Avaya Solution & Interoperability Test Lab

Application Notes for VTech CTM-S2412/S2415 SIP Hotel Phone with Avaya IP Office 11.1 – Issue 1.0

Abstract

These Application Notes describe the configuration steps required for VTech CTM-S2415 SIP Hotel Phone to interoperate with Avaya IP Office Server Edition 11.1 and Avaya IP Office 500 V2 Expansion System 11.1. The VTech hospitality product line provides a clear cost and feature advantage that is backed by decades of expertise in the corded/cordless telephony industry. VTech CTM-S2415 Hotel Phone registers directly with Avaya IP Office 11.1.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as any observations noted in **Section 2.2**, to ensure that their own use cases are adequately covered by this scope and results.

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.

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1. Introduction

These Application Notes describe the configuration steps required for VTech CTM-S2415 SIP Hotel Phone to interoperate with Avaya IP Office Server Edition 11.1 and Avaya IP Office 500 V2 Expansion System 11.1. VTech CTM-S2415 SIP Hotel Phone registers to Avaya IP Office Server Edition 11.1 or Avaya IP Office 500 V2 Expansion System 11.1 as a SIP endpoint. VTech CTM-S2412 and CTM-S2415 are cordless 1-line models. Testing used the CTM-S2415 as a representative model. See **Attachment 1**, which provides details of CTM-S2412 equivalency to the CTM-S2415 model for which this testing applies.

2. General Test Approach and Test Results

The general test approach was to place calls to and from CTM-S2415 S2115 to PSTN, Avaya SIP, and Avaya H.323 endpoints and exercise basic telephone operations.

As the purpose of these phones is for hotel guest rooms, certain functionality considered to be standard on Avaya endpoints is not supported and therefore was not tested. For example, VTech CTM-S2415 does not support transfers or conferences. More details on these limitations are described in the Test Results in **Section 2.2**.

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.

Avaya recommends our customers implement Avaya solutions using appropriate security and encryption capabilities enabled by our products. The testing referenced in these DevConnect Application Notes included the enablement of supported encryption capabilities in the Avaya products. Readers should consult the appropriate Avaya product documentation for further information regarding security and encryption capabilities supported by those Avaya products.

Support for these security and encryption capabilities in any non-Avaya solution component is the responsibility of each individual vendor. Readers should consult the appropriate vendor-supplied product documentation for more information regarding those products.

For the testing associated with these Application Notes, the interface between Avaya systems and CTM-S2415 utilized enabled capabilities of TLS/SRTP.

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2.1. Interoperability Compliance Testing

The following features and functionality were evaluated in the interoperability compliance test:

- Registration of CTM-S2415 to IP Office.
- Basic call features: Answer, Hold/Resume, Mute/Un-mute, Drop, Message Waiting Indicator, DTMF, Call Pickup, Call Waiting, Call Forward.
- Codec negotiation, Media Shuffling, and Session Refresh Interval.
- Hospitality features: Automatic Wakeup Call and Housekeeping status.
- Serviceability testing to validate recovery from network connectivity loss.

2.2. Test Results

All test cases passed with the following observations:

- CTM-S2415 does not support the following features
    - Call Park/Unpark
    - Transfer
    - Conference
    - VTech programmable buttons do not support short codes requiring secondary input.
- CTM-S2415 uses a flash hook to implement call waiting.
- CTM-S2415 does not support SDP negotiation capabilities per (RFC5939) between SRTP and non-SRTP modes. Media Security for the associated extensions should be set to Enforced.

2.3. Support

Technical support for VTech CTM-S2415 SIP Phone can be obtained at:

- Phone: 1 (888) 907-2007
- https://vtechhotelphones.com

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3. Reference Configuration

Figure 1 illustrates the test configuration diagram for CTM-S2415 integrated to Avaya IP Office Server Edition and Avaya IP Office 500 V2 Expansion System.

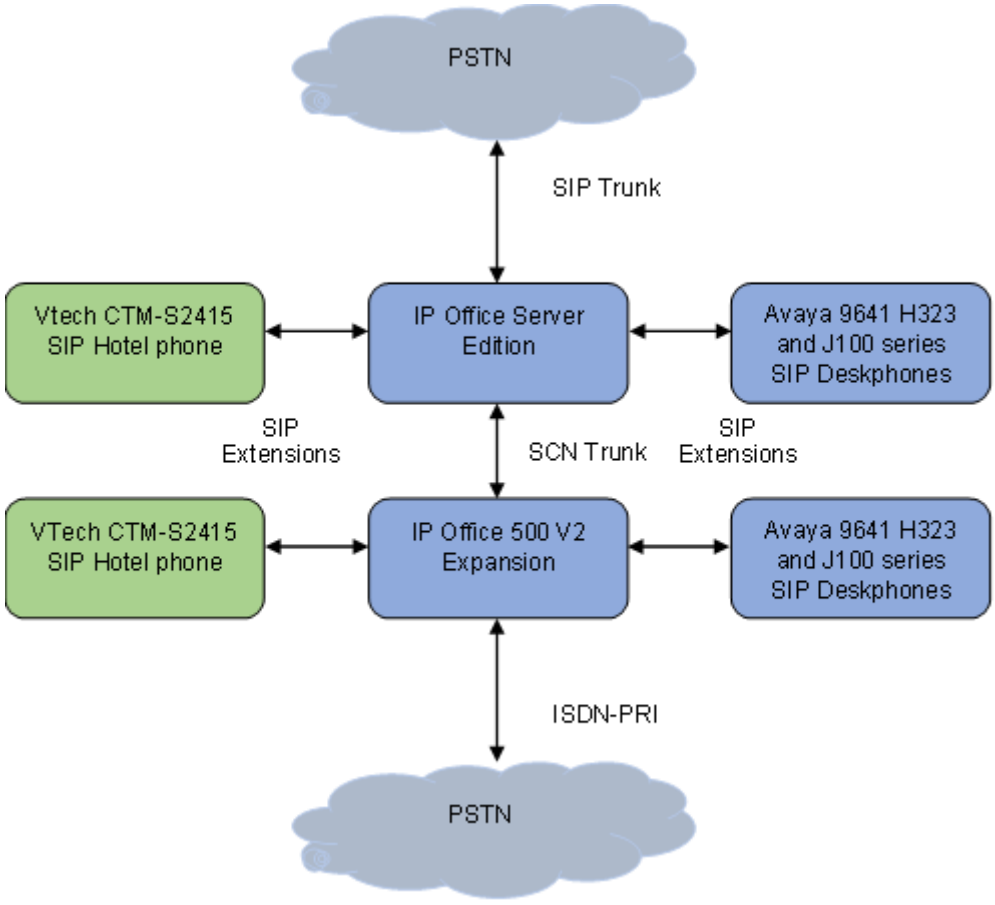

Figure 1:Avaya Interoperability Test Configuration for VTech CTM-S2415

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4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya IP Office 500 V2 Expansion	11.1.2.1.0
Avaya IP Office Server Edition	11.1.2.1.0
Avaya 9641G IP Deskphones	6.8304 (H.323)
Avaya J129 IP Phones	4.0.7.0.7 (SIP)
VTech CTM-S2415 Hotel Phone	2.21.2.0
Vtech CTM-4402 Cordless Handset	1.2.2

Compliance Testing is applicable when the tested solution is deployed with a standalone IP Office 500 V2 and also when deployed with IP Office Server Edition in all configurations.

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5. Configure Avaya IP Office Server Edition

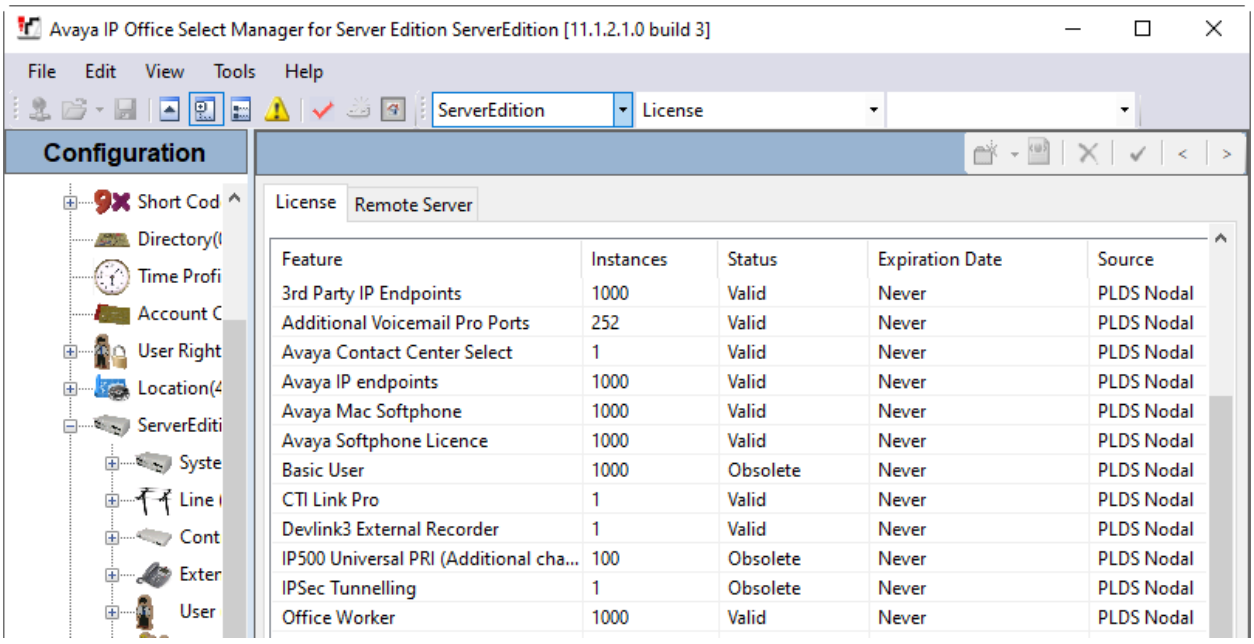
This section provides the procedures for configuring Avaya IP Office Server Edition. The procedures include the following areas:

- Verify License
- Obtain LAN IP address
- Administer Codecs
- Administer SIP registrar
- Administer SIP extension for CTM-S2415
- Administer SIP user for CTM-S2415

Note: This section covers the configuration of Avaya IP Office Server Edition, but the configuration is the same for Avaya IP Office 500 V2 Expansion System.

5.1. Verify License

From a PC running the From a PC with **IP Office Admin** Suite installed, invoke **IP Office Manager.** Select the proper primary IP Office system, and log in using the appropriate credentials. The Avaya IP Office Manager for Server Edition screen is displayed.
From the configuration tree in the left pane, select **License** under the IP Office system that will be used to display a list of licenses in the right pane. Verify that there is sufficient license for **3rd Party IP Endpoints** as shown below.



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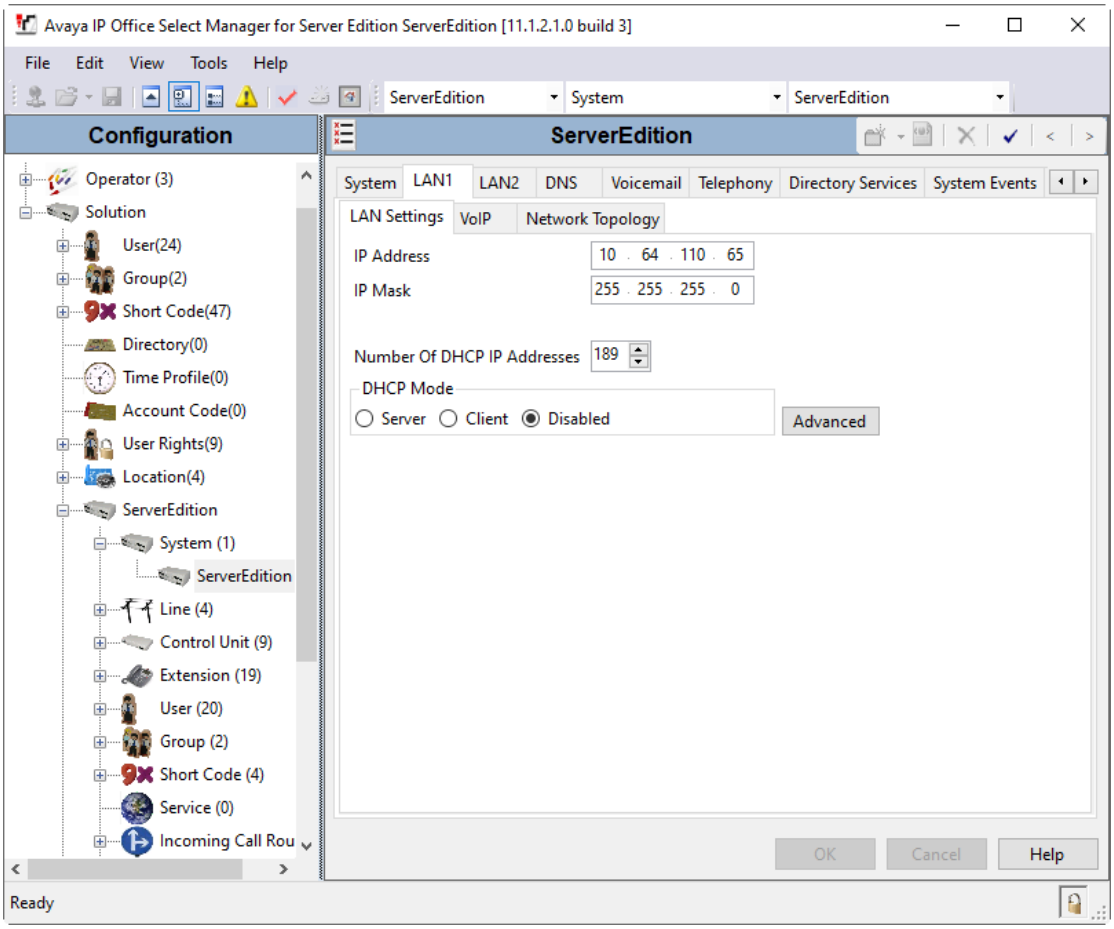
5.2. Obtain LAN IP Address

From the configuration tree in the left pane, select **System** to display the System screen for the IP Office Server Edition in the right pane. Select the **LAN1** tab, followed by the **LAN Settings** sub-tab in the right pane. Make a note of the IP Address (*e.g.*, *10.64.110.65*), which will be used later to configure CTM-S2415.



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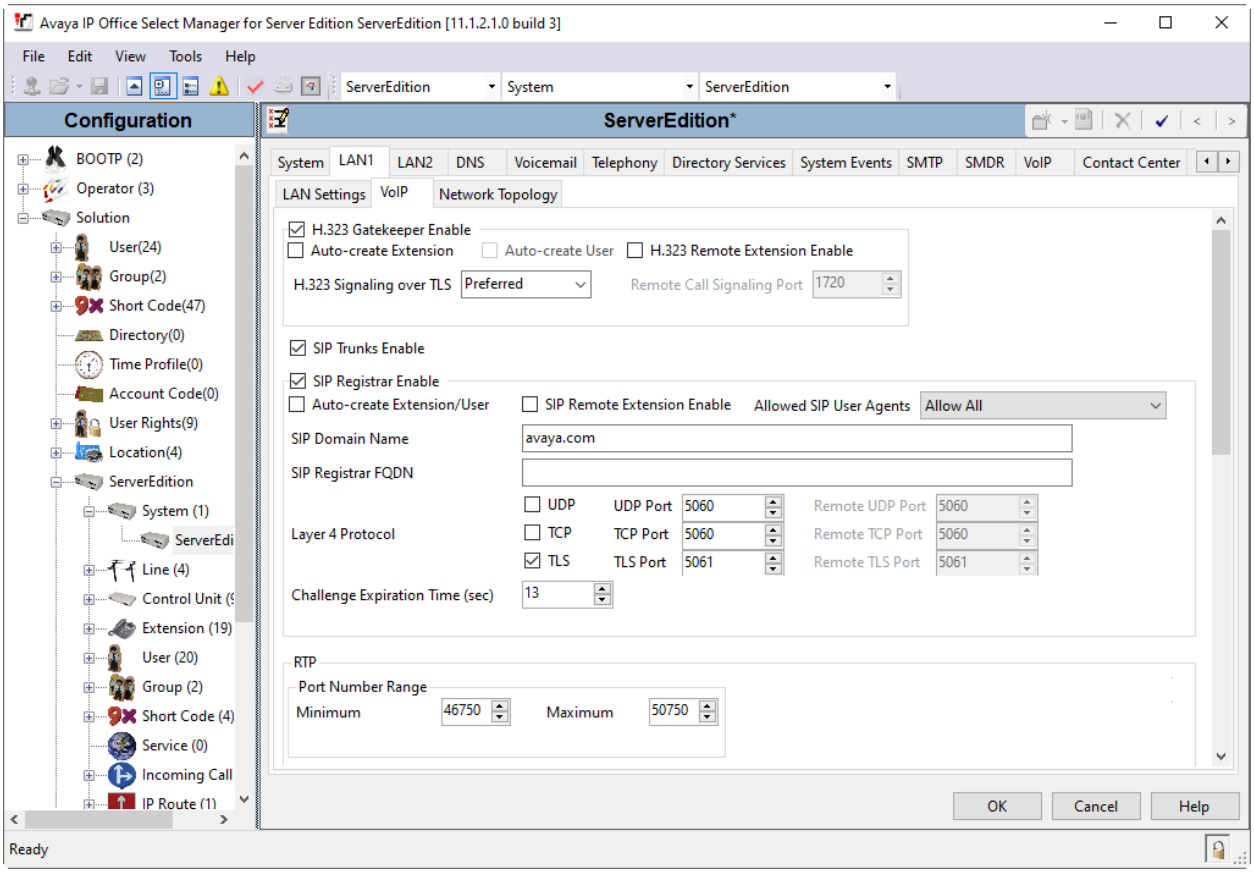
5.3. Administer SIP Registrar

Select the **VoIP** sub-tab. Ensure that **SIP Registrar Enable** is checked and enter a valid **Domain Name**. In the compliance testing, the **SIP Domain Name** field was set to *avaya.com*. TLS transport protocol was enabled for the **Layer 4 Protocol**, which was also used by CTM-S2415.



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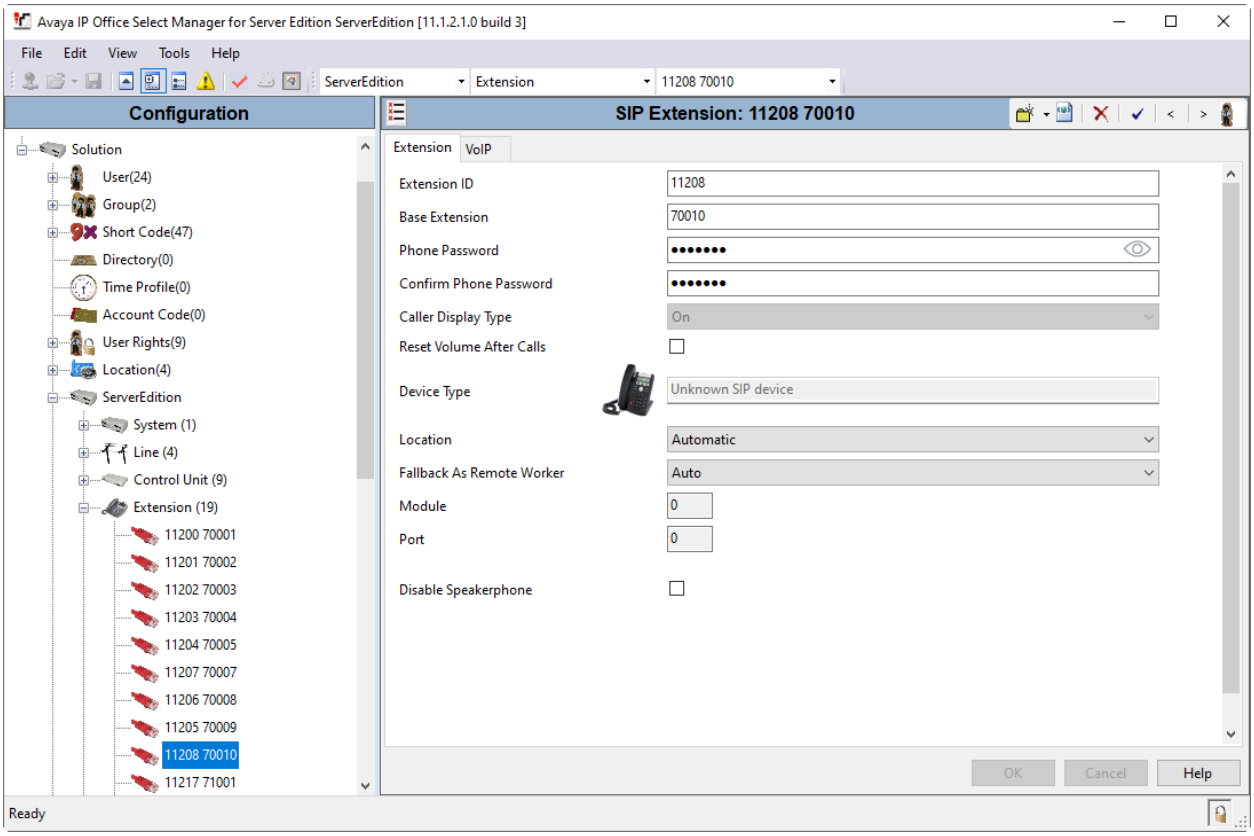
5.4. Administer SIP Extensions

From the configuration tree in the left pane, right-click on **Extension** and select **New → SIP** from the pop-up list (not shown) to add a new SIP extension. Enter the desired extension for the **Base Extension** field as shown below. In this example, CTM-S2415 was assigned extension *70010*. This is the extension that CTM-S2415 will use to register with IP Office Server Edition. Enter an appropriate password. This will be used by CTM-S2415 to register to IP Office Server.



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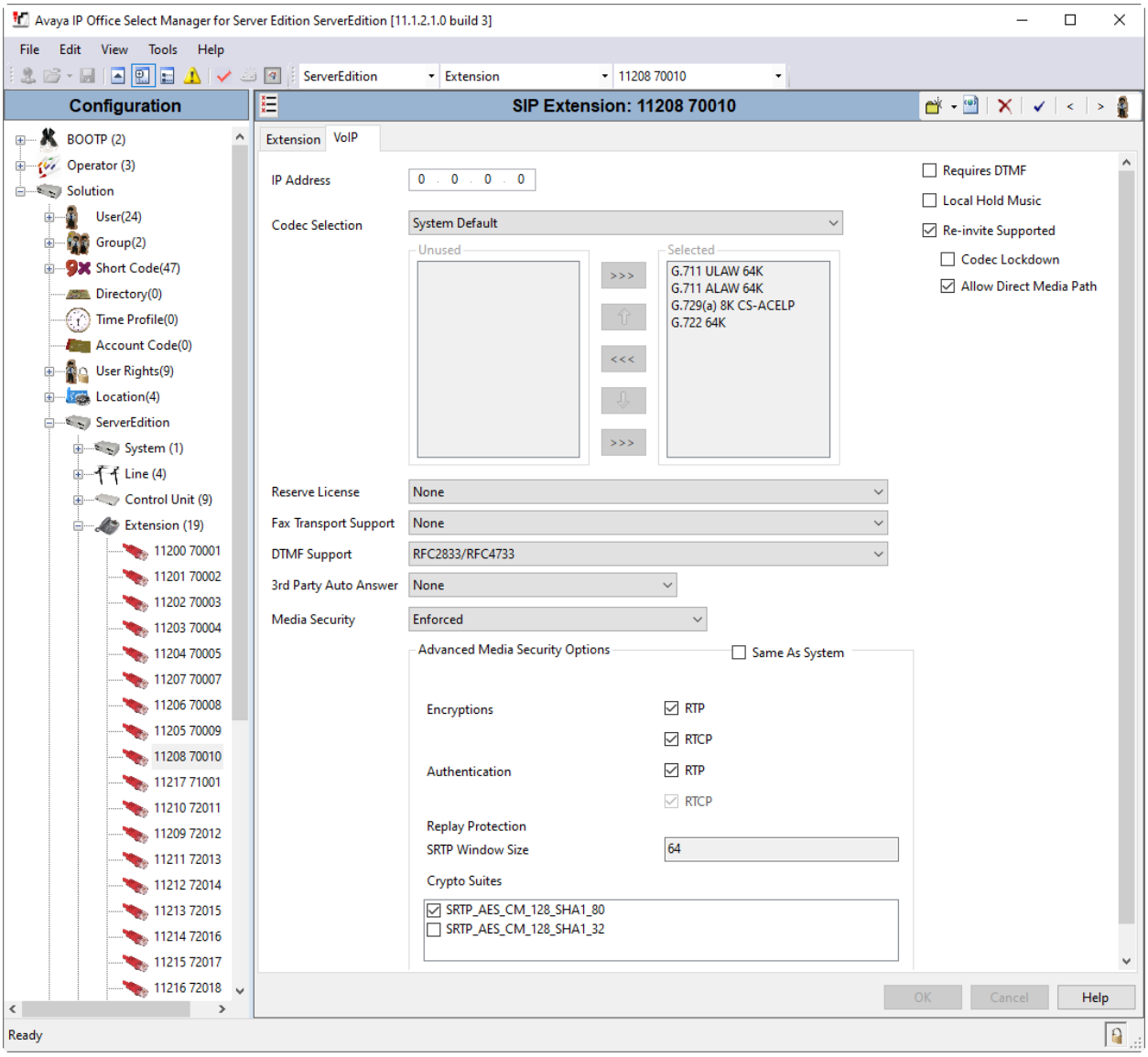
Select the **VoIP** tab. The codec selection shown below is configured with *G.711 ULAW*, *G.711 ALAW*, *G.729(a)-8K CS-ACELP*, and *G.722 64K*. Enable **Allow Direct Media Path** so that audio/RTP flows directly between two SIP endpoints without using media resources in Avaya IP Office Server Edition. Select *Enforced* for **Media Security** with **Advanced Media Security Options** as seen below.



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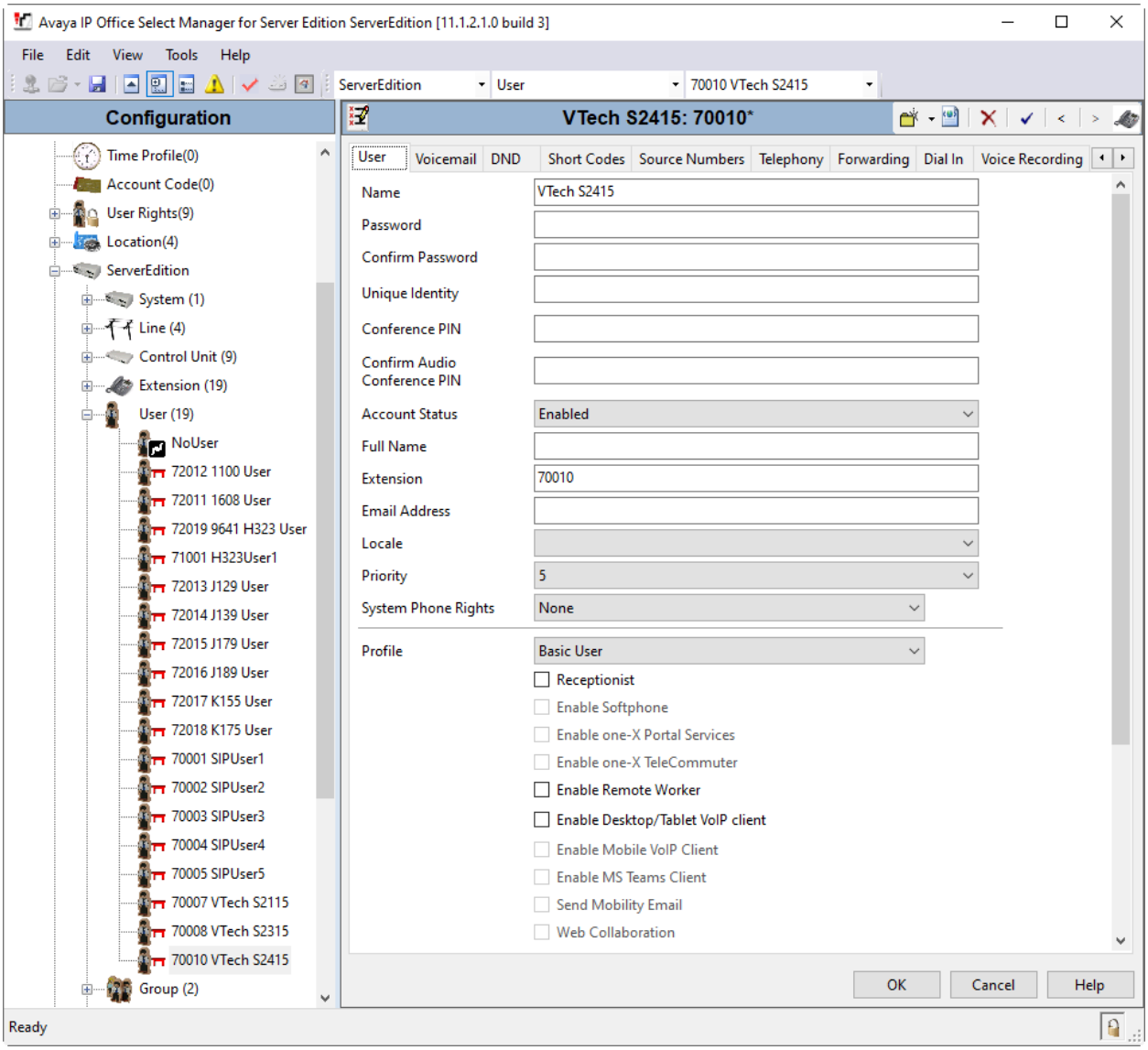
5.5. Administer SIP Users

From the configuration tree in the left pane, right-click on **User** and select **New** from the pop-up list (not shown). Enter a value for the **Name** field (e.g., *VTech S2415*). For the **Extension** field, enter the SIP extension from **Section 5.4** (e.g., *70010*).



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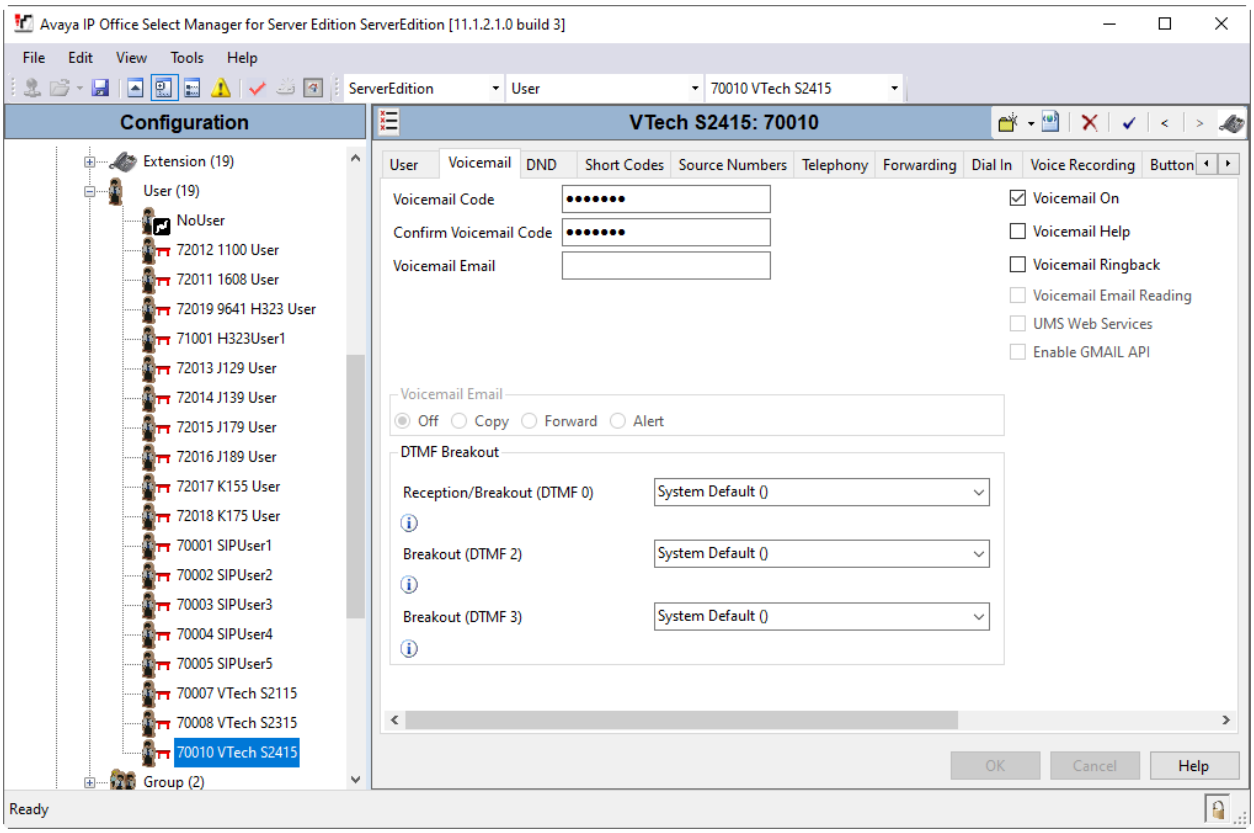
Select the **Voicemail** tab and select **Voicemail On** to enable voicemail for the CTM-S2415 handset. Specify a **Voicemail Code** to be used when logging into voicemail.



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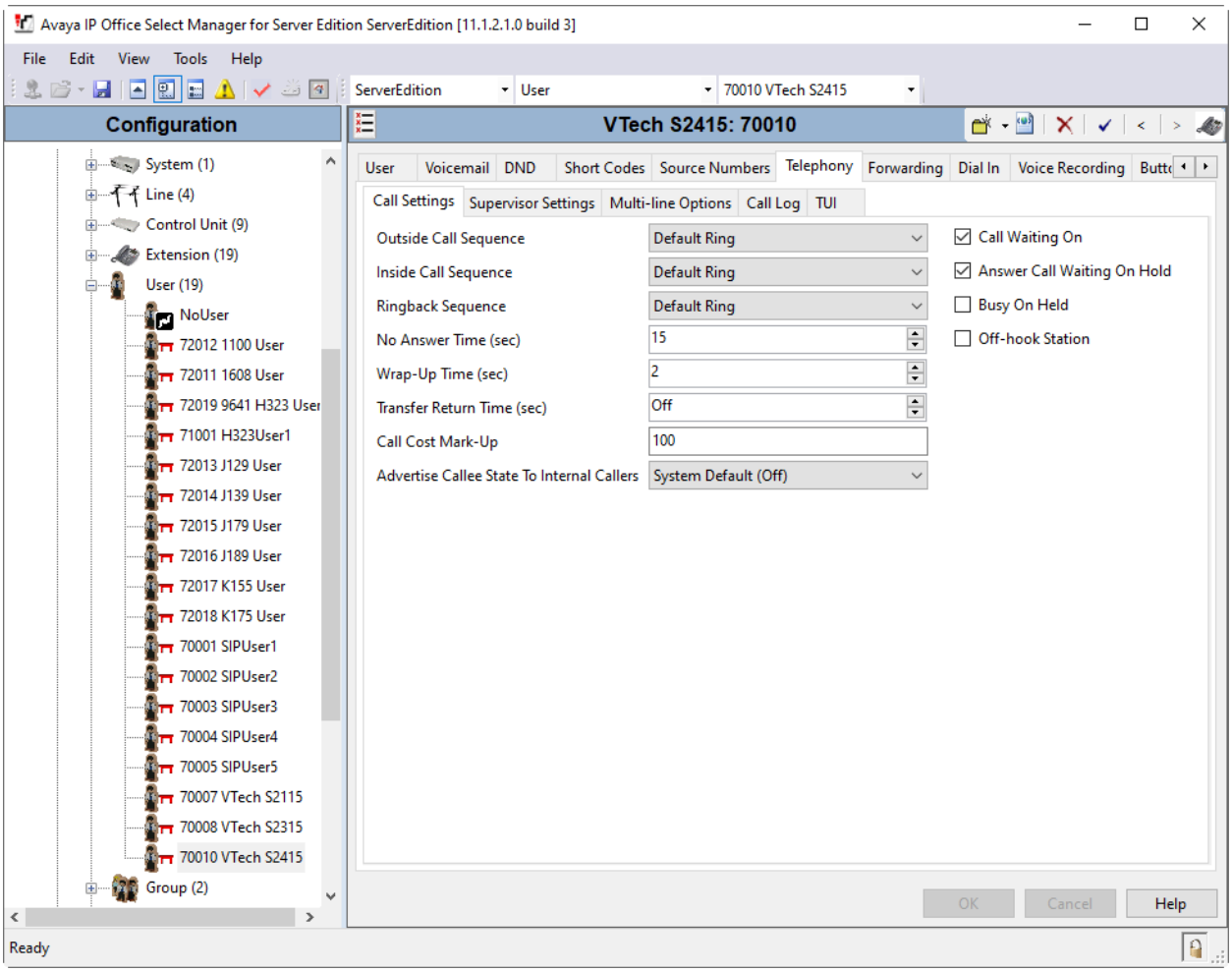
Select the **Telephony** tab followed by the **Call Settings** sub-tab. Note the settings below for the user.



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6. Configure VTech CTM-S2415 Hotel Phone

The steps to configure CTM-S2415 to integrate with IP Office Server Edition are as follows:

- Configure IP Address
- Launch Web Interface
- Configure SIP Account
- Install IP CA Certificate
- Modify Codec Settings as required

6.1. Configure IP Address

CTM-S2415 is configured for DHCP as a factory default. The following steps provide network connectivity and determine the phone's IP address for use in launching administration detailed in **Section 6.2**:

- Connect the WAN port of CTM-S2415 to a Power over Ethernet (PoE) switch
- Determine the assigned IP address. Use the built-in voice menu which will read out the IP address. The voice menu is accessed by pressing **SPEAKER * * * *.** For more information, refer to CTM-S2415 user manual obtained at http://vtechhotelphones.com.

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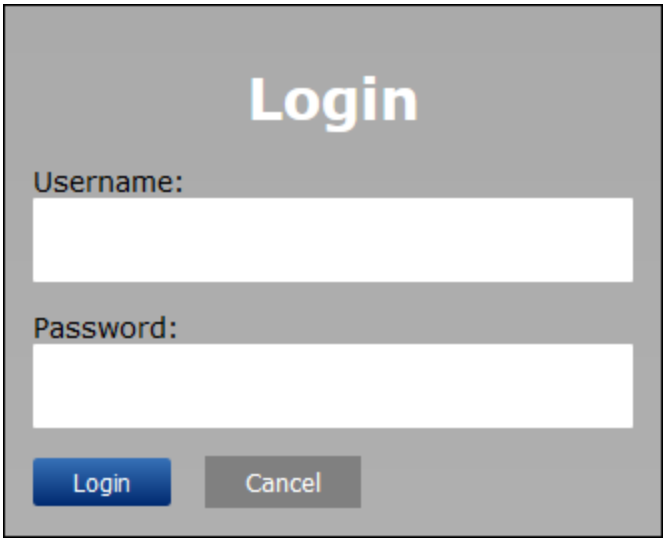
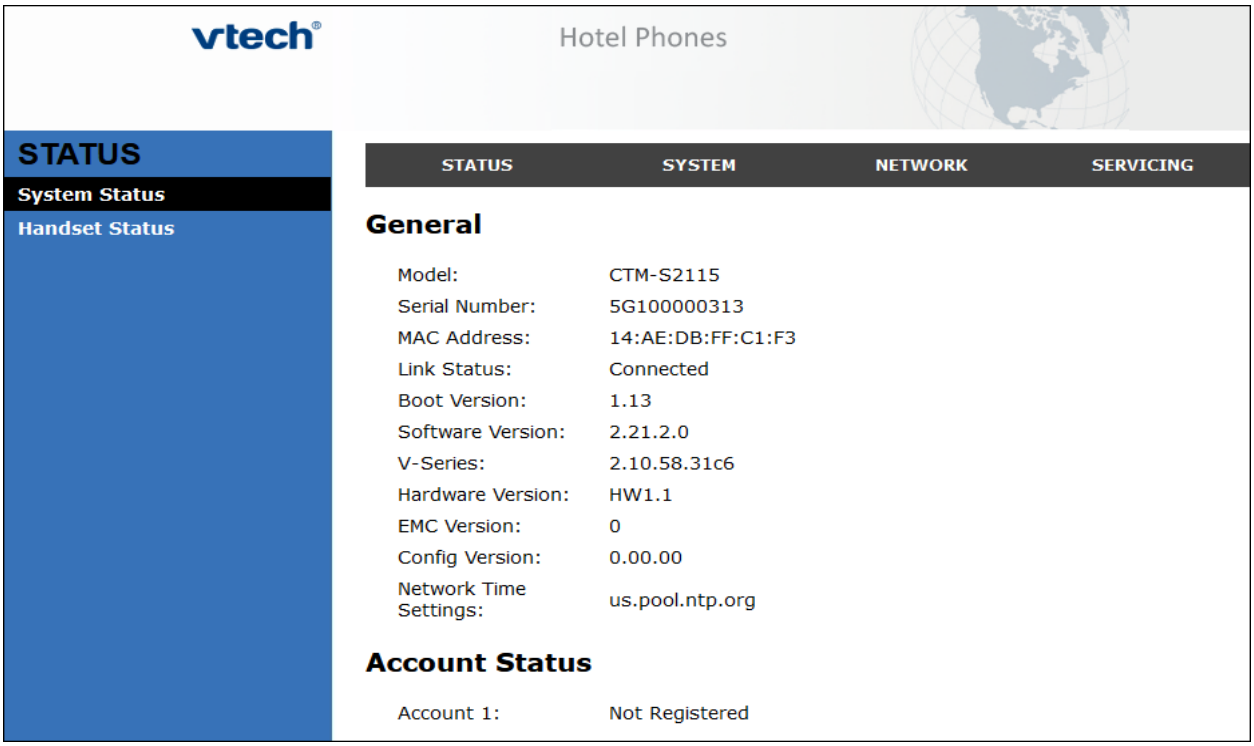
6.2. Launch Web Interface

The phone administration is done though a web interface. To access web administration, invoke the web login page using the **IP address** from **Section 6.1** using the URL **https://<IP address>**. The login prompt is displayed.



Enter the appropriate **Username** and **Password.** Once logged in, the default settings are displayed:



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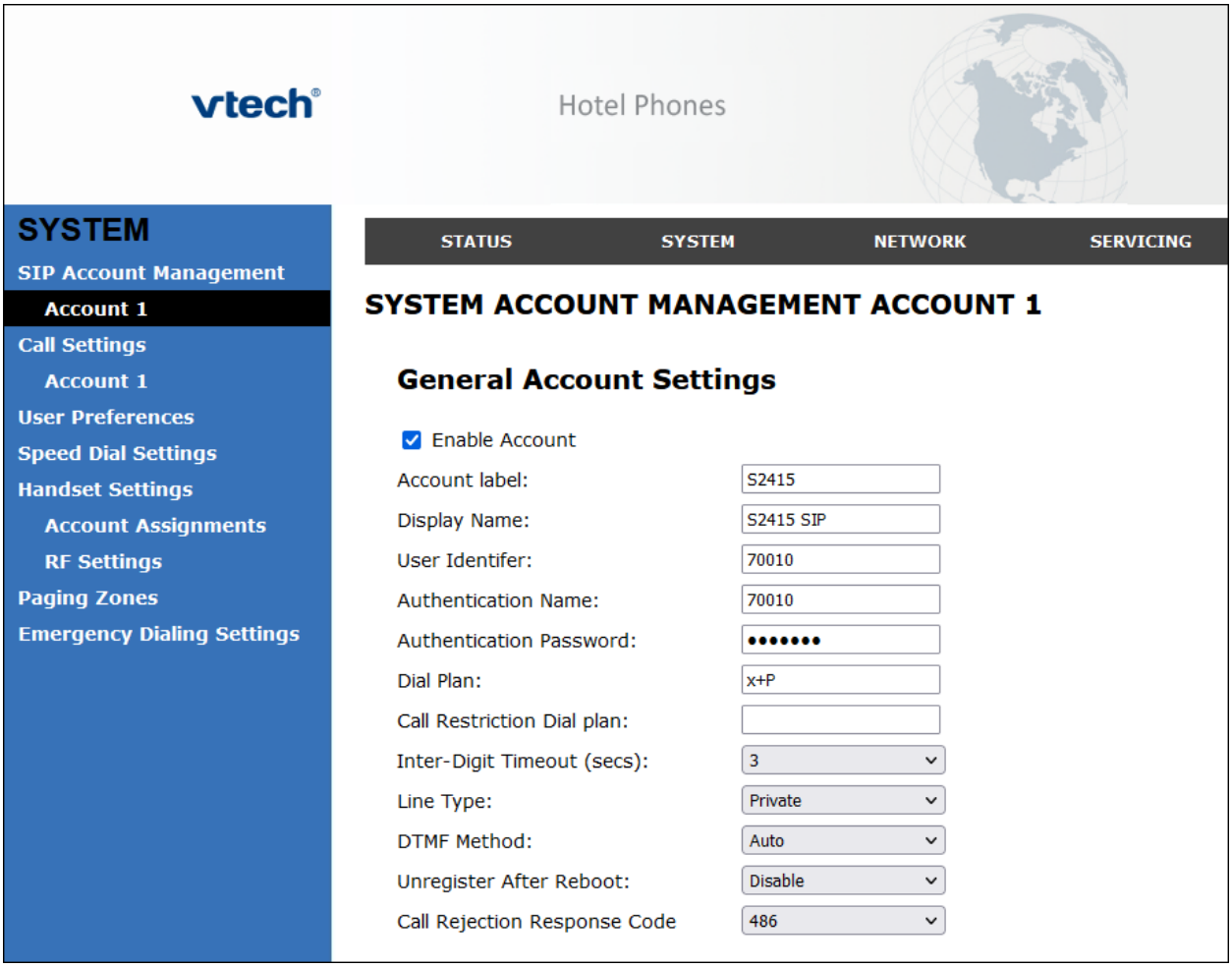
- **Note:** If firmware upgrades are needed, consult the configuration guide for instructions Refer to http://vtechhotelphones.com.

6.3. Configure SIP Account

To register VTech to IP Office, Select **SYSTEM** from the toolbar, then **Account 1** from the left-hand side list. Under the **General Account Settings** heading, input the following:

- **Enable Account:** Click the corresponding checkbox.
- **Account Label**: Enter a descriptive string (e.g., *S2415*).
- **Display Name**: Enter a desired display name (e.g., *S2415 SIP*).
- **User Identifier**: Enter An appropriate string (e.g., *70010*).
- **Authentication Name**: Enter the SIP extension from **Section 5.4** (e.g., *70010*).
- **Authentication Password**: Enter the password from **Section 5.4**.



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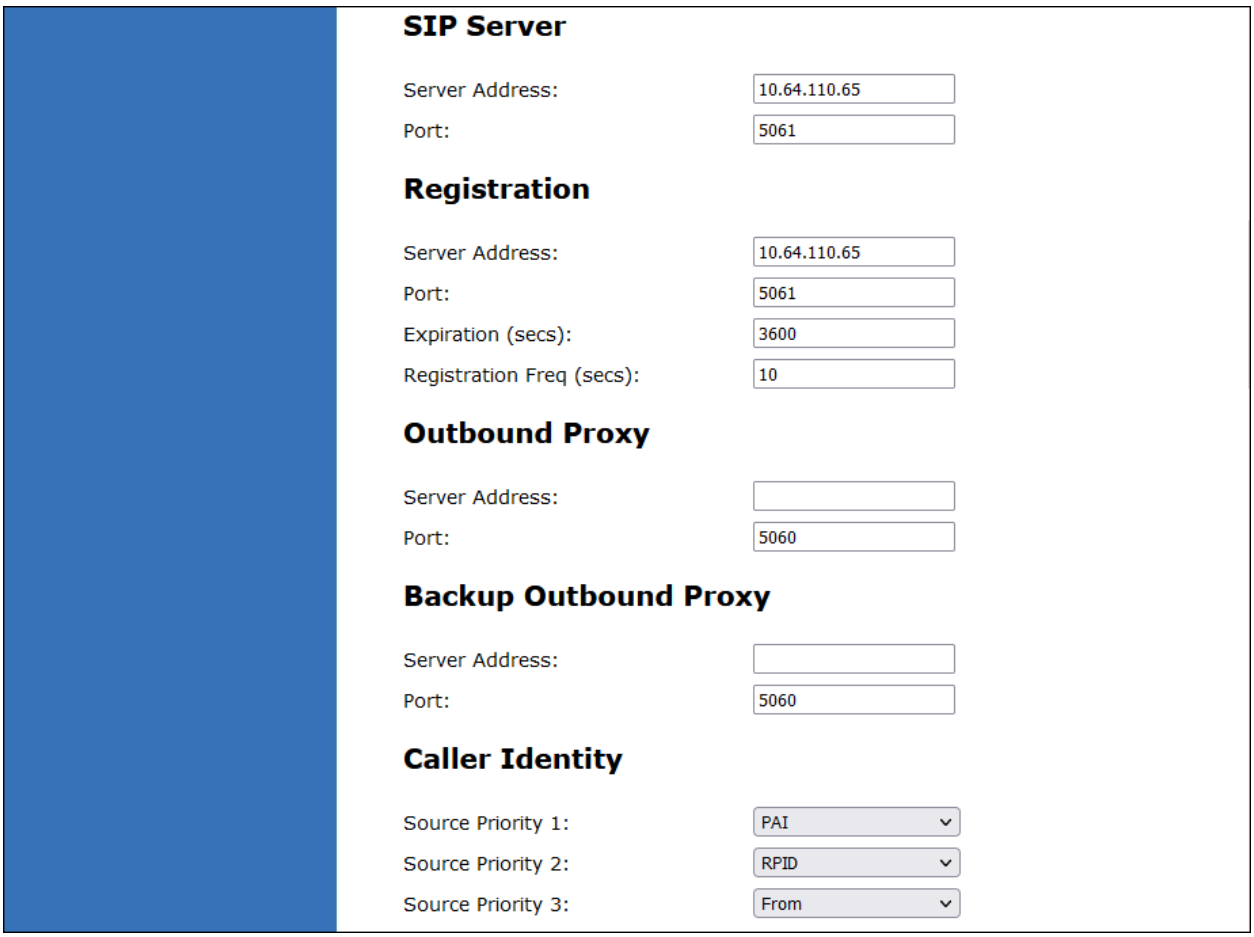
Continuing on the same page, Under the **SIP Server** heading, enter the following:

- **Server Address**: IP Office Server Edition IP address (e.g., *10.64.110.65*).
- **Port**: *5061*

Under the **Registration** heading, enter the following:

- **Server Address**: IP Office Server Edition IP address (e.g., *10.64.110.65*).
- **Port**: *5061*



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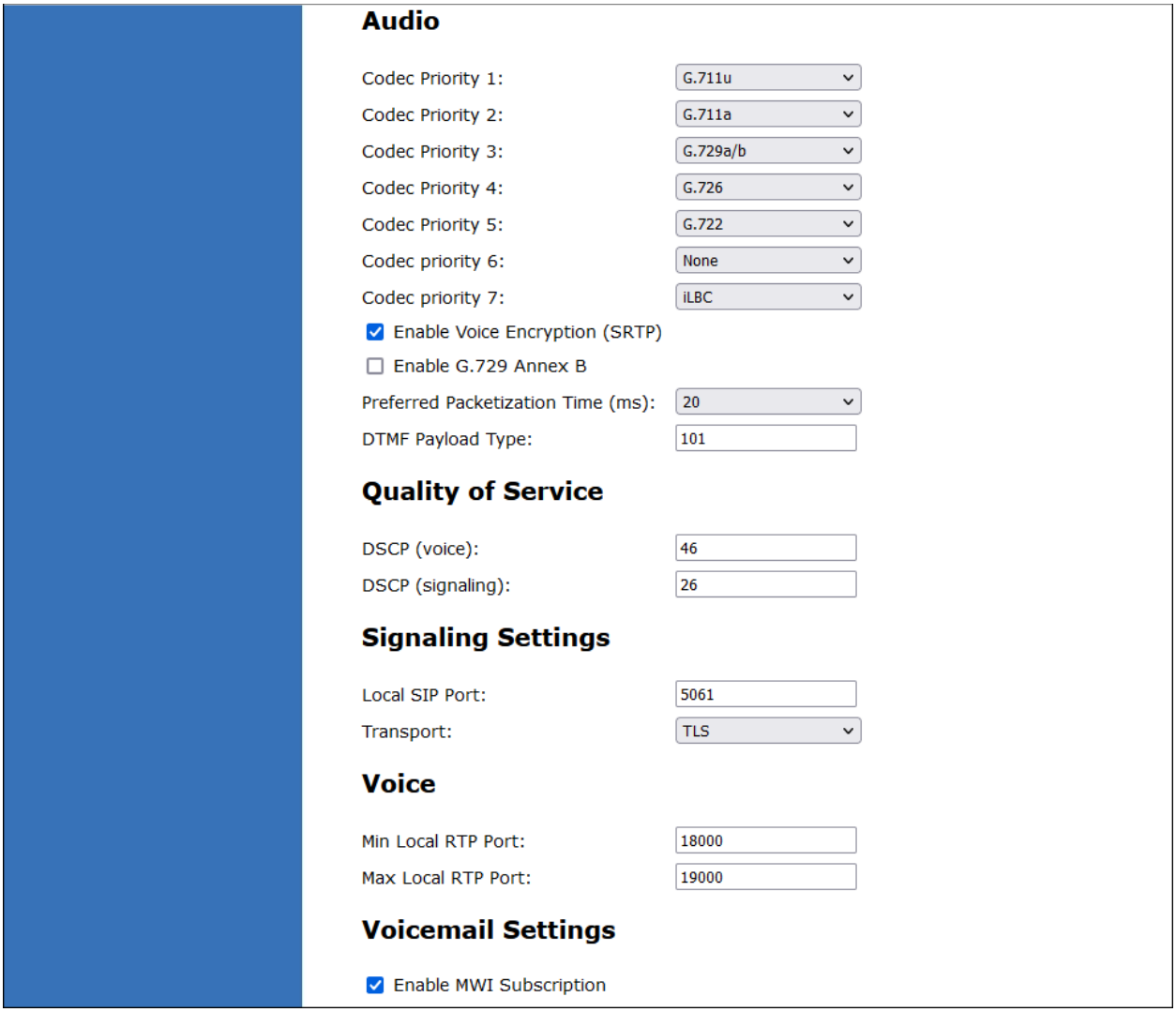
Continuing on the same page, Under the **Audio** heading, select **Enable Voice Encryption (SRTP)**. Under the **Signaling Settings** heading, input the following:

- **Local SIP Port:** *5061*
- **Transport:** *TLS*

Under the **Voicemail Settings** header, select **Enable MWI Subscription**. Click **Save** (not shown).



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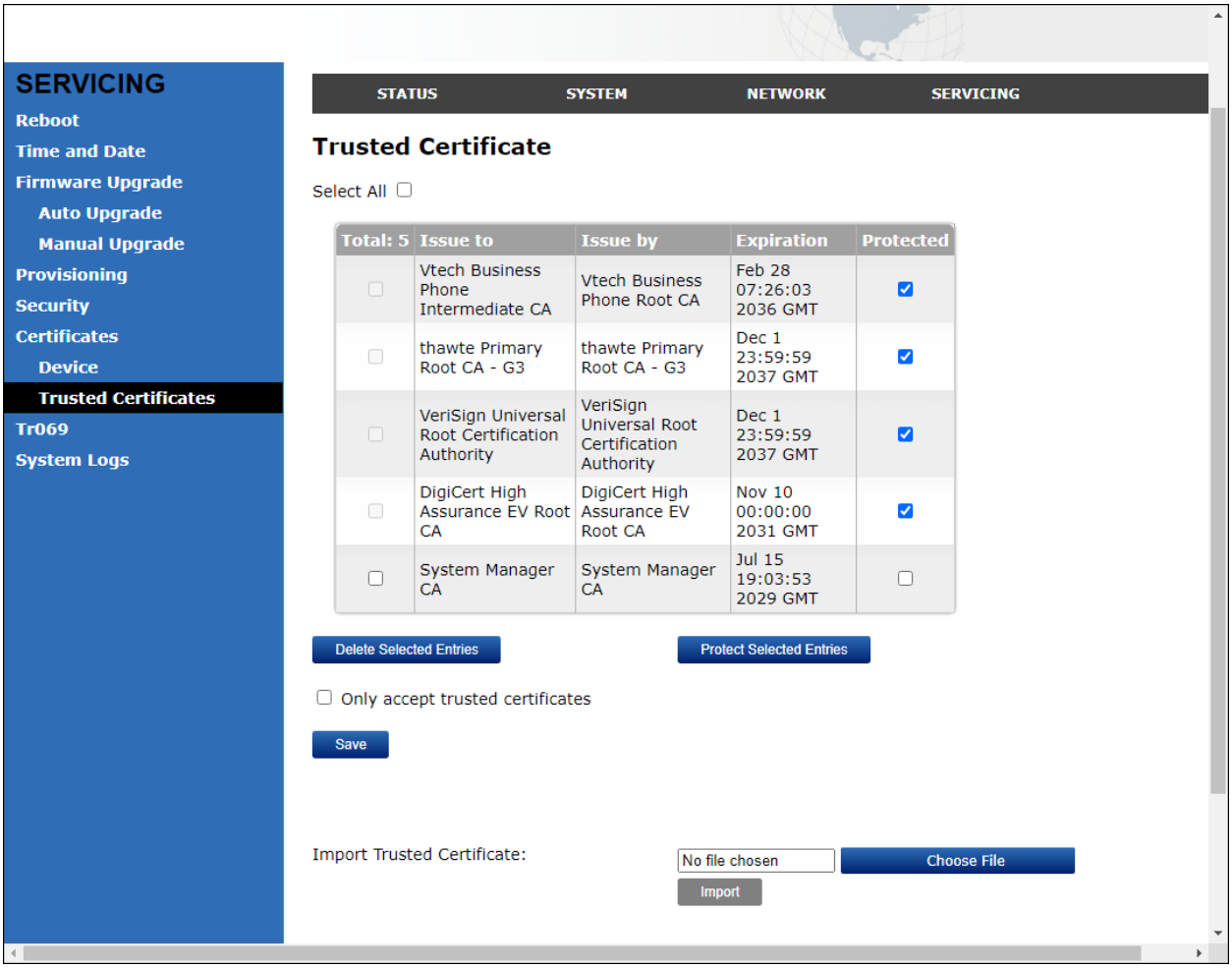
6.4. Install CA Certificate

Note: The CA certificate file is needed for this step.
To install the CA certificate, select **SERVICING** from the toolbar, then **Trusted Certificates** from the left-hand side list. Click on **Choose File** and select the CA certificate. Select **Only accept trusted certificates** (not shown). Click **Import** (not shown). The CA should appear in the **Trusted Certificate** list.



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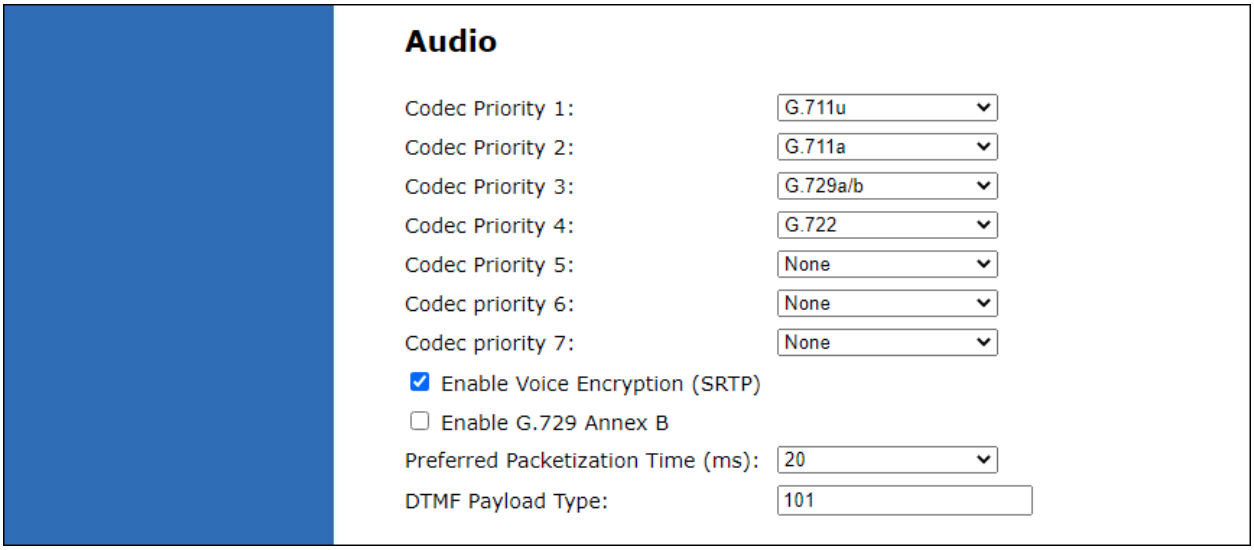
6.5. Modify Codec Settings

Modify the codec settings by selecting **SYSTEM** (not shown) in the toolbar and **Account 1** (not shown) in the left hand side selections. Under the **Audio** heading, select the desired codecs in priority:



Click **Save**.

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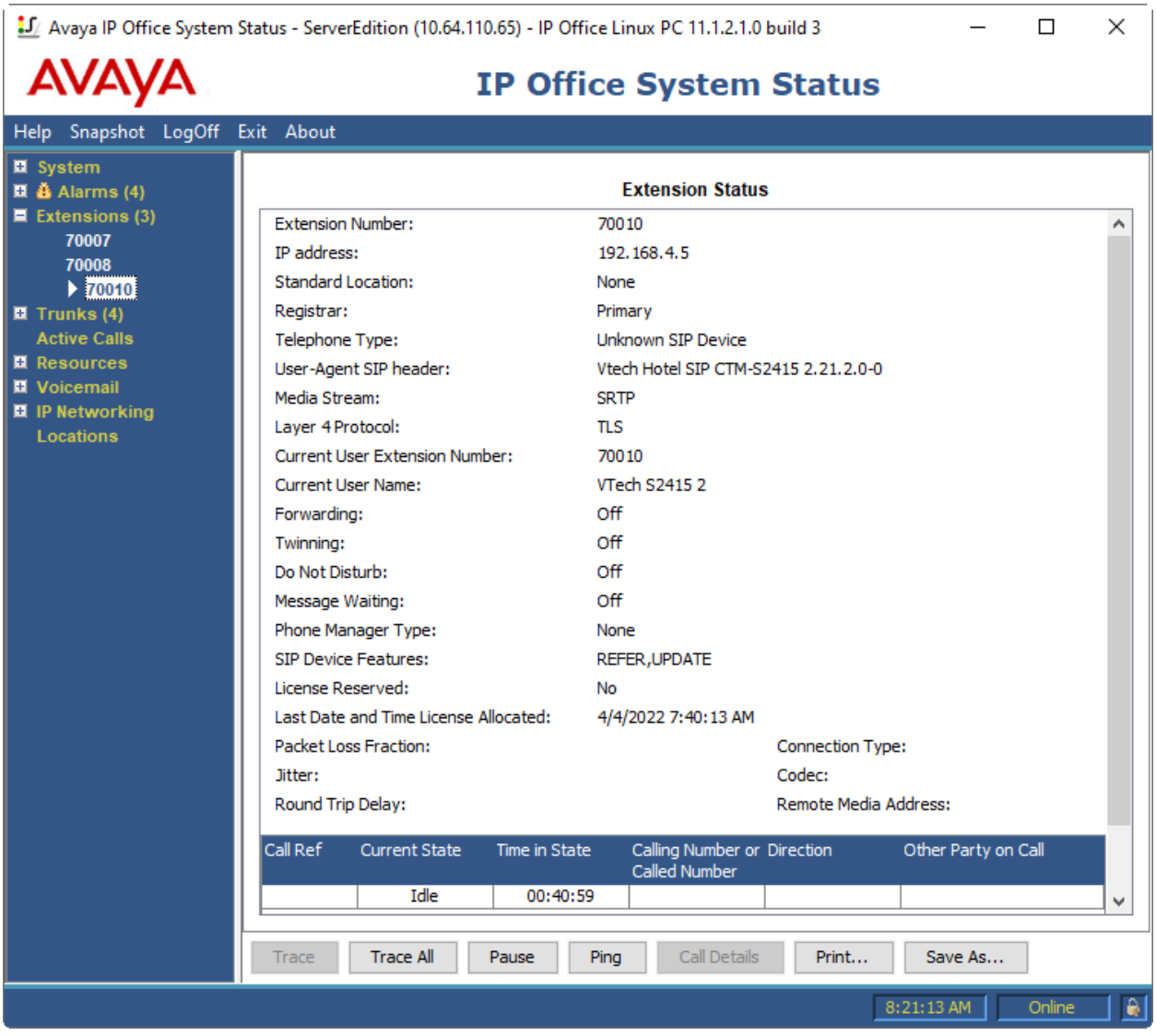
7. Verification Steps

This section provides the tests that can be performed to verify proper configuration of IP Office and CTM-S2415.

7.1. Registration Status

Verify that CTM-S2415 has successfully registered with IP Office. From a PC with **IP Office Admin** Suite installed, invoke **IP Office System Status**. Navigate to the CTM-S2415 SIP extension and verify **Media Stream** is set to *SRTP*, **Layer 4 Protocol** is set to *TLS*, and **Current State** is shown as *Idle*.



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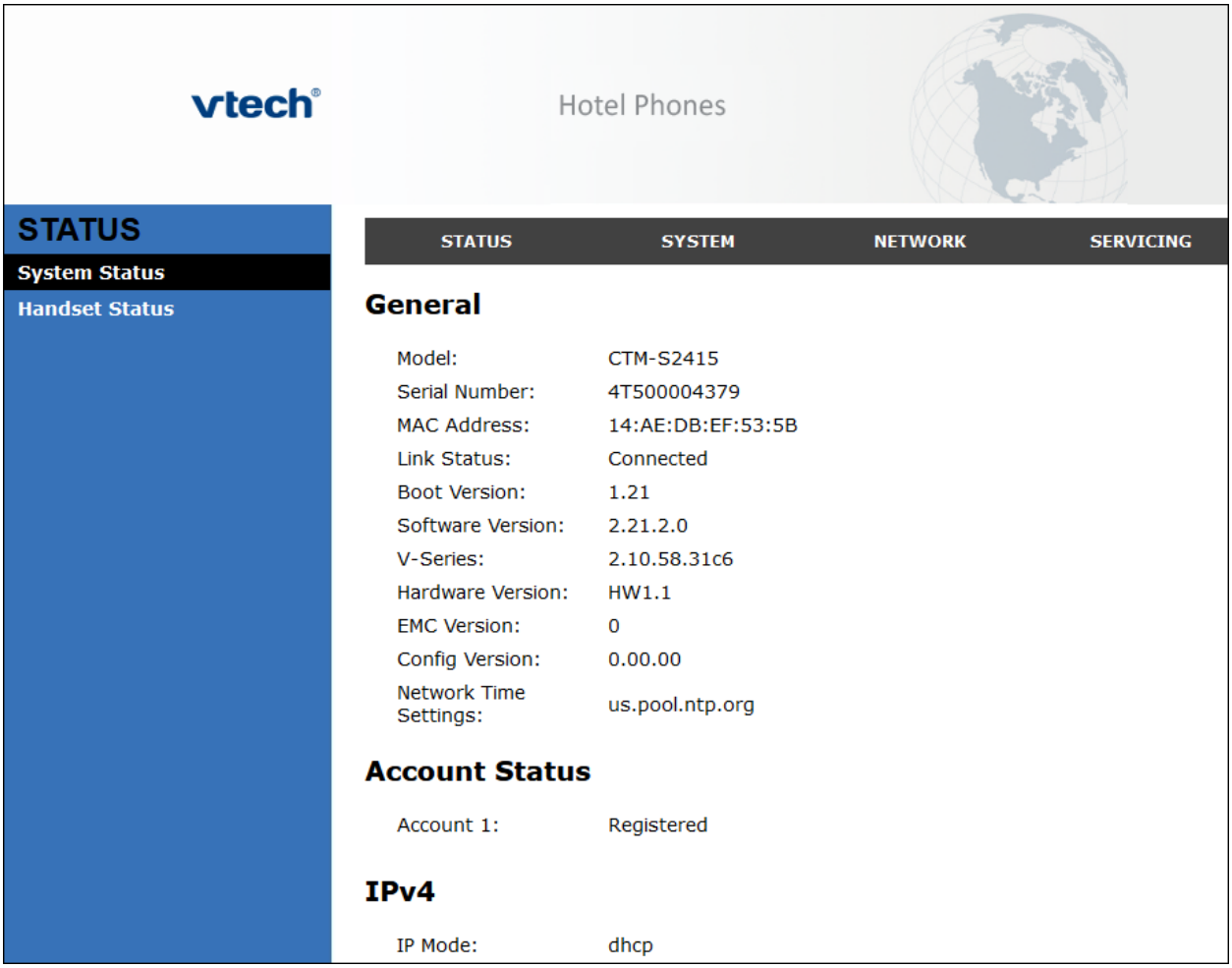
Registration status can also be seen from the CTM-S2415 web interface Select **SYSTEM** from the toolbar, then **System Status** from the left-hand side list. Under **Account Status**, the account should show **Registered**.



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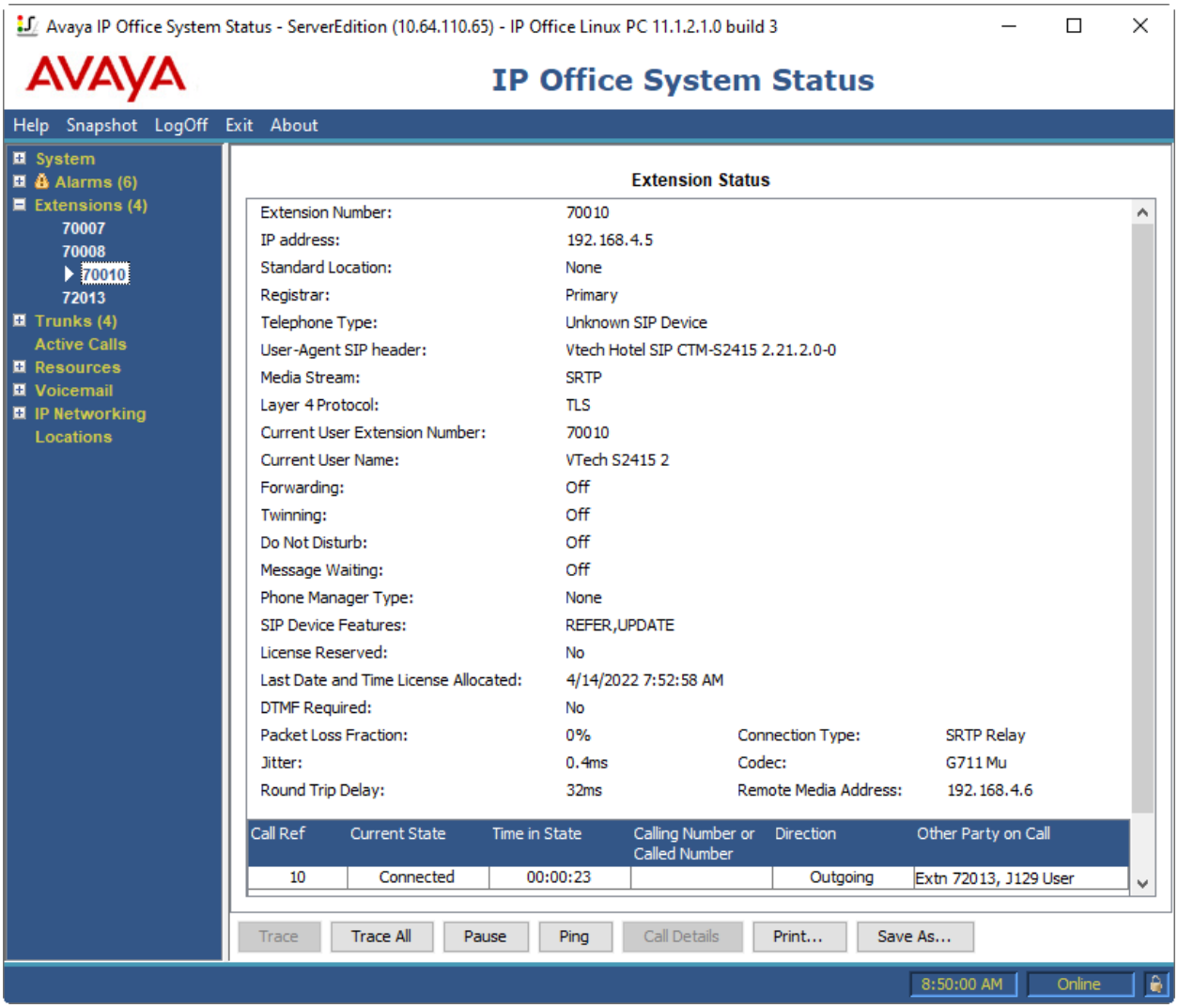
7.2. Basic Calls

Establish a call between CTM-S2415 and a local Avaya SIP desk phone. In **IP Office System Status**, navigate to the SIP extension. Verify that the **Current State** is *Connected* as shown below.



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8. Conclusion

These Application Notes describe the configuration steps required to integrate VTech CTM-S2415 Hotel Phone with Avaya IP Office Server Edition 11.1 and Avaya IP Office 500 V2 Expansion System 11.1. The CTM-S2415 registered to Avaya IP Office Server Edition or Avaya IP Office 500 V2 Expansion System. Calls were then established with Avaya H.323 / SIP desk phones and the PSTN with TLS. In addition, basic telephony features were verified. All feature and serviceability test cases were completed successfully with observations noted in **Section 2.2**.

9. References

This section references the Avaya documentation relevant to these Application Notes. The Avaya product documentation is available at https://support.avaya.com and VTech CTM-S2415 product documentation is available at https://vtechhotelphones.com.

[1] Administering Avaya IP Office Platform with Manager, Release 11.1.1, Issue 28.1.1, June 2021.

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VTech Technologies Canada Ltd.

Date: April 30, 2021

Declaration of Conformance

We, VTech Technologies Canada LTD., declare under sole responsibility that product series CTM-S2415 and CTM-S2412 all share the same hardware circuitry, software, SIP stack, and firmware version. Therefore the products are expected to behave in the same manner. Furthermore, product CTM-S2415 is a functional superset of the other products in the CTM series below. The differences between the different models in the series are detailed in the table below.

Product Name	Model	Description
CTM-S2415	CTM-S2415	SIP 1-Line Cordless Phone with standard (desktop) base
CTM-S2412	CTM-S2412	SIP 1-Line Cordless Phone with base

Please do not hesitate to contact should you require further information.
Thank you,

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