type
TN   096 0 01 26      ← Enter an available TN
DES  1210             ← Enter a description
CUST 0                ← Enter the Customer number
NUID
NHTN
ZONE 1                ← Enter the Zone to use
MRT
ERL
ECL
FDN
TGAR
LDN
NCOS
RNPG
SSU
SCPW
SGRP
SFLT
CAC_MFC
CLS
HUNT
SCI
PLEV
DANI
AST
IAPG
MLWU_LANG
MLNG
DNDR
KEY 0 scr 54715       ← Configure Key 0 to use extension (DN) 54715
  MARP
  CPND
  VMB
KEY
...
REQ:
```

6. Configure an IP Telephone

First configure the IP set to either get a valid IP address using DHCP or assign a static address. Next configure the **S1** and **S2** IP values to be the **Node IP** from **Section 5.2** In this sample configuration it is 192.168.97.149. Set the **Port** to **4100.**

Now reboot the IP set. When booting up, the phone will prompt for Node ID and TN. Enter the **Node ID** from **Section 5.2** and **TN** that was used in S**ection 5.3**.

7. Configure Phybridge UniPhyer

This section provides the procedures for configuring UniPhyer. The procedures fall into the following areas:

- Launch web interface
- Administer Phybridge UniPhyer IP Address
- Save Running Configuration

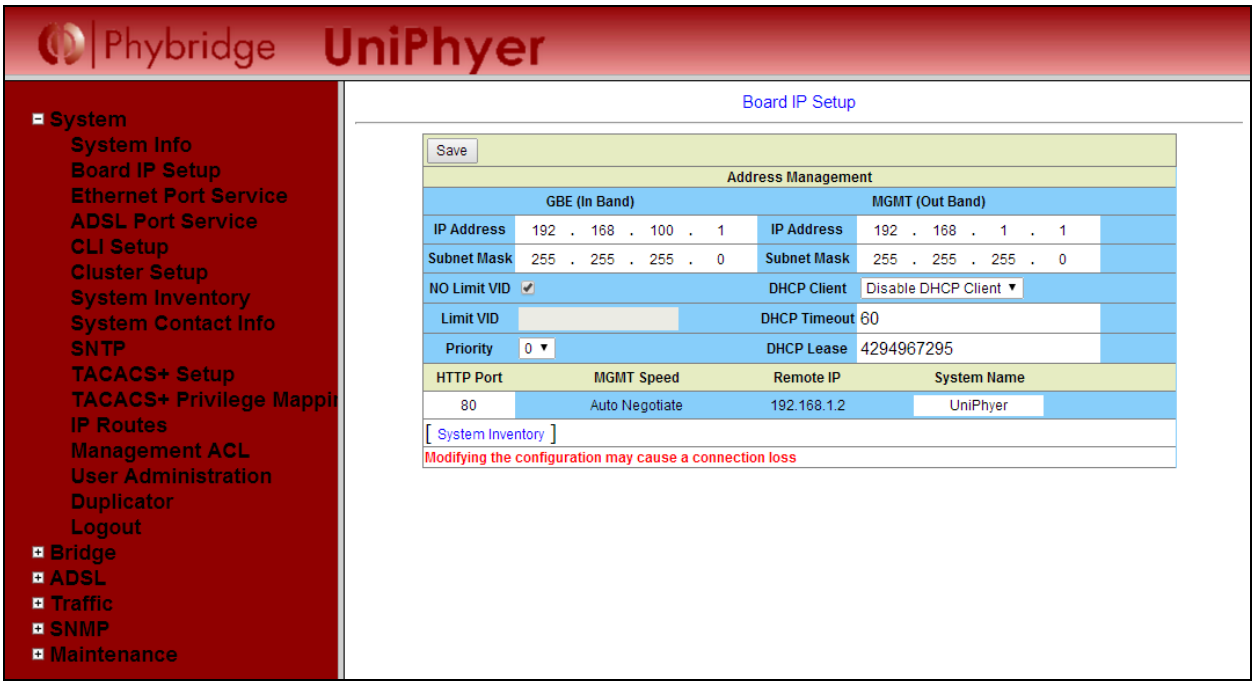
All remaining configuration settings on UniPhyer were left as default in this sample configuration.

7.1. Launch Web Interface

Access the UniPhyer web interface by using the URL "http://ip-address" in an Internet browser window, where "ip-address" is a valid IP address of the UniPhyer switch. The default IP address of the UniPhyer management port is "192.168.1.1" and the default IP address of the UniPhyer GBE ports is "192.168.100.1". In this example the web interface of the UniPhyer switch was accessed by the management port. The **Web Interface Login** screen is displayed as shown below. Log in using the appropriate credentials.

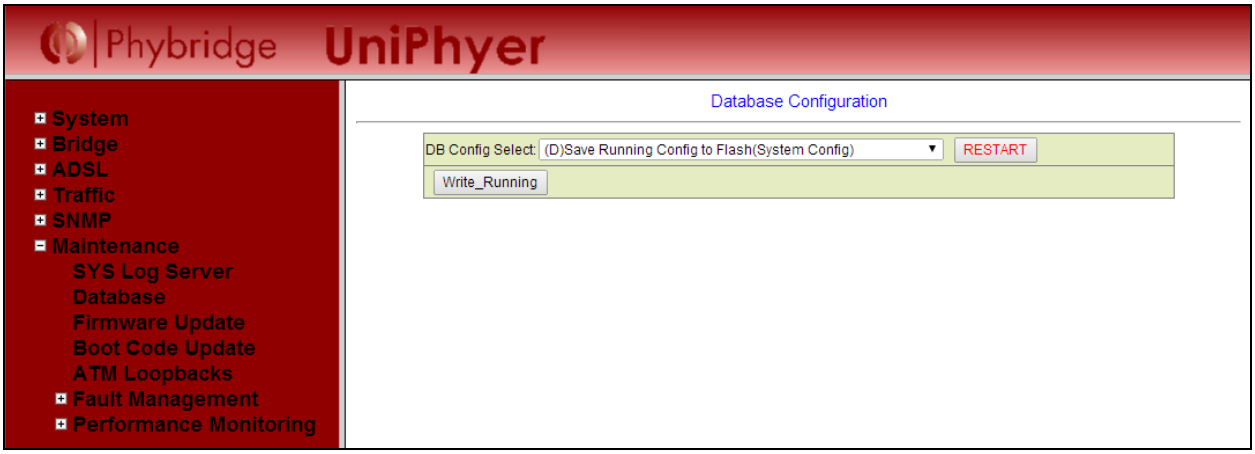
7.2. Administer Phybridge UniPhyer IP Address

In the subsequent screen (not shown), select **System → Board IP Setup** from the left panel. In the **Board IP Setup** panel on the right, the IP Address configuration of the UniPhyer switch can be changed as needed. Click **Save** when finished. See below for a sample configuration of the UniPhyer switch.



7.3. Save Running Configuration

Next, navigate to **Maintenance → Database** to save the running configuration to flash. In the **DB Config Select** field, select option **D** and click the **Write_Running** button.



8. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Avaya CS 1000E and UniPhyer.

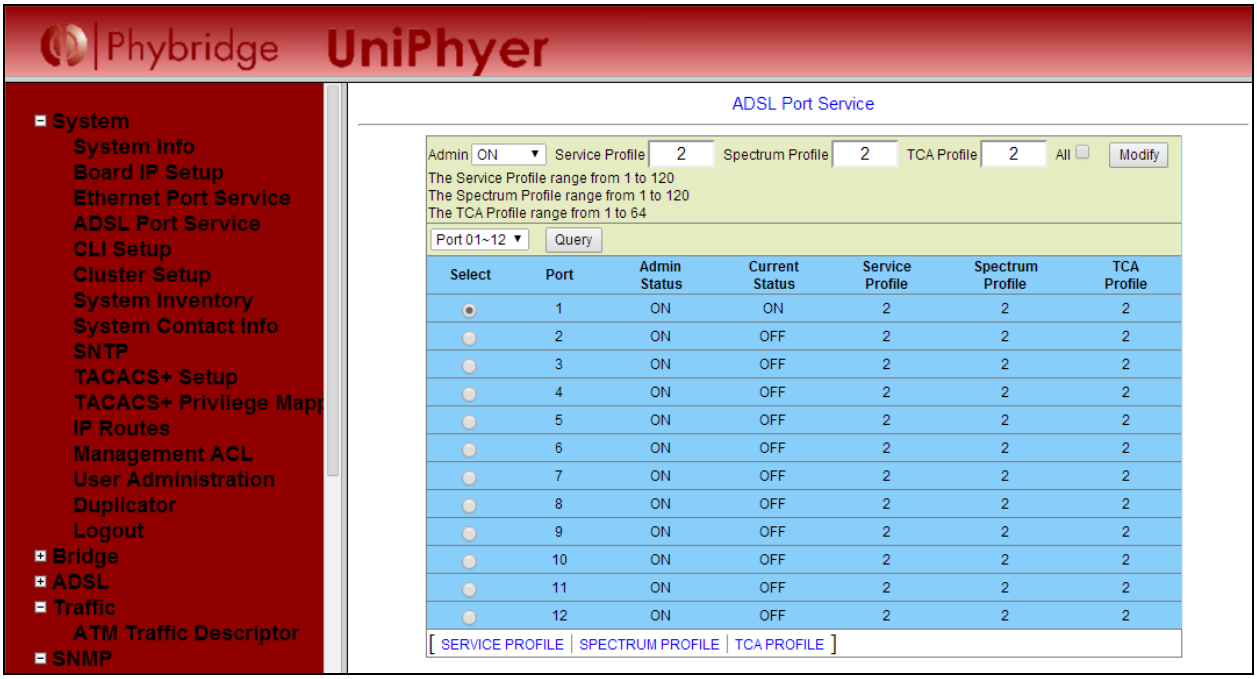
8.1. Verify Avaya Communication Server 1000E

The status of UNIStim IP phones can be verified as follows. Use an SSH terminal emulator to connect to the IP address of the Signalling Server and log in with the appropriate credentials. Now run the command "isetShow" to verify that the UNIStim IP phones have registered to Avaya CS 1000E successfully. The phone from **Section 5** is shown below in red. Verify that the **State** of the phone is **online**.

```
[admin@cppm3 ~]$ isetShow

=== TPS ===

Set Information
---------------
    IP Address      NAT  Model Name                      Type      RegType  State         Up  Time       Set-TN       Regd-TN
HWID           FWVsn  UNIStimVsn SrcPort DstPort RFC2833PTTx
----------------- ---- ------------------------------ ---------- ------- ------------ -------------- ------------ ------------
-------------------- ------- ---------- ------- ------- ------------
10.33.5.40              1110 IP Deskphone                1110       Regular online          70 17:20:50 096-00-00-21 096-00-00-21
18-0016ca00cfe2-6623     C8Q      5.0      5100    5000    255
10.33.5.7               2004 Phase 2 IP Deskphone        2004P2     Regular online          70 17:25:06 096-00-00-18 096-00-00-18
18-000ae40d9458-6602     DCO      3.0      5100    5000    255
10.33.5.48              IP Phone 2004 Phase 0/1          2004P1     Regular online          29 21:48:07 096-00-00-00 096-00-00-00
18-000ae405c8a5-6600     B76      2.9      5100    5000    255
192.168.245.36     C    2004 Phase 2 IP Deskphone        2004P2     Branch  online           0 20:37:45 096-00-01-22 096-00-01-22
18-000ae474d299-6602     DCO      3.0      5100    5000    255
192.168.245.104    C    2004 Phase 2 IP Deskphone        2004P2     Regular online           0 20:37:26 096-00-01-24 096-00-01-24
18-000ae474d30c-6602     DCO      3.0      5100    5000    255
10.33.6.3               1120E IP Deskphone               1120       Regular online          29 17:01:47 104-00-01-00 104-00-01-00
18-001765fdbf55-6624     C8Q      5.0      5100    5000    255
192.168.98.148          1110 IP Deskphone                1110       Regular online          28 18:46:34 096-00-00-19 096-00-00-19
18-001765fda80f-6623     C8Q      5.0      5100    5000    255
192.168.98.146          1150E IP Deskphone               1150       Regular online          70 17:24:06 096-00-02-05 096-00-02-05
18-c8f406e01528-6627     C8Q      5.0      5100    5000    255
10.33.5.73              1210 IP Deskphone                1210       Regular online           0 17:08:52 096-00-01-26 096-00-01-26
18-0019e1e71fd1-662a     C8T      5.0      5100    5000    255
10.33.5.55              1165E IP Deskphone               1165       Regular busy             6 20:44:09 096-00-02-06 096-00-02-06
18-ccf954967f92-6626     C8T      5.0      5100    5000    255

Total sets = 10
[admin@cppm3 ~]$
```

8.2. Verify Phybridge UniPhyer

From the UniPhyer web interface, select **SYSTEM → ADSL Port Service** from the left panel. Verify the **Current Status** for ports that have physically connected IP Phones is **ON**, as shown below for port 1.



9. Conclusion

These Application Notes describe the configuration steps required for Phybridge UniPhyer to interoperate with Avaya UNIStim and SIP IP telephones registered to Avaya Communication Server 1000E 7.6. All feature and serviceability test cases were completed and passed as per **Section 2** with observations explained in **Section 2.2**.

10. Additional References

This section references the product documentation relevant to these Application Notes.

Documentation for Avaya products may be found at http://support.avaya.com.

Avaya Communication Server 1000E

1) *Communication Server 1000E Overview, Avaya Communication Server 1000,* Release 7.6, Document Number NN43041-110, Issue 06.01, March 2013

2) *Power over Ethernet Calculator,* document NN48500-520 Version 7.2, March 2011

Documentation for Phybridge products may be found at http://phybridge.com**.**

Phybridge UniPhyer Switch

3) *Phybridge – UniPhyer Web Configuration Tool Guide,* Part Number 8003-03, Issue 2, May 2009

4) *NON POE devices on a PhyAdater or PhyLink, document* 009-011 TS – 017 Version 002, 27 December 2012

Please e-mail any questions or comments pertaining to these Application Notes along with the full title name and filename, located in the lower right corner, directly to the Avaya DevConnect Program at devconnect@avaya.com.