



## *RING CENTRAL CONFIGURATION GUIDE: SIP PAGING ADAPTER (SPA)*

Document Part #931050D

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**RingCentral Configuration Guide: SIP Paging Adapter (SPA)  
Document #931050D**

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## Revision Information

Revision 931050A was released on March 16, 2015.

- Initial release.

Revision 931050B was released on September 18, 2017.

- This revision features new device photos and updated configuration process

Revision 931050C was released on May 2nd, 2019

- Updated extension creation on Ringcentral side with new screenshots.

Revision 931050D was released on May 18<sup>th</sup>, 2020.

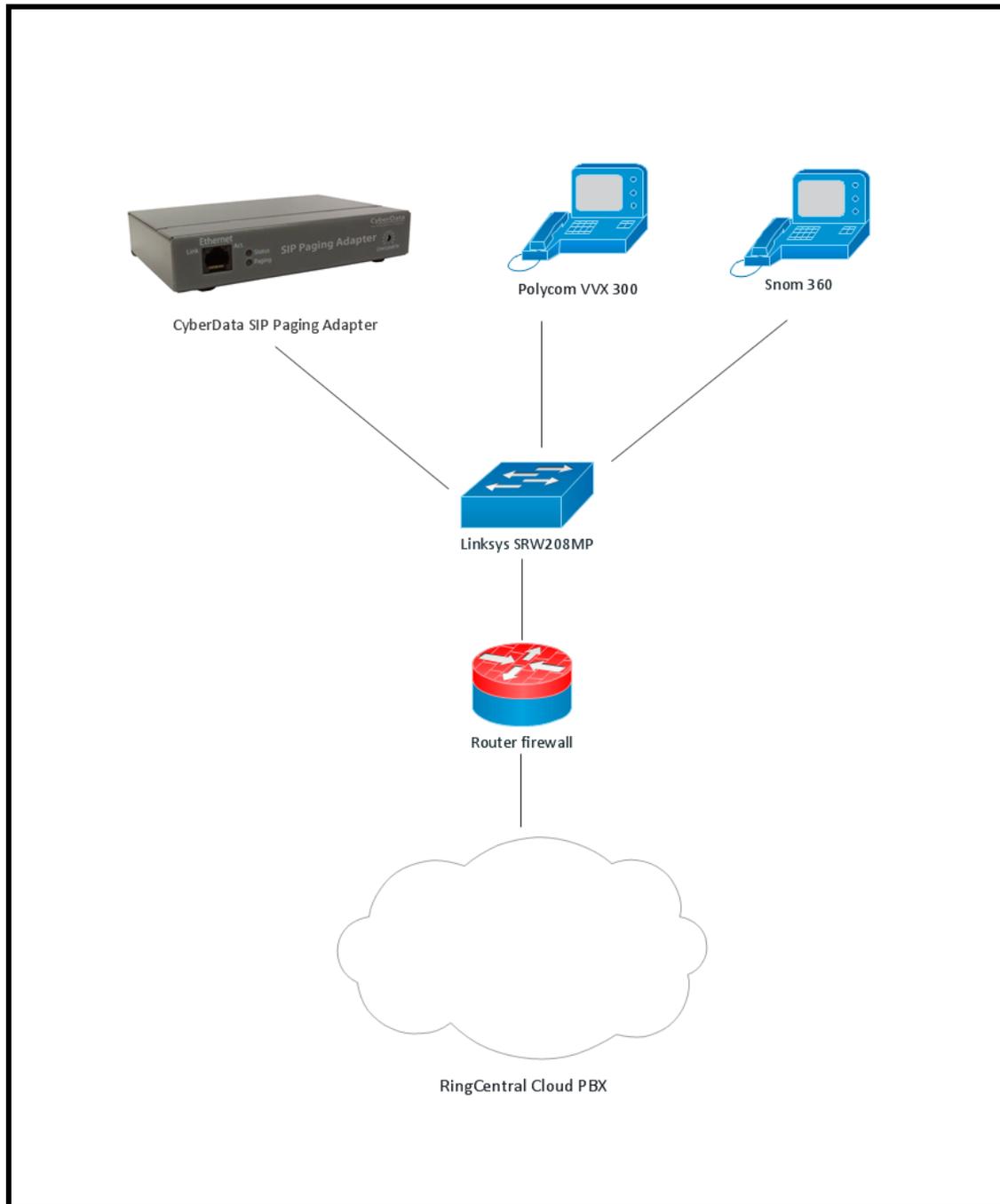
- Corrected mistakes with nomenclature.

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## 1.0 Setup Diagram

**Figure 1-1. Interoperability Test Infrastructure - SIP**



## 2.0 Test Setup Equipment

This section describes the products used for interoperability testing with RingCentral.

**Table 2-1. Setup Equipment**

EQUIPMENT	MODEL or PART NUMBER	FIRMWARE VERSION
CYBERDATA SIP PAGING ADAPTER	011233	v11.7.2
POLYCOM	VVX 300	5.2.0.8330
SNOM	360	snom360-SIP 8.4.31
LINKSYS	SRW208MP	1.0.4

## 3.0 Installation Options

Connecting your phone system to an analog overhead paging infrastructure does not have to be complicated. While CyberData offers numerous SIP-enabled IP paging endpoints with analog outputs, the SIP Paging Adapter (SPA) was specifically designed as the best product for interfacing IP phone systems such as RingCentral Cloud PBX to legacy analog overhead paging infrastructures.

### IP Audio Sourcing

IP Paging is accomplished with your choice of two audio sources:

- SIP
- Multicast

SIP is supported on RingCentral Cloud PBX by provisioning a SPA as an IP phone or a free Paging Device. Users can dial a designated extension or a paging group extension, depending on the business need, to play a stored message or make a live page. Provisioning as a free Paging Device enables auto-answer live paging at no additional cost.

As a multicast-enabled paging endpoint, the SPA can receive a multicast page from up to 10 configurable and priority-based paging groups. Each paging group consists of a unique multicast address and port number. Using a CyberData V3.1 Paging Server or a Polycom IP phone supporting Polycom's Group Paging feature, you can send multicast pages to the SPA, overhead speakers, and multicast-enabled IP phones on the network at the same time.

Best of all, the SIP Paging Adapter provides the capability to use SIP and multicast simultaneously for priority-based IP paging.

### Analog Interface

Often, overhead paging is overlooked when migrating to a VoIP phone system from a legacy analog phone system. You may be wondering how to approach an IP to analog paging solution. CyberData recommends considering the following questions before implementing IP paging:

- How many paging groups or zones are needed?
- Do you want to page IP phones and overhead speakers at the same time?
- What is the input specification of the analog amplifier or zone controller connected to the overhead speakers?
- Does the analog amplifier or zone controller require DTMF pass-through for analog zone control?
- Does the analog amplifier or zone controller require contact closure to start the page?

For ease of installation, the SPA offers a flexible analog interface to connect to a wide variety of analog amplifiers and zone controllers.

The Page Port output supports a standard 600 Ohms output with DTMF pass-through capability for analog amplifiers and zone controllers requiring TEL input connections from a legacy phone system. The SPA's RCA Line Level output allows for connections to analog amplifiers and mixers which may not offer a Page Port or TEL input for paging. Both analog outputs can utilize the dry relay contacts for contact closure (also known as "dry relay contact switching") to initiate a page where required.

Our VoIP Technical Support team maintains a matrix of compatible analog amplifiers on our website that you may use to verify compatibility and view/download sample wiring diagrams for connections from a SIP Paging Adapter. The CyberData "Connecting to Compatible Analog Amplifiers" matrix is available on our website here:

<http://www.cyberdata.net/connecting-to-analog-amplifiers/>

You are more than welcome to [Contact CyberData VoIP Technical Support](#) for assistance with verifying connections from a SIP Paging Adapter to a specific analog amplifier or zone controller before purchasing your device.

Need to tie in your background music? Incorporating background music from an analog RCA Line Level source can be realized using the RCA Level Input on the SPA with options to loop background music to the analog Page Port or RCA Line Level outputs.

When a page is made from the phone system, a multicast page is received, or a call to the Nightringer is detected, the SPA will mute the RCA Level Input to play the page or Nightringer tone. Background music from the RCA Level Input will resume when the page or Nightringer call has ended.

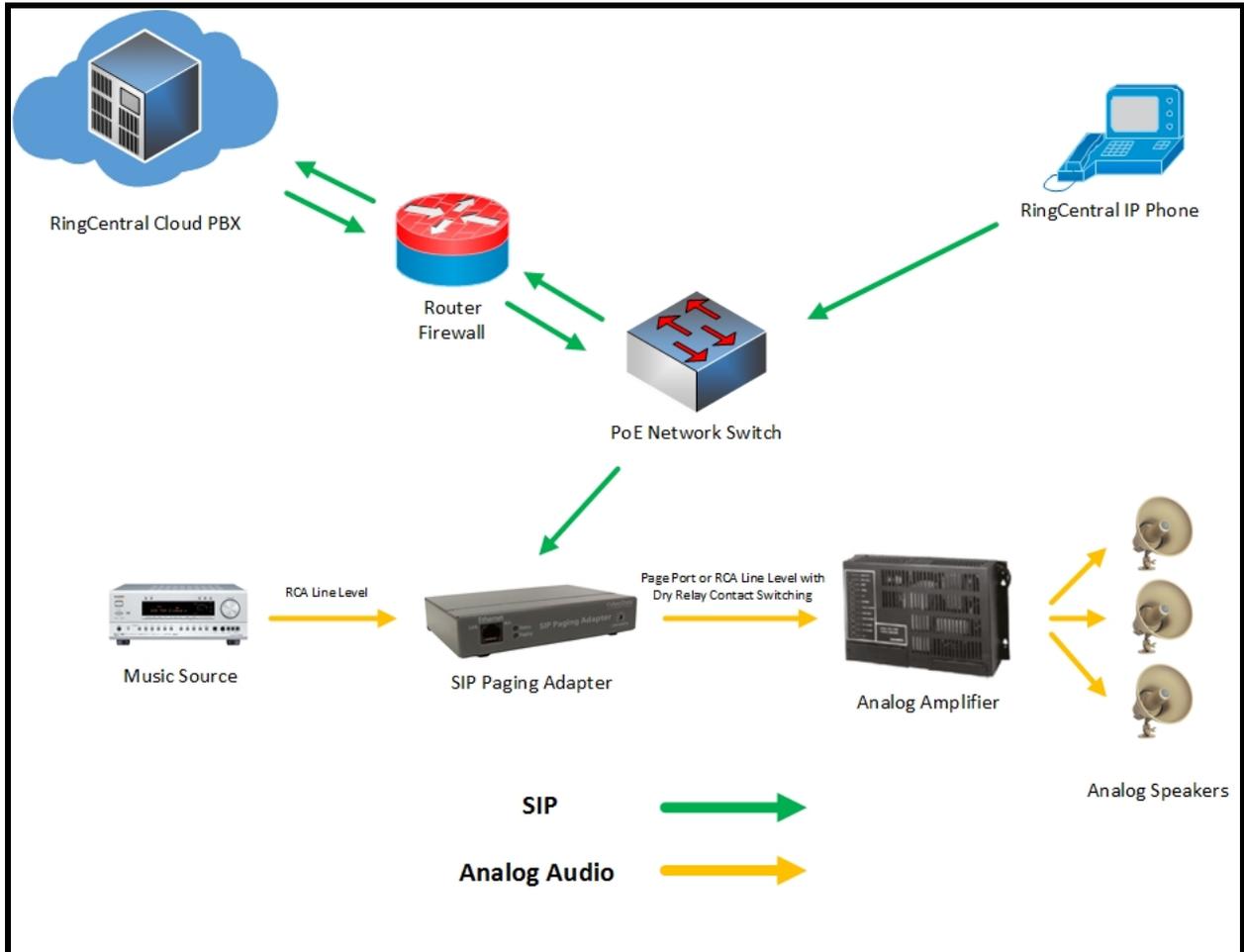
## **SIP Audio Sourcing**

In a RingCentral installation, the SPA can be provisioned as a free Paging Device or existing IP phone to accept SIP calls for auto-answer paging and playing stored pages.

Figure 3-1 shows the SPA installed with a music source providing background music to the RCA Line Level input, and the Page Port or RCA Line Level output connected to an analog amplifier with attached speakers.

A registered RingCentral phone can make a call to a Paging Group with SPA membership. Or, when configured as an existing IP phone to provide the abilities to play stored pages and passing DTMF digits through the analog outputs to a connected analog amplifier or zone controller, a registered RingCentral phone can make a direct call to the SPA's extension.

Figure 3-1. SIP Audio Sourcing



## Multicast Audio Sourcing

Multicast audio can be sourced from any industry standard multicast server. In a RingCentral installation, we suggest two options to source multicast audio to the SPA:

- [CyberData V3.1 Paging Server \(Part #011146\)](#)
- Polycom IP Phones running UC Software version 4.0.0 and higher

The SPA supports simultaneous SIP and multicast audio sources. Each audio stream is priority-based in order to allow higher priority audio streams to preempt lower priority audio streams like background music.

For example, SIP calls are given a default priority of 4.5 on a scale of 0 – 9, where 0 is the lowest and 9 is the highest. You may wish to use multicast to reach all paging devices in a building for emergency pages. The SPA designates Priority Group 9 with a priority of 9 as the emergency broadcast group. If you are using the V3.1 Paging Server to multicast background music on Priority Group 0, as suggested, a RingCentral paging group call to the SPA will preempt background music. If an emergency page to Priority Group 9 comes in at the same time as the RingCentral paging group call, the emergency page will preempt both the RingCentral paging group call and background music. Background music will resume when the emergency and RingCentral paging group pages have finished playing.

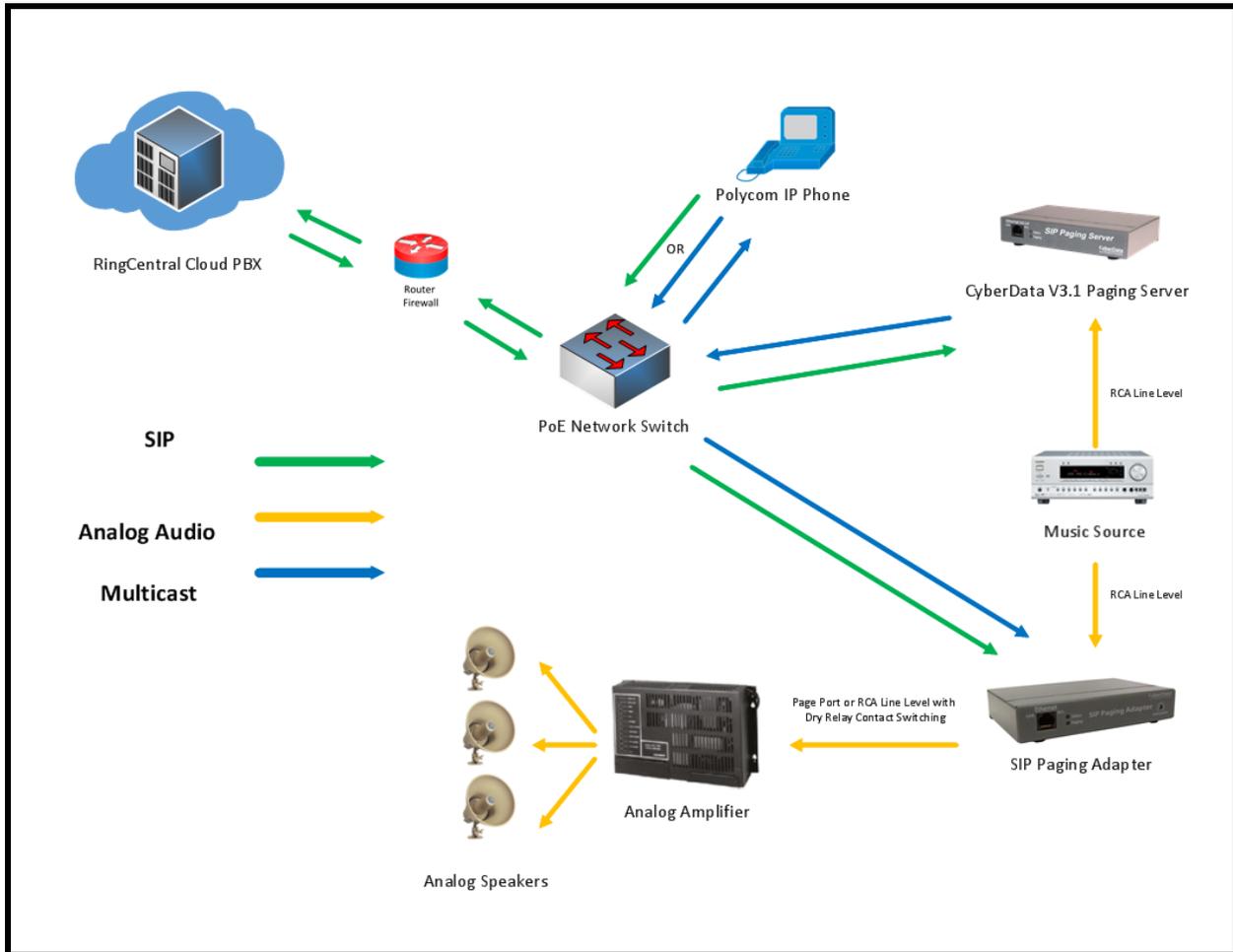
[Figure 3-2](#) shows a CyberData V3.1 Paging Server and a Polycom IP phone as multicast audio sources.

In this example installation, you can place a call to the V3.1 Paging Server's extension to make a multicast page to the SPA and other multicast-enabled devices on the network. When installing a V3.1 Paging Server and a SPA as part of your IP to Analog paging solution, you have the option of connecting a music source to the RCA Line Level input of either device.

A Polycom IP phone's Paging soft key can be used to make a multicast page to other Polycom phones and the SPA, which will play the page out of the analog outputs to the connected analog device.

See [Section 8.0 "Multicast Configuration"](#) for multicast configuration instructions.

**Figure 3-2. Multicast Audio Sourcing**



## Features

- Voice prompted paging menu
- Secondary endpoint for loud ringing to multicast or analog output
- 9 configurable stored pages
- Delayed paging
- SIP (RFC 3261) compatible
- Receives industry standard or Polycom\* multicast pages
- Web-based graphical user interface or TFTP/HTTP autoprovisioning
- DTMF zone selection for IP zone control
- DTMF pass-through for analog zone control
- RCA Line Level input connection for background music
- RCA Line Level analog output (10k Ohms @ 2 VPP)
- Page Port analog output (600 Ohms @ 5 VPP)
- Dry relay contact closure for page initiation
- Normally-open or normally-closed selectable sense input for fault detection

\*Polycom Group Paging is supported on Polycom IP phones using UC Software 4.0.0 and higher

## 4.0 Before You Start

This configuration guide documents the integration process of a CyberData SIP Paging Adapter (SPA).

### Network Advisories

RingCentral uses a Fully Qualified Domain Name (FQDN) for the SIP server and Outbound Proxy addresses. The SPA needs to perform a DNS A query to resolve the IP address of RingCentral's Outbound Proxy FQDN. It is necessary to ensure the configured DNS server(s) have an A record for the Outbound Proxy address.

In addition, be sure to verify the following ports are available for the SPA to use:

- UDP 5060-5061, 5090 (SIP)
- UDP 10500 (RTP)

The SPA will need to traverse the public internet in order to operate with RingCentral in the cloud.

The SPA's primary extension uses SIP port 5060 to receive SIP messages. The Nightringer extension uses SIP port 5061 to receive SIP messages. Both extensions will send SIP messages to port 5090, the port used by RingCentral's Outbound Proxy.

SIP ports 5060-5061 and RTP port 10500 are the default values on all noted firmware levels.

Alternatively, SIP ports for the primary extension are configurable on the **SIP Configuration** page of the web interface. Use the **Nightringer Configuration** page to configure SIP ports for the Nightringer extension.

The RTP port setting on the **SIP Configuration** page is used for both extensions.

### Product Documentation and Utilities

Before you start, download the Operation and Quick Start guides from the SPA's product webpage:

<http://www.cyberdata.net/voip/011233/>

The CyberData Discovery Utility can be used to locate CyberData devices on your network. You may download it from the following web address:

<http://www.cyberdata.net/assets/common/discovery.zip>

**Note:** DHCP addressing mode is enabled on default.

## 5.0 Configuration Procedure: Paging Extension

When integrating with RingCentral, the paging adapter must be provisioned as a Paging Device associated with a user extension. Provisioning as a Paging Device does not allow the caller to receive audio from the paging adapter to hear voice prompts from the page menu or enter DTMF digits for page menu selections, group passwords, or pass-through to an analog amplifier or zone controller for analog zone control.

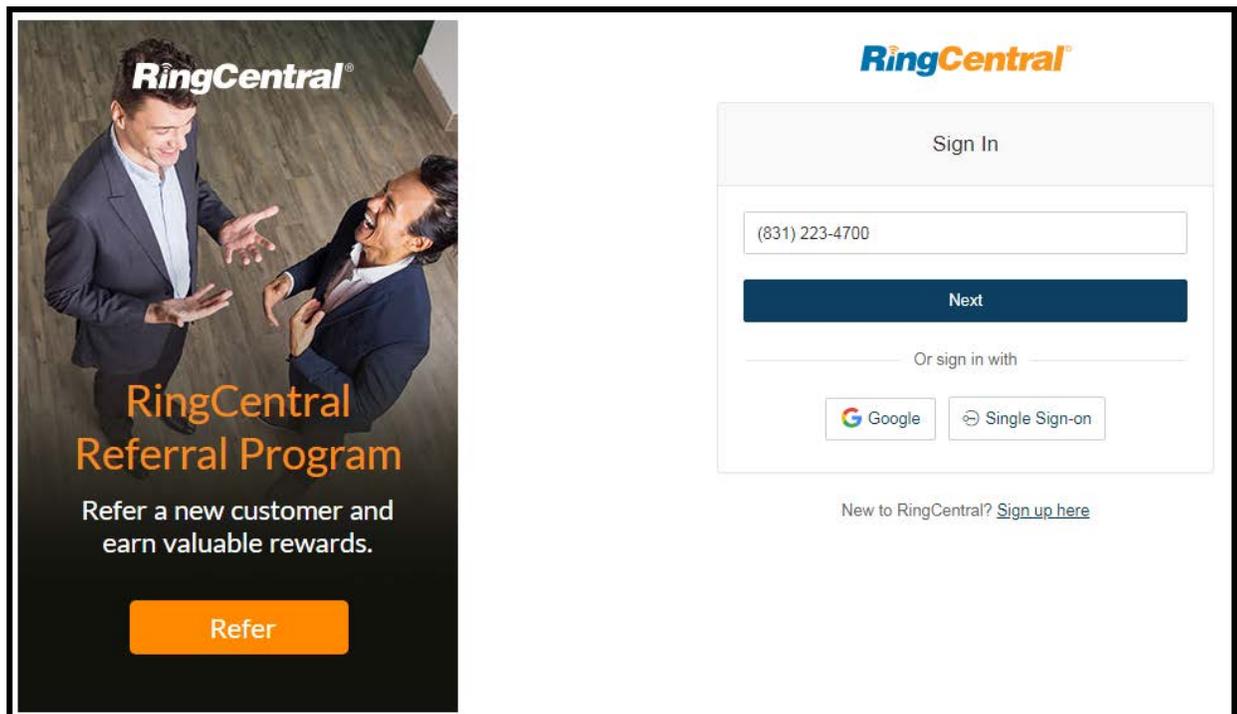
### Add a Paging Device

This section describes the process of creating a user, provisioning an IP phone, and registering the primary extension that you will use for paging with RingCentral. First, you must designate a RingCentral User for the paging adapter.

Use the following steps to create a user and provision an IP phone for the primary extension through the RingCentral Admin Portal.

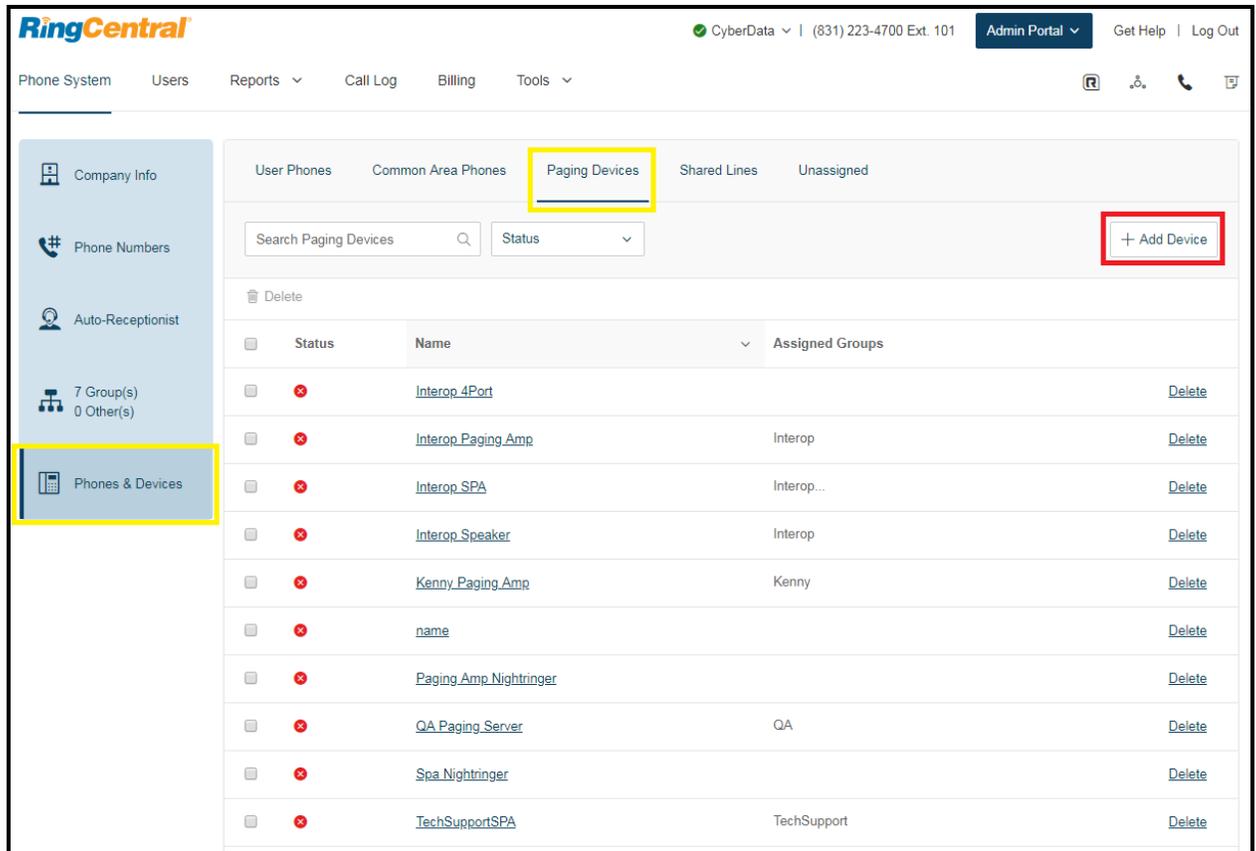
1. Login to the RingCentral Admin Portal at <https://service.ringcentral.com>.

Figure 5-1. RingCentral Admin Portal Login



2. From the Phones & Devices menu, select Paging Devices, and then click Add Device.

Figure 5-2. Add Device



3. A popup window labeled **Add Paging Device** will appear. Set the **Paging Device Nickname**, and then click **Next**.

**Figure 5-3. Add Paging Device - Nickname**

The following paging devices are supported by RingCentral:

- CyberData SIP-enabled IP V2 Paging Speaker
- CyberData SIP-enabled IP V2 Paging Amplifier

Paging Device Nickname

CyberData SIP Paging Adapter

Cancel Next

4. A popup window labeled **Generic Paging Device Provisioning** will appear. You will use the provisioning information to register the paging adapter's primary extension with RingCentral.

Figure 5-4. Provisioning Information

Add Paging Device

✓ Device Nickname 2 Provisioning Info

Provisioning information for CyberData paging devices

CyberData paging devices need to be programmed with the information given below to make them fully functional when assigned to paging group.

**Step 1**  
Open a web browser session to the CyberData device. Please consult the vendor documentation for details on how to determine the IP address of your device and how to enter the relevant login credentials.

**Step 2**  
Navigate to the Networking page and confirm that the device is configured for DHCP operation.

**Step 3**  
Navigate to the SIP Configuration page and enter the following settings in the appropriate fields and Click "Save". The device may reboot.

Field	Value
SIP Domain	sip.ringcentral.com
Remote SIP port	5060
Local SIP port	5060
Outbound Proxy	sip20.ringcentral.com
Outbound Proxy Port	5090
User Name	18312234700*803301850011
Authorization ID	803301850011
Password	

Done

**Note:** The Password has been obscured. These values are published only for reference.

- Next, add your new Paging Device to a *Paging Only* group. From the [n] Groups menu, select **Paging Only**, then click **New Paging Group**.

Figure 4-5. Add Group

The screenshot shows the RingCentral Admin Portal interface. The 'Paging Only' tab is highlighted with a red box. Below the tab, there is a search bar and a '+ New Paging Only' button highlighted with a green box. A table lists existing paging groups with columns for Status, Name, Devices, and Ext.

Status	Name	Devices	Ext.
✓	<a href="#">Interop</a>	Interop Speaker ...	11
✓	<a href="#">Interop2</a>	Interop SPA	12
✓	<a href="#">Kenny</a>	Kenny Paging Amp	3
✓	<a href="#">QA</a>	QA Paging Server	8
✓	<a href="#">QA Paging</a>		10
✓	<a href="#">TechSupport</a>	TechSupportSPA	7

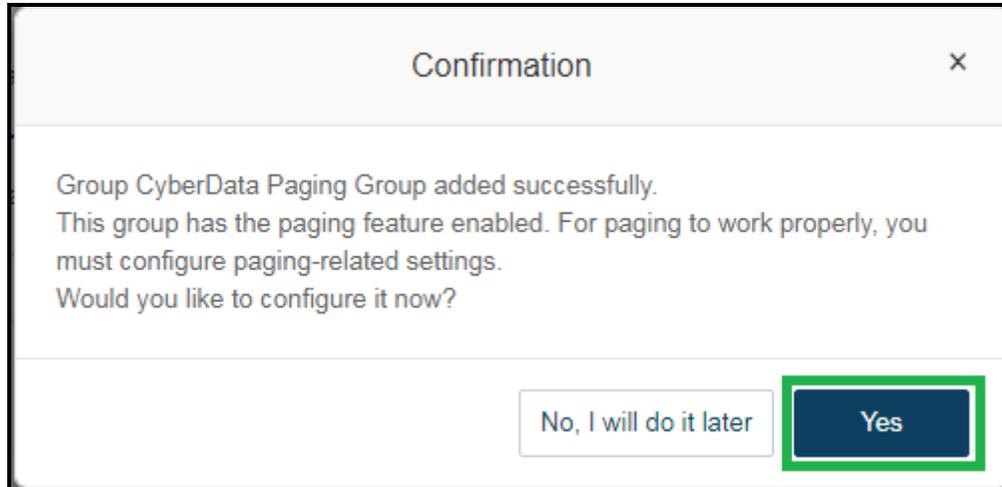
6. A popup window labeled **Add Paging Group** will appear. Enter an available extension number and name for your *Paging Only* group, then click **Save**.

**Figure 4-6. Add Paging Group**

The image shows a dialog box titled "Add Paging Group" with a close button (X) in the top right corner. The dialog contains two input fields. The first is labeled "Group Name" and contains the text "CyberData Paging Group". The second is labeled "Extension Number" and contains the text "13". At the bottom right of the dialog, there are two buttons: "Cancel" and "Save". The "Save" button is highlighted with a green border.

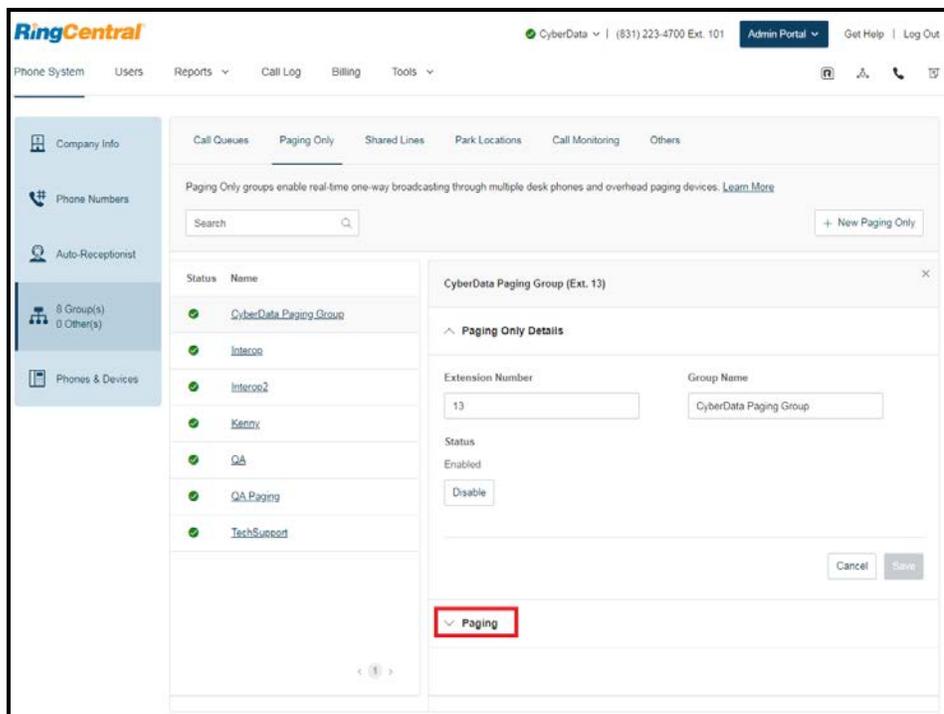
7. A confirmation screen will confirm the paging group has been created. Select **Yes** to configure paging settings.

**Figure 4-7. Confirmation**



8. Verify the new paging group appears in the **Groups** list. Select the paging group and a menu will appear to the far right of the screen. From this menu, select **Paging**.

**Figure 4-8. Group Paging Menu**



- From the **Paging** menu, select **Devices to Receive Page**, then check the devices to add to the group and press **Save**.

**Figure 4-9. Devices to Receive Page**

^ Paging

Devices to Receive Page      Users Allowed to Page this Group

---

Only-Paging capable phones are displayed in the list. You can select up to 25 devices.

Search  Phone Type: All Phone T...

Show All | [Show Selected \(3\)](#)

<input type="checkbox"/>	Phone Type	Phone Name	Ext.
<input type="checkbox"/>	User Phone	Christina PolycomVXX300	104
<input checked="" type="checkbox"/>	Paging Device	CyberData Paging Amp	-
<input checked="" type="checkbox"/>	Paging Device	CyberData SIP Paging Adapter	-
<input type="checkbox"/>	Paging Device	CyberData SIP Paging Server	-
<input checked="" type="checkbox"/>	Paging Device	Paging Amp Nightringer	-
<input type="checkbox"/>	User Phone	QA Polycom	602
<input type="checkbox"/>	Paging Device	SIP IP66 Outdoor Horn	-

Total: 7      Show:  < 1 >

- Next, select **Users Allowed to Page this Group** to designate users with paging privileges. Check the box next to the users desired then press **Save**.

**Figure 4-10. Users Allowed to Page This Group**

The screenshot shows a web interface for configuring paging. At the top, there is a 'Paging' header with an expand/collapse arrow. Below it, there are two tabs: 'Devices to Receive Page' and 'Users Allowed to Page this Group'. The second tab is selected and highlighted with a green box. Below the tabs, there is a search bar and a dropdown menu for 'All Departments'. Below that, there are links for 'Show All' and 'Show Selected (3)'. A table lists users with columns for 'Name', 'Ext.', and 'Department'. The table has a checkbox in the first column. Three rows are highlighted with green boxes: 'CyberData Corporation' (Ext. 101), 'Interop PolycomVWX300' (Ext. 104), and 'Interop Snom360' (Ext. 103). At the bottom, there is a 'Total: 23' label, a 'Show: 10' dropdown, and a pagination control showing '1 2 3'. At the very bottom right, there are 'Cancel' and 'Save' buttons, with the 'Save' button highlighted in green.

<input type="checkbox"/>	Name	Ext.	Department
<input type="checkbox"/>	Available User2	945	
<input type="checkbox"/>	Cameron Device	934	
<input type="checkbox"/>	Cameron Nightringer	935	
<input type="checkbox"/>	Cameron Snom	932	
<input checked="" type="checkbox"/>	CyberData Corporation	101	
<input type="checkbox"/>	Group User	943	
<input checked="" type="checkbox"/>	Interop PolycomVWX300	104	
<input checked="" type="checkbox"/>	Interop Snom360	103	
<input type="checkbox"/>	Interop Strobe	942	
<input type="checkbox"/>	Kenny phone 2	938	

- The page redirects back to the group's paging menu after clicking **Save**. Proceed to **Configure SIP Parameters**.

## Configure SIP Parameters

You may feel more comfortable with web-based configuration or provisioning using templates. Both methods are documented in this configuration guide. Be sure to review the paging server's operation guide for complete information on configuration through the web interface and CyberData's "autoprovisioning" method using templates via HTTP and TFTP protocols.

**Table 4-1 CyberData Configuration Settings**

<b>Primary SIP Server</b> field	From the Paging Device Provisioning Information popup: <b>SIP Server/SIP Domain</b>
<b>Primary SIP User ID</b> field	From the Paging Device Provisioning Information popup: <b>User Name</b>
<b>Primary SIP Auth ID</b> field	From the Paging Device Provisioning Information popup: <b>Authorization ID</b>
<b>Primary SIP Auth Password</b> field	From the Paging Device Provisioning Information popup: <b>Password</b>
<b>Outbound Proxy</b> field	From the Paging Device Provisioning Information popup: <b>Outbound Proxy</b>
<b>Outbound Proxy Port</b> field	From the Paging Device Provisioning Information popup: <b>Outbound Proxy Port</b>
<b>Re-registration Interval (in seconds)</b> field	<b>30</b>
<b>Keep Alive Period</b> field	<b>0</b>
<b>Force Selected Codec</b> checkbox	<b>Yes</b>
<b>Codec</b> dropdown	<b>PCMU (G.711, u-law)</b>

### Web Configuration

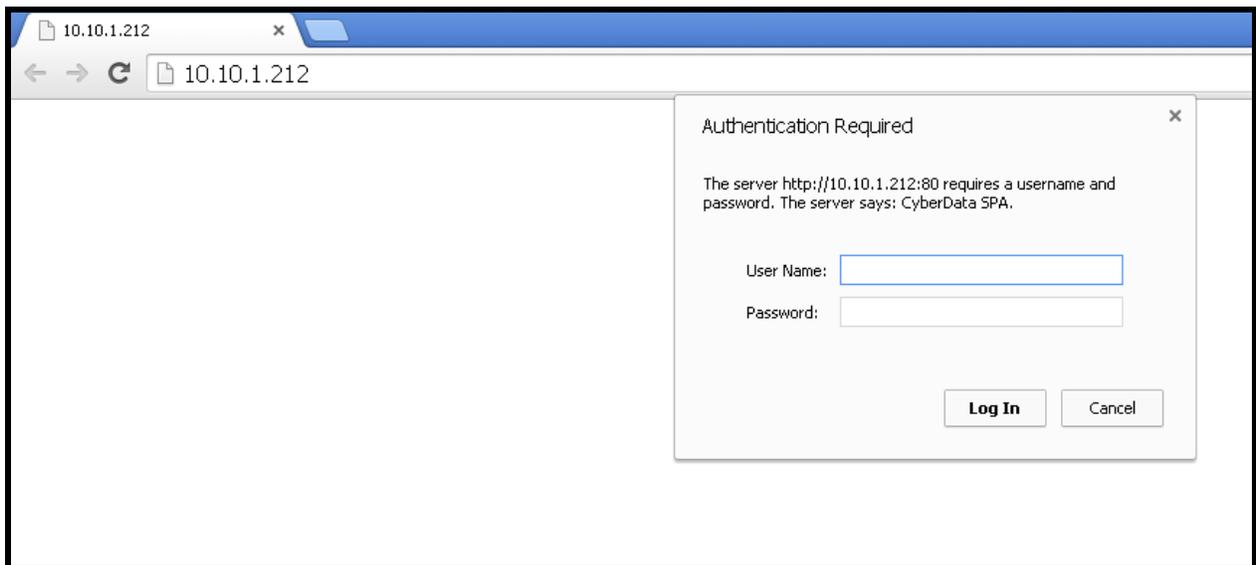
If you are configuring through the web interface, use the following steps to login to the web interface of your CyberData device.

1. Click **Launch Browser** from the CyberData Discovery Utility or point your browser to the CyberData device's IP address to access the Home Page of the web interface.
2. Enter the default credentials when prompted and click the **Log In** button.

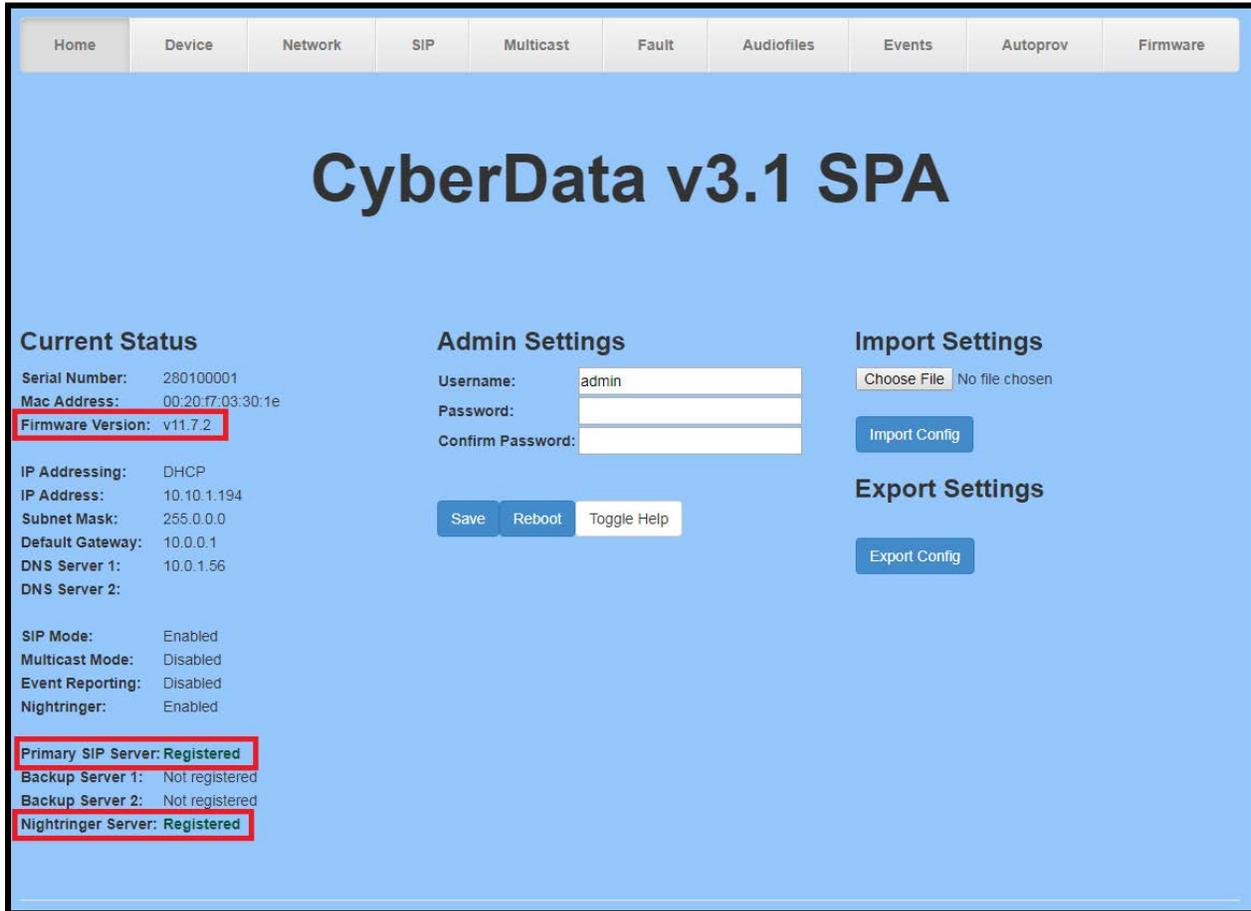
Username: admin

Password: admin

**Figure 5-10. Web Interface Login**



**Figure 5-17. Home Page of SPA Web Interface**



3. On the Home Page, click **SIP Config** on the left-hand side of your screen to access the SIP Configuration page.

**Note:** The firmware version and registration status for the primary extension and Nightringer extensions appear here.

4. Enter the provisioning information from the [Generic Paging Device Provisioning](#) popup window. Note the *Local SIP Port* is set to 5060 on default and is used by the SPA as its source port for the paging extension configured on this page.

5. Set the *Re-registration Interval (in seconds)* to **30 seconds**.

6. Set the *Keep Alive Period* to **0**.

7. Enable *Force Codec Selection* and use **PCMU**.

8. Click **Save** and **Reboot** to store changes.

Figure 5-18. SIP Configuration

The screenshot shows the configuration page for a CyberData v3.1 SPA. The interface has a top navigation bar with tabs: Home, Device, Network, SIP (selected), Multicast, Fault, Audiofiles, Events, Autopro, and Firmware. The main title is "CyberData v3.1 SPA".

**SIP Settings**

- Enable SIP operation:
- Register with a SIP Server:
- Use Cisco SRST:
- Primary SIP Server: sip.ringcentral.com
- Primary SIP User ID: 18312234700\*803301850011
- Primary SIP Auth ID: 803301850011
- Primary SIP Auth Password: .....
- Backup SIP Server 1: [ ]
- Backup SIP User ID 1: [ ]
- Backup SIP Auth ID 1: [ ]
- Backup SIP Auth Password 1: [ ]
- Backup SIP Server 2: [ ]
- Backup SIP User ID 2: [ ]
- Backup SIP Auth ID 2: [ ]
- Backup SIP Auth Password 2: [ ]
- Remote SIP Port: 5060
- Local SIP Port: 5060
- Outbound Proxy: sip20.ringcentral.com
- Outbound Proxy Port: 5090
- Disable rport Discovery:
- Buffer SIP Calls:
- Re-registration Interval (in seconds): 30
- Unregister on Boot:
- Keep Alive Period: 0

**Nighthringer Settings**

- Enable Nighthringer:
- SIP Server: 10.0.0.253
- Remote SIP Port: 5060
- Local SIP Port: 5061
- Outbound Proxy: [ ]
- Outbound Proxy Port: 0
- User ID: 241
- Authenticate ID: 241
- Authenticate Password: .....
- Re-registration Interval (in seconds): 360

**Call Disconnection**

- Terminate Call after delay: 0

**Codec Selection**

- Force Selected Codec:
- Codec: PCMU (G.711, u-law)

**RTP Settings**

- RTP Port: 10500
- (even): [ ]
- Jitter: 50
- Buffer: [ ]

At the bottom, there are three buttons: Save (highlighted with a green box), Reboot, and Toggle Help.

## Autoprovisioning

If you are autoprovisioning the SPA, use the SIP Settings in the autoprovisioning template to register the SPA with RingCentral.

An autoprovisioning template is provided in the respective firmware folder available on the **Downloads** tab of the product webpage here:

<http://www.cyberdata.net/voip/011233/>

Be sure to use the autoprovisioning template for the firmware version running on the SPA. The firmware version can be verified on the [Home page of the web interface](#).

Refer to the Operations Guide for instructions on autoprovisioning configuration.

**Figure 5-19. Autoprovisioning Template Example – SIP Settings**

```

<SIPSettings>
  <EnableSIPOperation>Yes</EnableSIPOperation>
  <SIPServer>sip.ringcentral.com</SIPServer>
  <RemoteSIPPort>5060</RemoteSIPPort>
  <BackupSIPServer1></BackupSIPServer1>
  <BackupSIPServer2></BackupSIPServer2>
  <LocalSIPPort>5060</LocalSIPPort>
  <OutboundProxy>sip20.ringcentral.com</OutboundProxy>
  <OutboundProxyPort>5090</OutboundProxyPort>
  <SIPUserID>18312234700*194773016011</SIPUserID>
  <SIPAuthID>194773016011</SIPAuthID>
  <SIPAuthPassword>*****</SIPAuthPassword>
  <SIPRegistrationTimeout>30</SIPRegistrationTimeout>
  <SIPUnregisterOnBoot>No</SIPUnregisterOnBoot>
  <SIPRegisterOnBoot>Yes</SIPRegisterOnBoot>
  <BufferSIPCalls>No</BufferSIPCalls>
  <RTPPort>10500</RTPPort>
  <CallTimeout>0</CallTimeout>
  <UseCiscoSRST>No</UseCiscoSRST>
  <DisableRportDiscovery>No</DisableRportDiscovery>
  <KeepAlive>0</KeepAlive>
</SIPSettings>

```

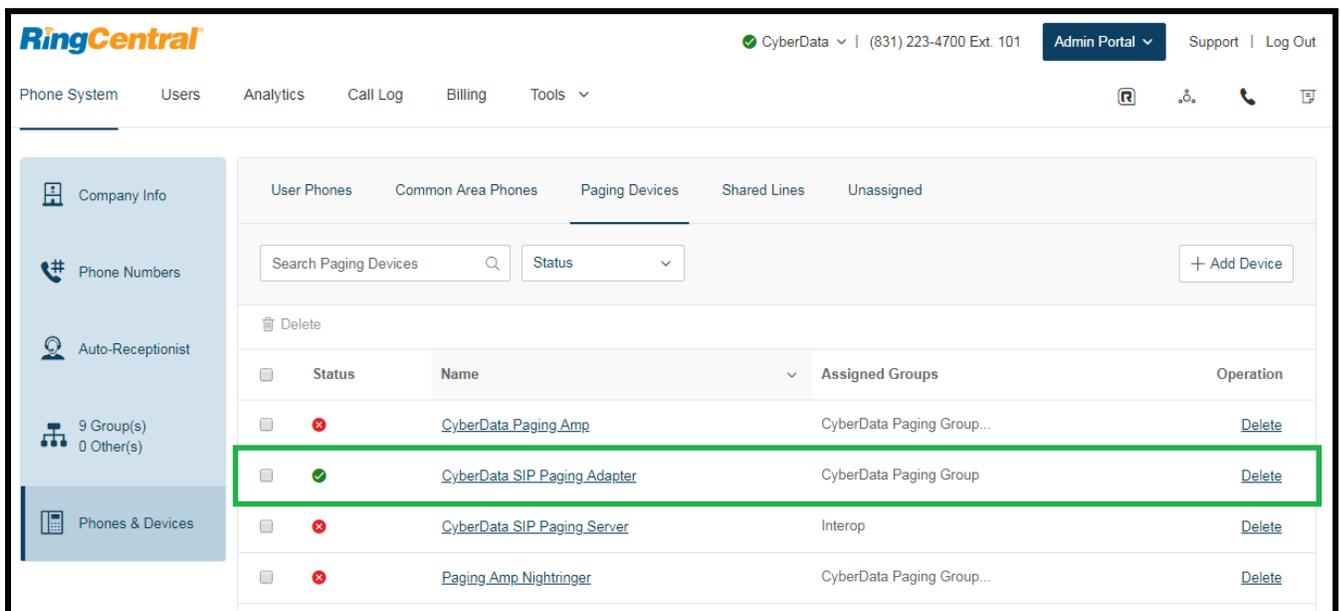
**Note:** These example values are published only for reference. The SIPAuthPassword value should be the actual value from the [Generic Paging Device Provisioning](#) popup window.

### Verify the Paging Extension is Registered

After the SPA has rebooted and initialized to store changes, refresh the Home page of the web interface. Your device should show as **[Registered with SIP Server]** in green text on the bottom of the Home Page of the web interface as well as at the top of the SIP Configuration page next to *Enable SIP Operation*. See [Figure 5-17](#) and [Figure 5-18](#).

Additionally, you may verify the paging extension is registered with RingCentral through the Admin Portal. From the **Phones & Devices** menu, select **Devices** and the Paging Device you just created for the SPA. The status should show as “online” in the **Device Details**.

Figure 5-20. Device Details – Status



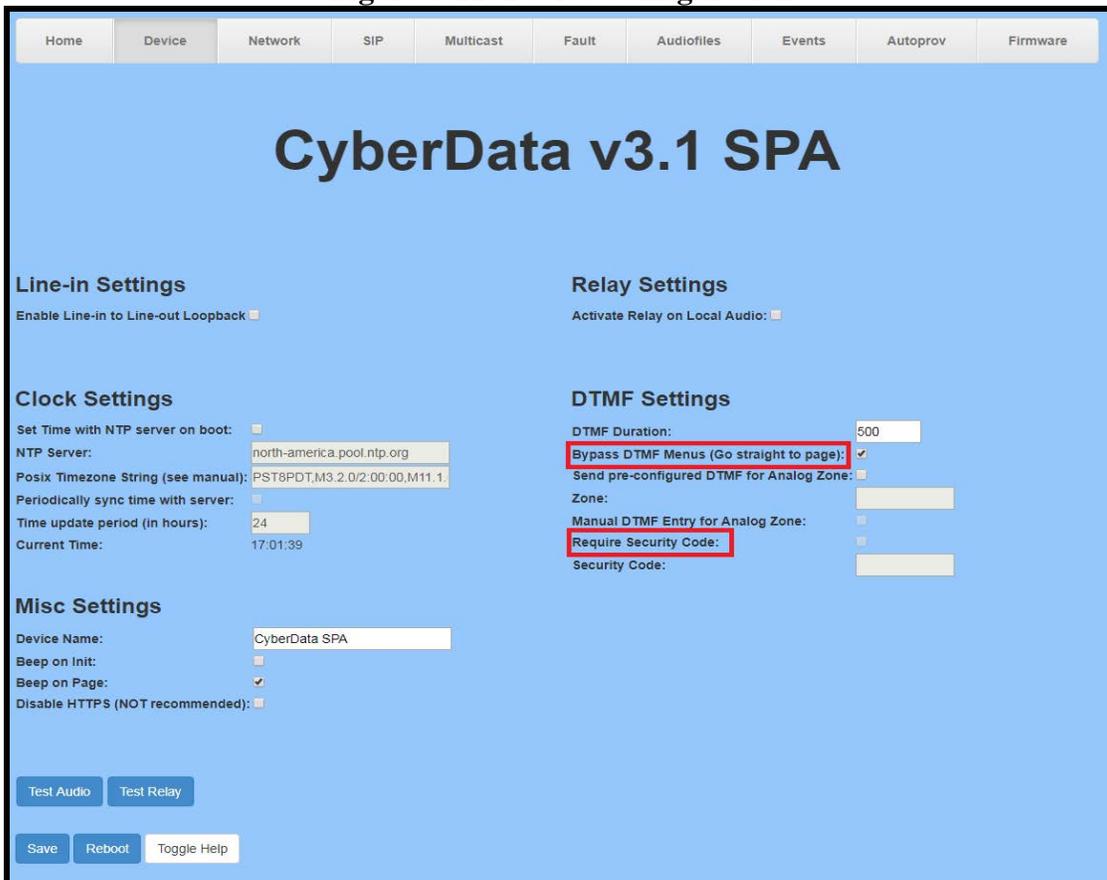
## Bypass Voice-Prompted Paging Menu

There is one final step after registering the paging extension for auto-answer paging. On default, a caller to the SPA's primary extension will be voice-prompted to enter digits into an IP phone for paging menu selections. The paging menu also prompts the the opportunity to enter a security code if enabled.

When provisioned as a RingCentral Paging Device, it is necessary to configure the SPA to bypass the paging menu and disable the Security Code (disabled on default) in order to allow the SPA to auto-answer calls to the RingCentral Paging Only group for live paging. Otherwise, the SPA will wait to receive paging menu selections that are not possible to send to a Paging Device. This results in a failed page. RingCentral Paging Devices cannot receive DTMF digits during a call to the Paging Only group.

The necessary settings to disable are located on the **Device Configuration** page of the web interface. Make sure the *Bypass DTMF Menus (Go straight to page)* is checked and *Require Security Code* is unchecked (unchecked on default) or else pages to the SPA will not be played out of the attached analog devices.

Figure 5-21. Device Configuration



Alternately, set *Bypass DTMF* to **Yes** and *Use Security Code* to **No** under **DeviceSettings** in the autoprovisioning template if you are autoprovisioning the SPA.

**Figure 5-22. Autoprovisioning Template Example – Device Settings**

```

<DeviceSettings>
  <DisableHTTPS>Yes</DisableHTTPS>
  <ActivateRelayOnLocalAudio>No</ActivateRelayOnLocalAudio>
  <BeepOnInitialization>No</BeepOnInitialization>
  <BeepBeforePage>No</BeepBeforePage>
  <EnableLineLoopback>No</EnableLineLoopback>
  <DTMFDuration>500</DTMFDuration>
  <BypassDTMF>Yes</BypassDTMF>
  <AllowZoneEntry>No</AllowZoneEntry>
  <UseSecurityCode>No</UseSecurityCode>
  <PageSecurityCode></PageSecurityCode>
</DeviceSettings>

```

**Note:** While a security code cannot be used when the SPA’s primary extension is provisioned as a Paging Device, you can restrict users allowed to page through the [Paging Only group’s Paging menu](#) in the RingCentral Admin Portal.

### Beep on Page

RingCentral sends a beep before transmitting the voice page made by the caller to the Paging Only group. It is not necessary to enable *Beep on Page*, also known as *BeepBeforePage* in the autoprovisioning template, on the SPA. This setting is disabled on default.

If you are hearing an unusual sounding beep before voice pages play when making a call to the Paging Only group, disable the SPA’s *Beep on Page*.

This setting is located on the **Device Configuration** page of the web interface (see [Figure 5-21](#)). It is also listed under **DeviceSettings** in the autoprovisioning template (see [Figure 5-22](#)).

### Make a Test Call

Once your primary extension has registered with RingCentral, you may use any allowed RingCentral phone to dial the paging extension.

## 6.0 Configuration Procedure: Voice-Prompted Paging

When an installation requires more flexibility than auto-answer live paging, the SPA's primary extension can be provisioned as an IP phone associated with a user extension. Provisioning as a IP Phone allows the caller to receive audio from the SPA to hear voice prompts from the SPA's paging menu or enter DTMF digits for paging menu selections.

Provision the SPA's extension as an IP phone to enable the following features:

- Playing up to 9 configurable stored pages
- Security code

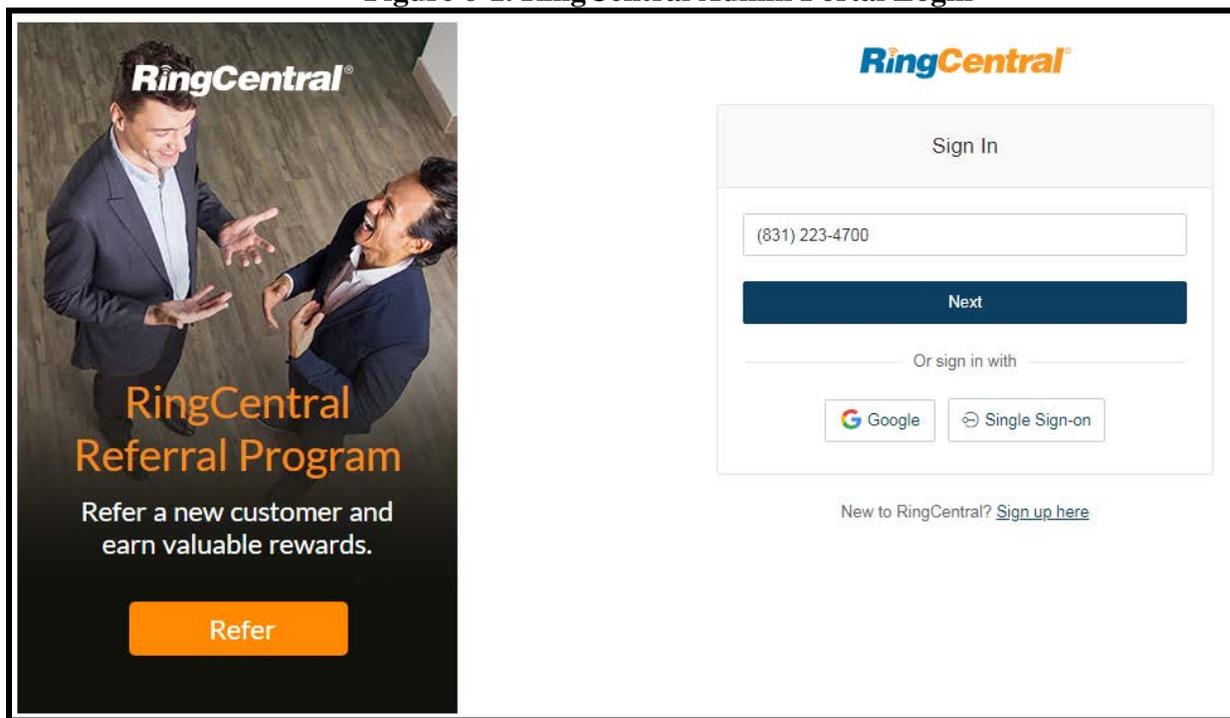
### Add an IP Phone

This section describes the process of creating a user, provisioning an IP phone, and registering the primary extension that you will use for paging with RingCentral. First, you must designate a RingCentral User for the SPA.

Use the following steps to create a user and provision an IP phone for the primary extension through the RingCentral Admin Portal.

1. Login to the RingCentral Admin Portal at <https://service.ringcentral.com>.

Figure 6-1. RingCentral Admin Portal Login



2. Select **Users**, and then press the **Add User** button.

**Figure 5-2. Add User Button**

The screenshot shows the RingCentral Admin Portal interface. The 'Users' tab is selected in the top navigation bar. On the left sidebar, 'User list' is highlighted. The main content area shows a table of users with columns for Status, Name, Number, Ext., Roles, Department, and Msg. A '+ Add User' button is highlighted with a green box in the top right corner of the user list area.

Status	Name	Number	Ext.	Roles	Department	Msg.	
Available	Available User2		945	Standard (Intern...		0 / 0	Disable
➔	Cameron Device	(831) 272-0654	934	Standard (Intern...		0 / 0	Resend Invite   Delete
➔	Cameron Nightr...	(831) 272-0641	935	Standard (Intern...		0 / 0	Resend Invite   Delete
Available	Cameron Snom	(831) 233-3994	932	Super Admin		3 / 3	Disable
Available	CyberData Cor...	(303) 872-5806	101	Super Admin		9 / 9	
Available	Group User		943	Standard (Intern...		3 / 3	Disable
Available	Interop Polyc...	(831) 975-2610	104	Standard (Intern...		1 / 1	Disable
Available	Interop Snom360	(831) 233-3992	103	Super Admin		5 / 5	
Available	Interop Strobe	(669) 900-4551	942	Standard (Intern...		1 / 1	Disable
Available	Kenny_phone 2	(831) 741-4265	938	Standard (Intern...		2 / 2	Disable
Available	Kenny_phone 3	(831) 272-0630	939	Standard (Intern...		6 / 6	Disable

3. A popup window labeled **Add User** will appear. Select a location then press **Next**.

**Figure 5-3. Add User Popup**

The screenshot shows a modal window titled "Add Users" with a close button (X) in the top right corner. Below the title is a progress indicator with four steps: "1 Location", "2 Add Users", "3 Shipping Address", and "4 Confirmation". The "1 Location" step is currently active and underlined. The main content area is titled "Select a Location" and contains two radio button options: "Domestic" (which is selected) and "International". At the bottom right of the modal, there are two buttons: "Cancel" and "Next". The "Next" button is highlighted with a green rectangular border.

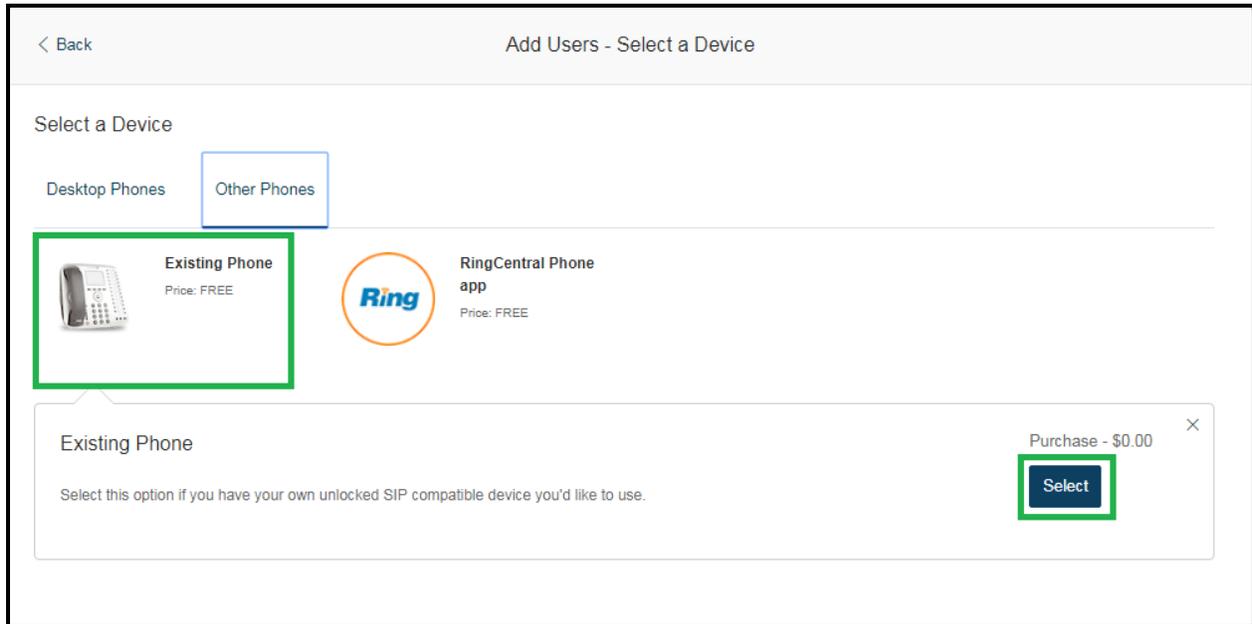
4 In the subsection **Add Users with Phones**, select the number of users, state, area code, and device.

**Figure 5-4. Pick a Phone Number**

The screenshot shows the "Add Users" modal window at step 2, "Add Users". The progress indicator shows "1 Location" as completed with a checkmark, and "2 Add Users" as the current step. Below the progress bar are two tabs: "Add Users With Phones" (which is selected) and "Add Users Without Phones". Under the "Add Users With Phones" tab, there is a section titled "Account Status" with the following information: "Your plan: 20 - 99 Users", "Used: 25", "Available: 0", and "Available for purchase: 74". Below this is a note: "You can add multiple users at a time if they will all use the same area code. [Learn More](#)". At the bottom of the form, there are four input fields: "Number of Users" (containing the value "1"), "State" (a dropdown menu with "Select" visible), "Area Code" (a dropdown menu with "Select" visible), and "Device" (a dropdown menu with "Select a Device... >" visible). The "Number of Users", "State", and "Area Code" fields are highlighted with a yellow border, and the "Device" field is highlighted with a green border. To the right of these fields is a grey "Add" button. At the bottom right of the modal, there are "Back" and "Next" buttons.

5. You will be asked to select a phone type. Choose **Other Phones**, and then make sure **Existing Phone** is selected. Press **Select**.

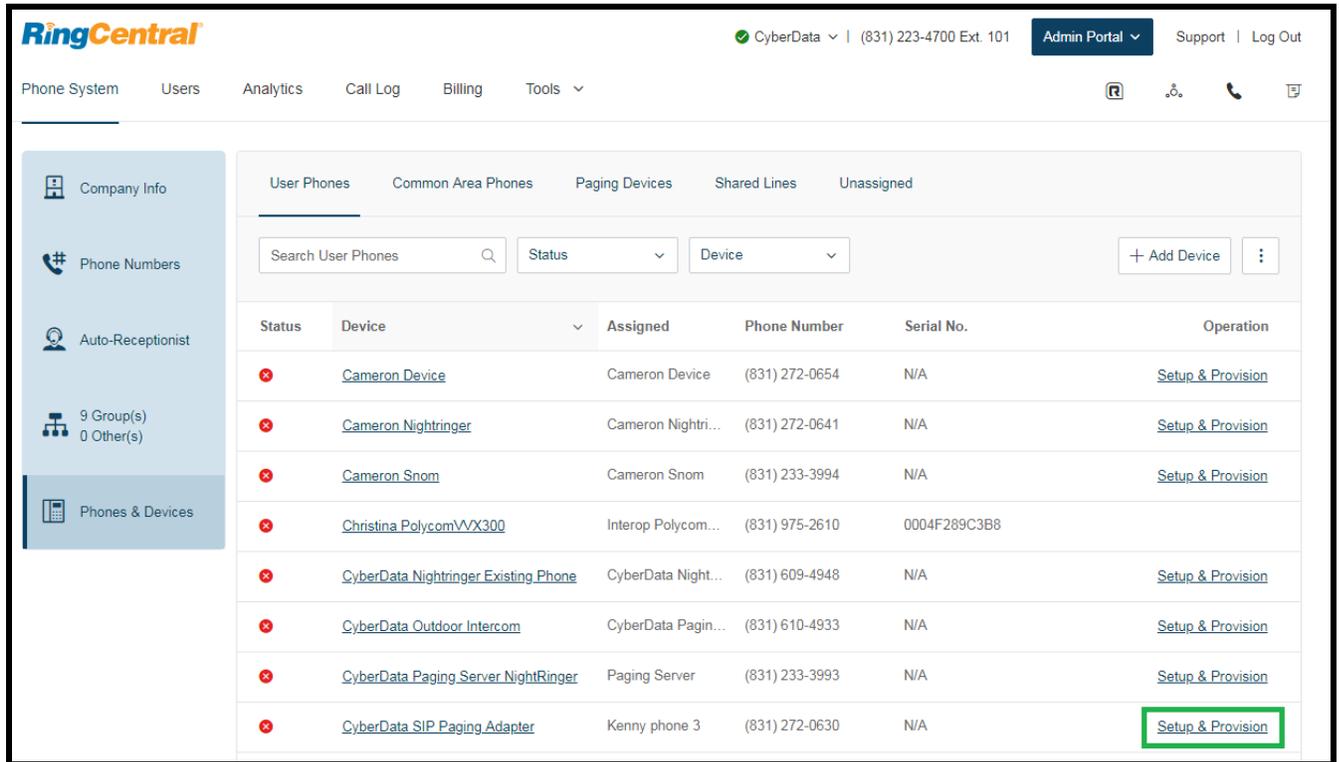
**Figure 5-5. Select Phone Type**



6. Next, you will be taken to a six-step ordering process to set up a RingCentral Digital Line. Click the **Select** button to choose an **Existing Phone** and follow the steps in the ordering window to complete your order.

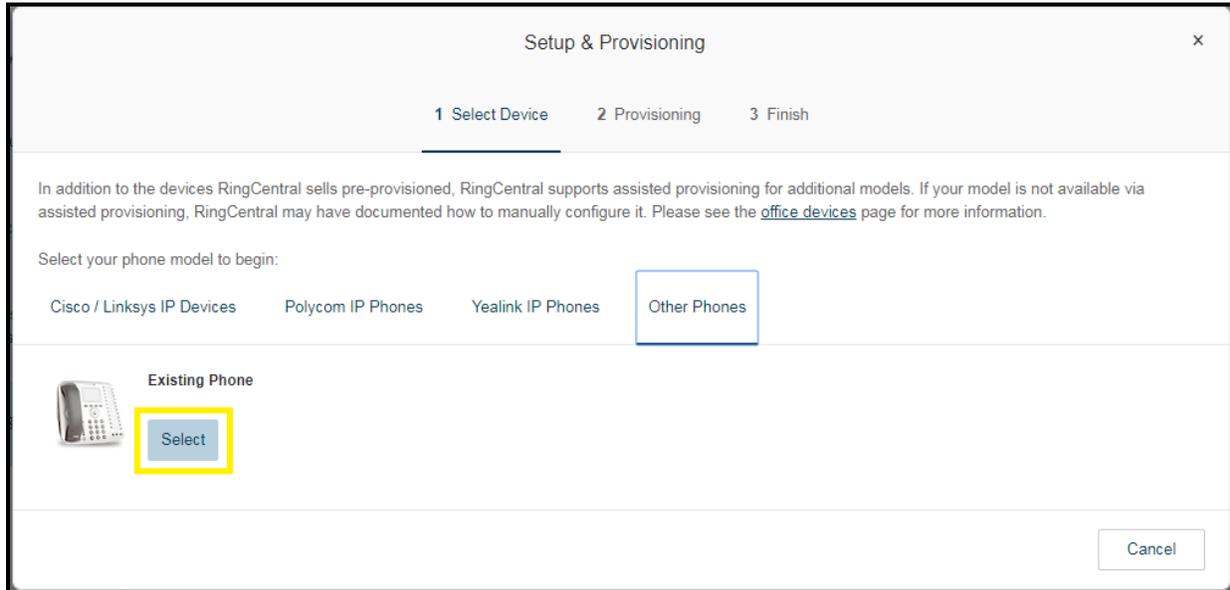
- From the **Phones & Devices** menu, select **User Phones** and select the user phone designated for the paging server. Click **Setup and Provision**.

**Figure 5-6. Setup and Provision**



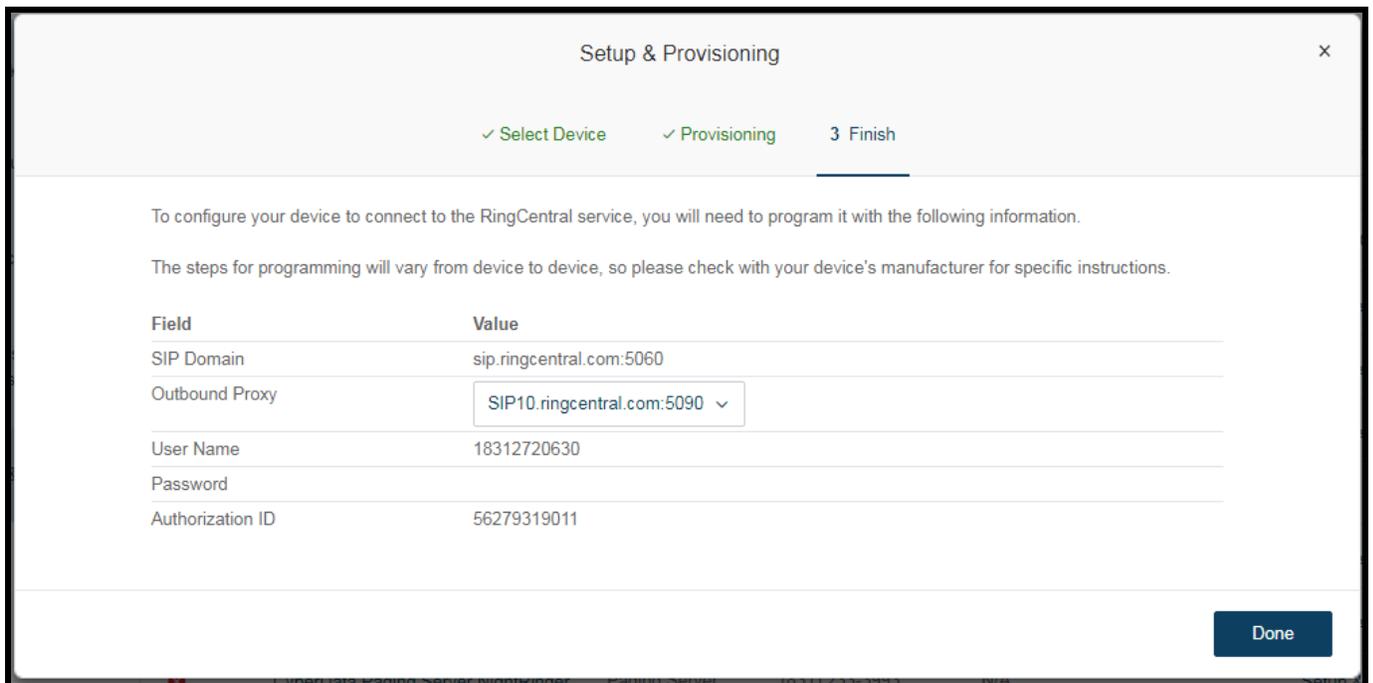
- A popup window labeled **Assisted provisioning – Step 1** will appear. Select **Other Phone** and click **Next**.

**Figure 6-8. Assisted provisioning – Step 1**



9. A popup window labeled **Assisted Generic IP Phone/Adaptor Provisioning** will appear. You will use the provisioning information to register the primary extension with RingCentral.

**Figure 6-9. IP Phone Provisioning Information**



**Note:** The Password has been obscured. These values are published only for reference.

## SIP Fields Table

Use the following table to determine how the RingCentral SIP field values above correlate to the CyberData SIP field values.

**Table 6-1. SIP Fields Table**

CyberData SIP Field	RingCentral SIP Field
SIP Server	SIP Domain (without colon and port number)
SIP User ID	User Name
Authenticate ID	Authorization ID
Authenticate Password	Password
Outbound Proxy	Outbound Proxy address before colon
Outbound Proxy Port	Port number following colon in Outbound Proxy address

## Configure SIP Parameters

If you are configuring through the web interface, use the following steps to login to the web interface of your SPA and register the primary extension with RingCentral.

1. Click **Launch Browser** from the CyberData Discovery Utility or point your browser to the CyberData device's IP address to access the Home Page of the web interface.
2. Enter the web login credentials when prompted and click the **Log In** button.
3. On the Home Page, click **SIP Config** on the left-hand side of your screen to access the SIP Configuration page.
4. Enter the provisioning information from the [Assisted Generic IP Phone Provisioning](#) popup window. Use [Table 6-1](#) to enter RingCentral SIP values into the proper CyberData SIP fields.

Note the *Local SIP Port* is set to 5060 on default and is used by the SPA as its source port for the primary extension configured on this page.

5. Set the *Re-registration Interval (in seconds)* to **30 seconds**.
6. Set the *Keep Alive Period* to **0**.

7. Enable *Force Codec Selection* and use **PCMU**.
8. Click **Save** and **Reboot** to store changes.

**Figure 6-10. SIP Configuration**

The screenshot displays the configuration page for a CyberData v3.1 SPA. The interface is divided into several sections:

- SIP Settings:** Includes checkboxes for 'Enable SIP operation', 'Register with a SIP Server', and 'Use Cisco SRST'. Primary fields are filled with: Primary SIP Server: sip.ringcentral.com, Primary SIP User ID: 18312720630, Primary SIP Auth ID: 56279319011, and Primary SIP Auth Password: \*\*\*\*\*. Backup fields are empty. Remote SIP Port: 5060, Local SIP Port: 5060, Outbound Proxy: sip20.ringcentral.com, and Outbound Proxy Port: 5090. Other options include 'Disable rport Discovery', 'Buffer SIP Calls', 'Re-registration Interval (in seconds): 30', 'Unregister on Boot', and 'Keep Alive Period: 0'.
- Nightringer Settings:** Includes 'Enable Nightringer' (unchecked), SIP Server: 10.0.0.253, Remote SIP Port: 5060, Local SIP Port: 5061, Outbound Proxy (empty), Outbound Proxy Port: 0, User ID: 241, Authenticate ID: 241, Authenticate Password: \*\*\*\*\*, and Re-registration Interval (in seconds): 360.
- Call Disconnection:** 'Terminate Call after delay' is set to 0.
- Codec Selection:** 'Force Selected Codec' is checked, and the Codec is set to PCMU (G.711, u-law).
- RTP Settings:** RTP Port (even) is 10500, Jitter is 50, and Buffer is empty.

At the bottom, there are buttons for 'Save', 'Reboot', and 'Toggle Help'.

## Autoprovisioning

If you are autoprovisioning the paging server, use the SIP Settings in the autoprovisioning template to register the primary extension with RingCentral.

**Figure 6-11. Autoprovisioning Template Example – SIP Settings**

```
<SIPSettings>
  <EnableSIPOperation>Yes</EnableSIPOperation>
  <SIPServer>sip.ringcentral.com</SIPServer>
  <RemoteSIPPort>5060</RemoteSIPPort>
  <BackupSIPServer1></BackupSIPServer1>
  <BackupSIPServer2></BackupSIPServer2>
  <LocalSIPPort>5060</LocalSIPPort>
  <OutboundProxy>sip20.ringcentral.com</OutboundProxy>
  <OutboundProxyPort>5090</OutboundProxyPort>
  <SIPUserID>18312720630</SIPUserID>
  <SIPAuthID>56279319011</SIPAuthID>
  <SIPAuthPassword>*****</SIPAuthPassword>
  <SIPUserID2></SIPUserID2>
  <SIPAuthID2></SIPAuthID2>
  <SIPAuthPassword2></SIPAuthPassword2>
  <SIPUserID3></SIPUserID3>
  <SIPAuthID3></SIPAuthID3>
  <SIPAuthPassword3></SIPAuthPassword3>
  <SIPRegistrationTimeout>30</SIPRegistrationTimeout>
  <SIPRegisterOnBoot>Yes</SIPRegisterOnBoot>
  <BufferSIPCalls>No</BufferSIPCalls>
  <RTPPort>10500</RTPPort>
  <JitterBuffer>50</JitterBuffer>
  <CallTimeout>0</CallTimeout>
  <UseCiscoSRST>No</UseCiscoSRST>
  <DisableRportDiscovery>No</DisableRportDiscovery>
  <NatPingOptions>No</NatPingOptions>
  <KeepAlive>0</KeepAlive>
  <DefaultCodec>1</DefaultCodec>
</SIPSettings>
```

**Note:** These example values are published only for reference. The SIPAuthPassword value should be the actual value from the [Assisted Generic IP Phone Provisioning](#) popup window.

## Verify the Primary Extension Is Registered

After the SPA has rebooted and initialized to store changes, refresh the Home page of the web interface. Your device should show as **[Registered with SIP Server]** in green text on the bottom of the Home Page of the web interface as well as at the top of the SIP Configuration page next to *Enable SIP Operation*. See [Figure 5-17](#) and [Figure 6-10](#).

Additionally, you may verify the primary extension is registered with RingCentral through the Admin Portal. From the **Phones & Devices** menu, select **User Phones** and the IP Phone you just created for the SPA. The status should show as “online” in the **Phone Details**.

**Figure 6-12. Phone Details – Status**

The screenshot shows the RingCentral Admin Portal interface. The left sidebar contains navigation options: Company Info, Phone Numbers, Auto-Receptionist, 9 Group(s) / 0 Other(s), and Phones & Devices. The main content area is titled 'User Phones' and includes a search bar and filter options for Status and Device. Below this is a table listing various devices. The last row, 'CyberData SIP Paging Adapter', is highlighted with a yellow border and shows a green checkmark in the Status column, indicating it is registered.

Status	Device	Assigned	Phone Number	Serial No.	Operation
✖	<a href="#">Cameron Device</a>	Cameron Device	(831) 272-0654	N/A	<a href="#">Setup &amp; Provision</a>
✖	<a href="#">Cameron Nightringer</a>	Cameron Nightri...	(831) 272-0641	N/A	<a href="#">Setup &amp; Provision</a>
✖	<a href="#">Cameron Snom</a>	Cameron Snom	(831) 233-3994	N/A	<a href="#">Setup &amp; Provision</a>
✖	<a href="#">Christina Polycom/VX300</a>	Interop Polycom...	(831) 975-2610	0004F289C3B8	
✖	<a href="#">CyberData Nightringer Existing Phone</a>	CyberData Night...	(831) 609-4948	N/A	<a href="#">Setup &amp; Provision</a>
✖	<a href="#">CyberData Outdoor Intercom</a>	CyberData Pagin...	(831) 610-4933	N/A	<a href="#">Setup &amp; Provision</a>
✖	<a href="#">CyberData Paging Server NightRinger</a>	Paging Server	(831) 233-3993	N/A	<a href="#">Setup &amp; Provision</a>
✔	<a href="#">CyberData SIP Paging Adapter</a>	Kenny phone 3	(831) 272-0630	N/A	<a href="#">Setup &amp; Provision</a>

## Verify Paging Menu Is Enabled

Before making a test call, be sure to verify the paging menu is enabled. The setting *Bypass DTMF Menus (Go straight to page)* is located on the **Device Configuration** page of the web interface. Make sure this setting is unchecked. On default, *Bypass DTMF Menus (Go straight to page)* is disabled.

Figure 6-13. Enabled Paging Menu

The screenshot shows the CyberData v3.1 SPA web interface. At the top, there is a navigation menu with tabs: Home, Device, Network, SIP, Multicast, Fault, Audiofiles, Events, Autoprov, and Firmware. The 'Device' tab is selected. The main heading is 'CyberData v3.1 SPA'. Below this, there are four main sections: Line-in Settings, Relay Settings, Clock Settings, and DTMF Settings. The 'DTMF Settings' section is highlighted with a red box around the 'Bypass DTMF Menus (Go straight to page)' checkbox, which is currently unchecked. Other settings in the DTMF section include DTMF Duration (500), Send pre-configured DTMF for Analog Zone (unchecked), Zone (empty), Manual DTMF Entry for Analog Zone (unchecked), Require Security Code (checked), and Security Code (masked with dots). The 'Line-in Settings' section has 'Enable Line-in to Line-out Loopback' (unchecked). The 'Relay Settings' section has 'Activate Relay on Local Audio' (unchecked). The 'Clock Settings' section includes 'Set Time with NTP server on boot' (unchecked), 'NTP Server' (north-america.pool.ntp.org), 'Posix Timezone String (see manual):' (PST8PDT,M3.2.0/2:00:00,M11.1.), 'Periodically sync time with server' (unchecked), 'Time update period (in hours):' (24), and 'Current Time:' (17:28:34). The 'Misc Settings' section includes 'Device Name:' (CyberData SPA), 'Beep on Init:' (unchecked), 'Beep on Page:' (checked), and 'Disable HTTPS (NOT recommended):' (unchecked). At the bottom, there are buttons for 'Test Audio', 'Test Relay', 'Save', 'Reboot', and 'Toggle Help'.

If you are autoprovisioning the SPA, set *Bypass DTMF* to **No** under **DeviceSettings** in the autoprovisioning template.

**Figure 6-14. Autoprovisioning Example – Enabled Paging Menu**

```
<DeviceSettings>
  <DisableHTTPS>Yes</DisableHTTPS>
  <ActivateRelayOnLocalAudio>No</ActivateRelayOnLocalAudio>
  <BeepOnInitialization>No</BeepOnInitialization>
  <BeepBeforePage>Yes</BeepBeforePage>
  <EnableLineLoopback>No</EnableLineLoopback>
  <DTMFDuration>500</DTMFDuration>
  <BypassDTMF>No</BypassDTMF>
  <AllowZoneEntry>No</AllowZoneEntry>
  <UseSecurityCode>Yes</UseSecurityCode>
  <PageSecurityCode>12345</PageSecurityCode>
</DeviceSettings>
```

### Make a Test Call

Once your primary extension has registered with RingCentral and you have configured the appropriate Device settings for the installation, you may use any RingCentral phone to dial the primary extension.

## 7.0 Configuration Procedure: Nightringer

### What is a Nightringer?

The CyberData SIP Paging Adapter offers a secondary SIP extension called **Nightringer** in addition to the primary extension used for paging.

The Nightringer plays a customizable ring tone when an incoming call is detected. The Nightringer extension can be added to ring groups for simultaneous ringing. When added to a ring group, the Nightringer will ring until a ring group member picks up the call. The Nightringer stops ringing when the call is answered by a ring group member or when the caller disconnects before a ring group member picks up the call. The Nightringer extension cannot answer a call.

### Provisioning Nightringer with RingCentral

Provisioning a Nightringer extension with RingCentral requires creating a user and provisioning an IP phone in the same manner as the primary extension in [Section 6.0 "Configuration Procedure: Voice-Prompted Paging"](#). Therefore, if you plan to use the Nightringer extension in addition to voice prompted paging, then you will need a total of two RingCentral users associated with IP Phones.

It is important to note the Primary Extension and Nightringer Extension must use separate sets of SIP extension parameters. That is, each must be assigned their own SIP extension. The Nightringer cannot use the same provisioning information already in use by the Primary Extension (and vice versa).

To be clear, when integrating with RingCentral the Nightringer extension must be provisioned as an IP phone rather than a Paging Device in order to allow the Nightringer to ring.

If the Nightringer is provisioned and registered as a Paging Device, the Nightringer will only ring for 2 seconds before the call is cancelled by the RingCentral server. Thus, it is necessary to provision the Nightringer as an IP phone for full functionality. Please consult with RingCentral for costs associated with IP phone provisioning on your account.

Once you have created a user and associated an IP phone for the Nightringer extension, refer to the popup window labeled **Assisted Generic IP Phone/Adaptor Provisioning** that appears after following assisted provisioning steps for the Nightringer. You will use the provisioning information to register the Nightringer extension with RingCentral.

## Add an IP Phone

To provision the amplifier's Nightringer extension, add a RingCentral Existing Phone through the RingCentral Admin Portal.

First, you must designate a RingCentral User for the Nightringer.

1. From the [n] Users menu, click the Add button.

Figure 6-1. Add User Button

The screenshot shows the RingCentral Admin Portal interface. The 'Users' menu item is highlighted with a yellow box. The '+ Add User' button is highlighted with a green box. The main content area displays a table of users with columns for Status, Name, Number, Ext., Roles, Department, and Msg. The table contains five rows of user data.

Status	Name	Number	Ext.	Roles	Department	Msg.	
✓	Available User2		945	Standard (Intern...		0 / 0	Disable
➕	Cameron Device	(831) 272-0654	934	Standard (Intern...		0 / 0	Resend Invite   Delete
➕	Cameron Nightr...	(831) 272-0641	935	Standard (Intern...		0 / 0	Resend Invite   Delete
✓	Cameron Snom	(831) 233-3994	932	Super Admin		3 / 3	Disable
✓	CyberData Cor...	(303) 872-5806	101	Super Admin		9 / 9	

2. A popup window labeled **Add User** will appear. Choose the user location then press **next**.

**Figure 6-2. Add User Location**

The screenshot shows a modal window titled "Add Users" with a close button (X) in the top right corner. Below the title is a progress indicator with four steps: "1 Location", "2 Add Users", "3 Shipping Address", and "4 Confirmation". The "1 Location" step is currently active and underlined. The main content area contains the text "Select a Location" followed by two radio button options: "Domestic" (which is selected) and "International". At the bottom right of the window, there are two buttons: "Cancel" and "Next". The "Next" button is highlighted with a green border.

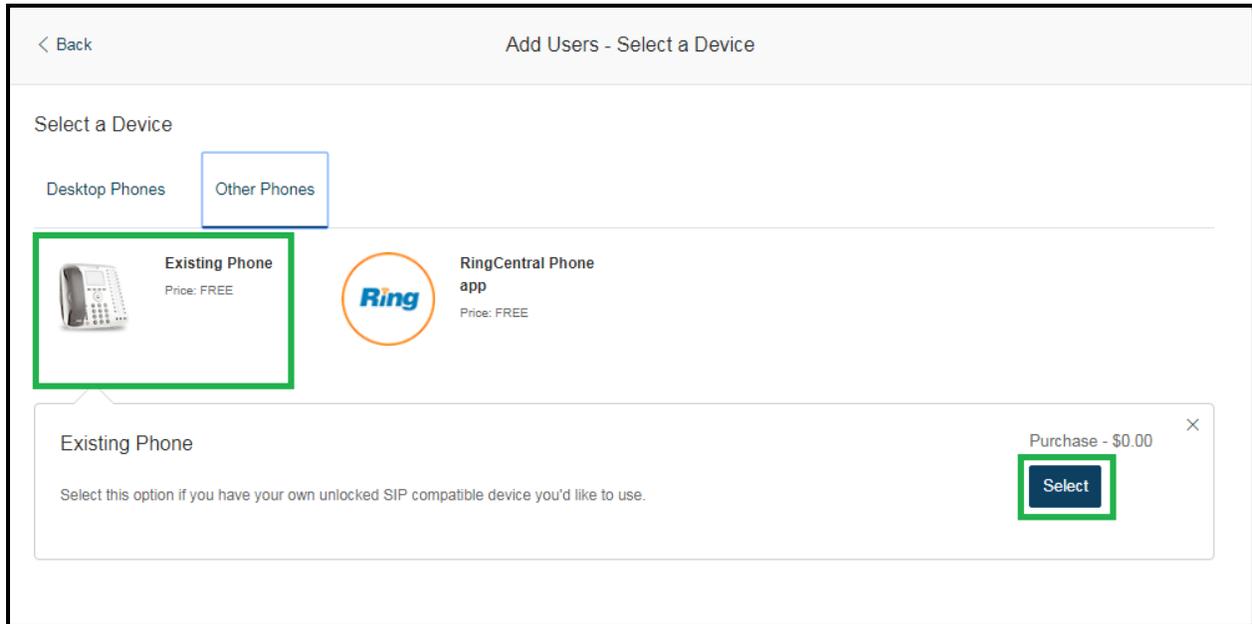
3. In the subsection **Add Users with Phones**, select the number of users, state, area code, and device.

**Figure 6-3. Add User Phone Number**

The screenshot shows the 'Add Users' configuration interface. At the top, there is a progress bar with four steps: 'Location', '2 Add Users', '3 Shipping Address', and '4 Confirmation'. Below this, there are two tabs: 'Add Users With Phones' (selected) and 'Add Users Without Phones'. Under the 'Add Users With Phones' tab, there is an 'Account Status' section showing 'Your plan: 20 - 99 Users', 'Used: 25', 'Available: 0', and 'Available for purchase: 74'. Below the account status, there is a note: 'You can add multiple users at a time if they will all use the same area code. [Learn More](#)'. The main form area contains four fields: 'Number of Users' (input field with '1'), 'State' (dropdown menu with 'Select'), 'Area Code' (dropdown menu with 'Select'), and 'Device' (dropdown menu with 'Select a Device... >'). The 'Number of Users', 'State', and 'Area Code' fields are highlighted with a yellow border, and the 'Device' field is highlighted with a green border. To the right of the 'Device' field is an 'Add' button. At the bottom right of the form, there are 'Back' and 'Next' buttons.

4. You will be asked to select a phone type. Click the **Select** button to choose an **Existing Phone**. Select **Existing Phone**.

**Figure 6-4. Select Phone Type**



- From the **Phones & Devices** menu, select **User Phones** and the select the user phone designated for the Nightringer. Click **Setup and Provision**.

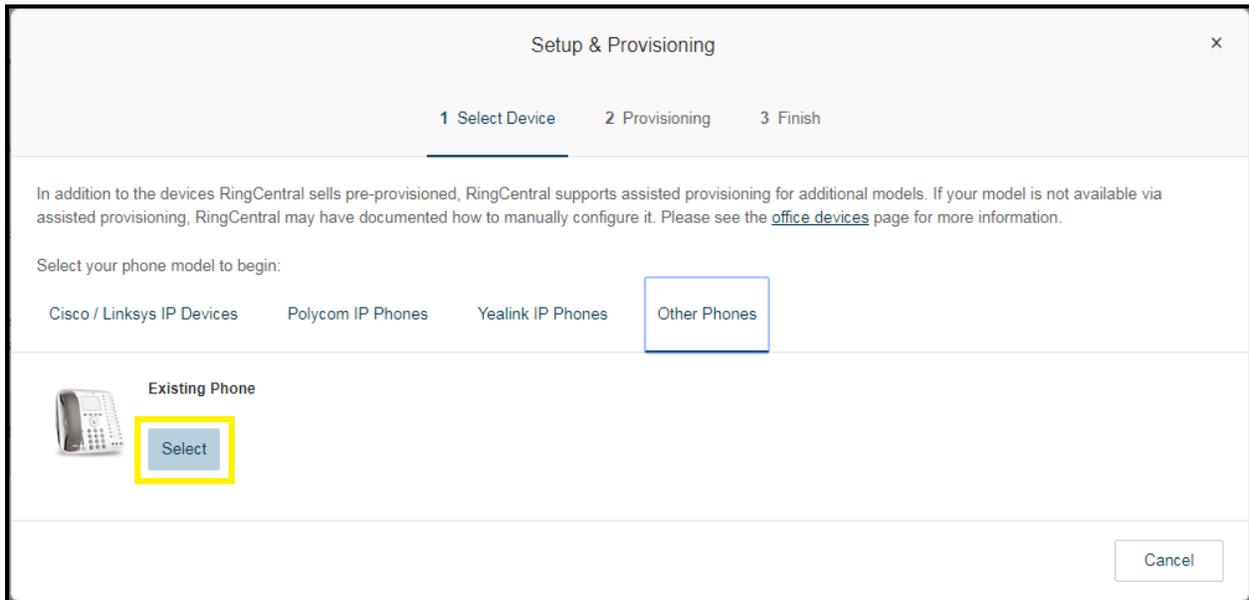
**Figure 6-5. Setup and Provision**

The screenshot shows the RingCentral Admin Portal interface. The left sidebar contains navigation options: Company Info, Phone Numbers, Auto-Receptionist, 8 Group(s) / 0 Other(s), and Phones & Devices (selected). The main content area is titled 'User Phones' and includes a search bar, status filter, and device filter. Below this is a table with columns: Status, Device, Assigned, Phone Number, and Serial No. The table lists several devices, each with a red 'x' status icon and a 'Setup & Provision' link. The 'Setup & Provision' link for the 'CyberData Nightringer Existing Phone' is highlighted with a yellow box.

Status	Device	Assigned	Phone Number	Serial No.	
✘	<a href="#">Cameron Device</a>	Cameron Device	(831) 272-0654	N/A	<a href="#">Setup &amp; Provision</a>
✘	<a href="#">Cameron Nightringer</a>	Cameron Nightri...	(831) 272-0641	N/A	<a href="#">Setup &amp; Provision</a>
✘	<a href="#">Cameron Snom</a>	Cameron Snom	(831) 233-3994	N/A	<a href="#">Setup &amp; Provision</a>
✘	<a href="#">Christina Nightringer</a>	Kenny phone 3	(831) 272-0630	N/A	<a href="#">Setup &amp; Provision</a>
✘	<a href="#">Christina PolycomVX300</a>	Interop Polycom...	(831) 975-2610	0004F289C3B8	
✘	<a href="#">CyberData Nightringer Existing Phone</a>	CyberData Night...	(831) 609-4948	N/A	<a href="#">Setup &amp; Provision</a>

6. A popup window labeled **Assisted provisioning – Step 1** will appear. Select **Other Phone** and click **Next**.

**Figure 6-6. Assisted Provisioning – Step 1**



7. A popup window labeled **Assisted Generic IP Phone/Adaptor Provisioning** will appear. You will use the provisioning information to register the paging server's Nightringer extension with RingCentral.

**Figure 6-7. IP Phone Provisioning Information**

The screenshot shows a 'Setup & Provisioning' window with a progress bar at the top indicating three steps: 'Select Device', 'Provisioning', and '3 Finish'. Below the progress bar, there is instructional text and a table of provisioning fields.

To configure your device to connect to the RingCentral service, you will need to program it with the following information.

The steps for programming will vary from device to device, so please check with your device's manufacturer for specific instructions.

Field	Value
SIP Domain	sip.ringcentral.com:5060
Outbound Proxy	SIP10.ringcentral.com:5090
User Name	18316094948
Password	[Obscured]
Authorization ID	802872227010

A 'Done' button is located at the bottom right of the window.

**Note:** The Password has been obscured. These values are published only for reference.

## SIP Fields Table

Use the following table to determine how the RingCentral SIP field values above correlate to the CyberData SIP field values.

**Table 6-1 CyberData Configuration Settings**

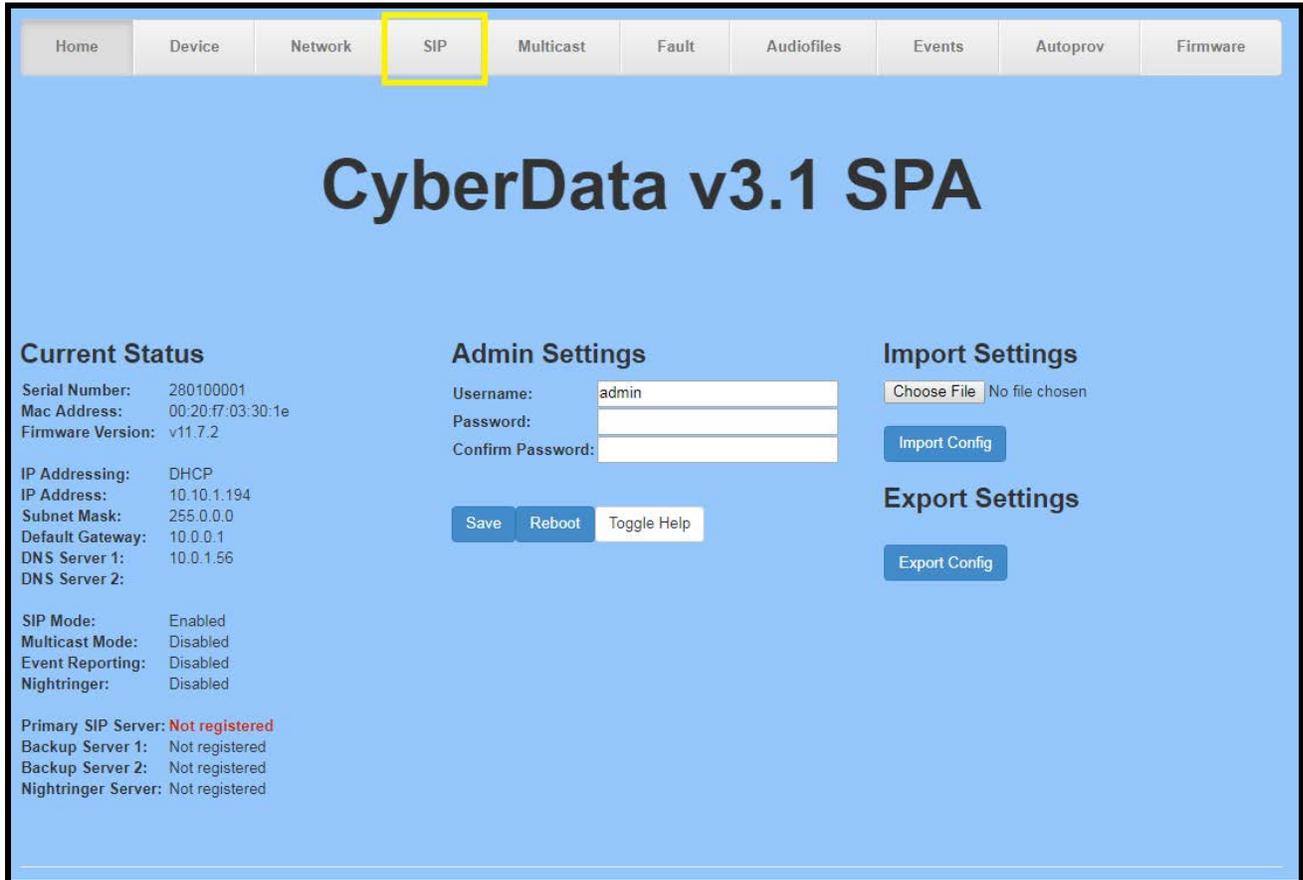
<b>Primary SIP Server</b> field	From the Paging Device Provisioning Information popup: <b>SIP Server</b>
<b>Primary SIP User ID</b> field	From the Paging Device Provisioning Information popup: <b>SIP User ID</b>
<b>Primary SIP Auth ID</b> field	From the Paging Device Provisioning Information popup: <b>Authenticate ID</b>
<b>Primary SIP Auth Password</b> field	From the Paging Device Provisioning Information popup: <b>Authenticate Password</b>
<b>Outbound Proxy</b> field	From the Paging Device Provisioning Information popup: <b>Outbound Proxy</b>
<b>Outbound Proxy Port</b> field	From the Paging Device Provisioning Information popup: <b>Outbound Proxy Port</b>
<b>Re-registration Interval (in seconds)</b> field	<b>30</b>
<b>Keep Alive Period</b> field	<b>0</b>
<b>Force Selected Codec</b> checkbox	<b>Yes</b>
<b>Codec</b> dropdown	<b>PCMU (G.711, u-law)</b>

## Configure Nightringer SIP Parameters

If you are configuring the Nightringer extension through the web interface, use the following steps to register Nightringer with RingCentral.

1. Review [Configure the SIP Parameters](#).
2. From the Home page of the web interface, click **SIP** on the toolbar on the top side of the screen.

**Figure 6-2. Home Page of the Web Interface – Nightringer Button**



3. Enter the provisioning information from the [Nightringer's Assisted Generic IP Phone/Adaptor Provisioning](#) popup.

**Note:** The *Local SIP Port* is set to 5061 on default and is used by the paging server as its source port for the Nightringer extension configured on this page.

4. Set the *Re-registration Interval (in seconds)* to 30 seconds.
5. Set the *Keep Alive Period* to **0**.
6. Enable *Force Codec Selection* and select **PCMU**.
7. Click **Save** and **Reboot** to store changes.

Figure 6-3. Nightringer Configuration Page of the Web Interface

Home Device Network SIP Multicast Fault Audiofiles Events Autoprov Firmware

# CyberData v3.1 SPA

## SIP Settings

Enable SIP operation:

Register with a SIP Server:

Use Cisco SRST:

Primary SIP Server: sip.ringcentral.com

Primary SIP User ID: 18312720630

Primary SIP Auth ID: 56279319011

Primary SIP Auth Password: .....

Backup SIP Server 1:

Backup SIP User ID 1:

Backup SIP Auth ID 1:

Backup SIP Auth Password 1:

Backup SIP Server 2:

Backup SIP User ID 2:

Backup SIP Auth ID 2:

Backup SIP Auth Password 2:

Remote SIP Port: 5060

Local SIP Port: 5060

Outbound Proxy: sip20.ringcentral.com

Outbound Proxy Port: 5090

Disable rport Discovery:

Buffer SIP Calls:

Re-registration Interval (in seconds): 30

Unregister on Boot:

Keep Alive Period: 0

## Nightringer Settings

Enable Nightringer:

SIP Server: sip.ringcentral.com

Remote SIP Port: 5060

Local SIP Port: 5061

Outbound Proxy: sip10.ringcentral.com

Outbound Proxy Port: 5090

User ID: 18316094948

Authenticate ID: 802872227010

Authenticate Password: .....

Re-registration Interval (in seconds): 30

## Call Disconnection

Terminate Call after delay: 0

## Codec Selection

Force Selected Codec:

Codec: PCM (G.711, u-law)

## RTP Settings

RTP Port: 10500

(even):

Jitter: 50

Buffer:

Save Reboot Toggle Help

## Autoprovisioning

If you are autoprovisioning the SPA, use the Nightringer Settings in the autoprovisioning template to register the Nightringer with RingCentral.

**Figure 6-4. Autoprovisioning Template Example – Nightringer Settings**

```
<NightringerSettings>
  <EnableNightringer>Yes</EnableNightringer>
  <NightringerSIPServer>sip.ringcentral.com</NightringerSIPServer>
  <NightringerRemotePort>5060</NightringerRemotePort>
  <NightringerLocalPort>5061</NightringerLocalPort>
  <NightringerOutboundProxy>sip10.ringcentral.com</NightringerOutboundProxy>
  <NightringerOutboundProxyPort>5090</NightringerOutboundProxyPort>
  <NightringerUserID>18312333993</NightringerUserID>
  <NightringerAuthID>17422862010</NightringerAuthID>
  <NightringerAuthPassword>*****</NightringerAuthPassword>
  <NightringerRegistrationTimeout>30</NightringerRegistrationTimeout>
  <NightringerEnableMulticast>No</NightringerEnableMulticast>
  <NightringerMulticastAddress>224.1.2.32</NightringerMulticastAddress>
  <NightringerMulticastPort>2020</NightringerMulticastPort>
</NightringerSettings>
```

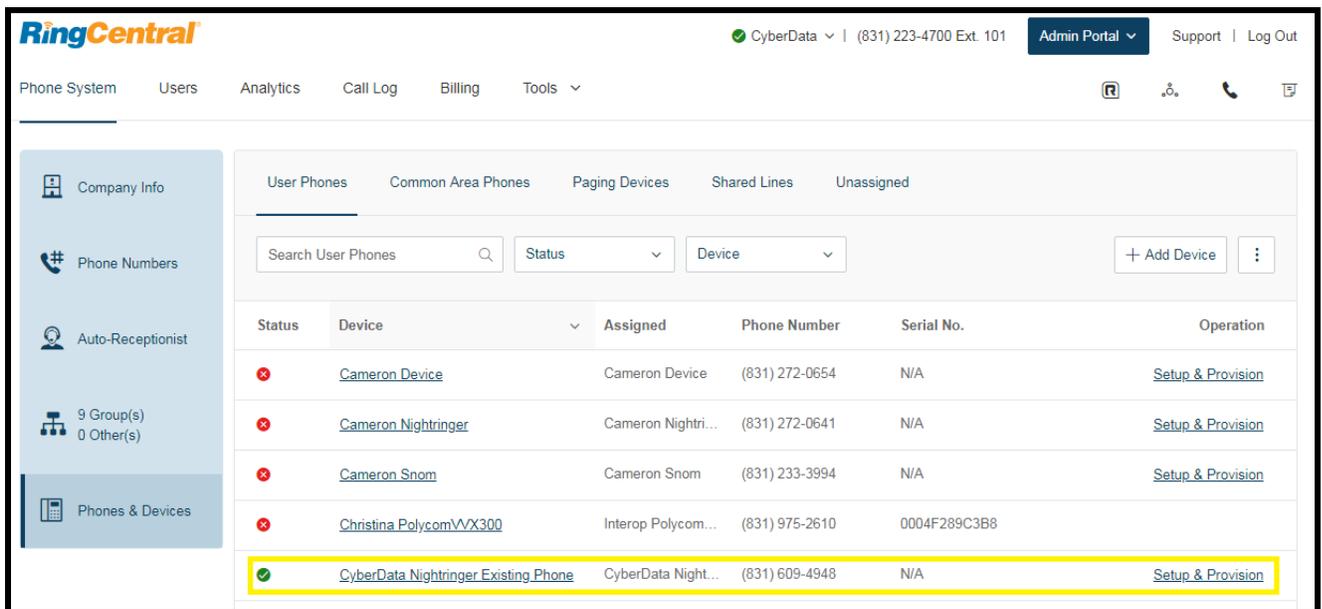
Note: These example values are published only for reference. The NightringerAuthPassword value should be the actual value from the [Nightringer's Assisted Generic IP Phone/Adaptor Provisioning](#) popup.

## Verify the Nightringer is Registered

After the paging adapter has rebooted and initialized, refresh the [Home page of the web interface](#). Your device should show as [**Registered with SIP Server**] in green text on the bottom of the Home Page of the web interface as well as at the top of the Nightringer Configuration page next to *Enable Nightringer*. See [Figure 6-2](#) and [Figure 6-3](#).

Additionally, you may verify the Nightringer is registered with RingCentral through the admin portal. From the **Phones & Devices** menu, select **User Phones** and the IP Phone you just created for the Nightringer. The status should show as “online” in the **Phone Details**.

**Figure 6-5. Nightringer Phone Details – Status**



## Make a Test Call

Once your device has registered with RingCentral, you may use any RingCentral phone to dial the Nightringer extension.

## 8.0 Multicast Configuration

This section documents multicast configuration for industry standard multicast transmissions using the [CyberData V3.1 Paging Server](#) and Polycom's proprietary paging solution using Polycom IP phones running UC Software 4.0.0 and higher. Please be advised it is not necessary to register the SPA's primary extension with RingCentral to use multicast. The SPA can operate in SIP mode, multicast mode, or both modes simultaneously.

When using multicast audio sources for IP paging, the most important configuration details are the multicast IP address and port number for a particular paging group. Each paging group consists of a unique multicast IP address and port number.

As described in [Multicast Audio Sourcing](#) in [Section 3.0 "Installation Options"](#) on page 9, each configured paging group is priority-based and allows you to designate higher priority groups for emergencies or page-all broadcasts that will preempt lower priority groups like background music.

To begin, identify how many paging groups will be needed. Be sure to consider which paging groups will take a higher priority. Any SIP calls, such as those used to send pages to RingCentral Paging Only groups, will take priority level 4.5.

### Polycom Group Paging

First, it is important to note the default port number used by Polycom phones is an odd-numbered port. While industry standard multicast transmissions use even-numbered ports in conformance with RFC 1889, the CyberData V3.1 Paging Server can be configured to transmit to an odd numbered port for Polycom paging interoperability. Similarly, the CyberData SIP Paging Adapter (SPA) can be configured to receive multicasts from Polycom sources using an odd-numbered port.

This configuration guide uses the default Polycom multicast IP address and odd-numbered port 224.0.1.116:5001.

### CyberData V3.1 Paging Server Multicast Paging

The [CyberData V3.1 Paging Server](#) is the most popular industry standard multicast audio source for IP paging solutions. A single phone call to the V3.1 Paging Server's extension can reach all paging-capable devices on your network and overhead speakers at the same time. For more information about integrating a V3.1 Paging Server with RingCentral, please see the [V3.1 Paging Server – RingCentral Configuration Guide](#).

Use the following steps to configure the SPA to join multicast paging groups receiving pages from the CyberData V3.1 Paging Server and Polycom Phones.

1. From the multicast audio sources, identify the multicast IP addresses and port numbers for each paging group you need to configure on the SPA. This information is located on the **PGROUPS Configuration** page of the V3.1 Paging Server’s web interface and **PagingGroupSettings** in the V3.1 Paging Server’s autoprovisioning template.

**Figure 8-1. V3 Paging Server PGROUPS Configuration**

## CyberData v3.1 SPA

### Multicast Settings

Enable Multicast Operation:

Priority	Address	Port	Name	Beep	Buffer
9	234.2.1.1	2000	Emergency	<input type="checkbox"/>	<input type="checkbox"/>
8	224.0.1.116	5001	Polycom Group Paging	<input type="checkbox"/>	<input type="checkbox"/>
7	239.168.3.8	9000	Warehouse Only	<input type="checkbox"/>	<input type="checkbox"/>
6	239.168.3.7	8000	MG6	<input type="checkbox"/>	<input type="checkbox"/>
5	239.168.3.6	7000	MG5	<input type="checkbox"/>	<input type="checkbox"/>
4	239.168.3.5	6000	MG4	<input type="checkbox"/>	<input type="checkbox"/>
3	239.168.3.4	5000	MG3	<input type="checkbox"/>	<input type="checkbox"/>
2	239.168.3.3	4000	MG2	<input type="checkbox"/>	<input type="checkbox"/>
1	239.168.3.2	3000	MG1	<input type="checkbox"/>	<input type="checkbox"/>
0	239.168.3.1	2000	Background Music	<input type="checkbox"/>	<input type="checkbox"/>

Polycom Default Channel: 1 ▼

Polycom Priority Channel: 24 ▼

Polycom Emergency Channel: 25 ▼

SIP calls are considered priority 4.5  
 Port range can be from 2000-65535  
 Priority 9 is the highest and 0 is the lowest  
 A higher priority audio stream will always supersede a lower one  
 \* You need to reboot for changes to take effect

**Note:** The red square boxes are the multicast IP address and port numbers for each paging group. The addresses and port numbers must match the SPA's configured multicast paging group addresses and port numbers.

**Figure 8-2. Autoprovisioning Example – V3.1 Paging Server PagingGroupSettings**

```

<PagingGroupSettings>
  <BypassDTMF>No</BypassDTMF>
  <SendPolycom>Yes</SendPolycom>
  <PagingGroup00Addr>234.2.1.1</PagingGroup00Addr>
  <PagingGroup00Port>2000</PagingGroup00Port>
  <PagingGroup00Name>Emergency</PagingGroup00Name>
  <PagingGroup00TTL>255</PagingGroup00TTL>
  <PagingGroup00LineOut>Yes</PagingGroup00LineOut>
  <PagingGroup00Code>12345</PagingGroup00Code>
  <PagingGroup01Addr>224.0.1.116</PagingGroup01Addr>
  <PagingGroup01Port>5000</PagingGroup01Port>
  <PagingGroup01Name>Polycom Paging</PagingGroup01Name>
  <PagingGroup01TTL>255</PagingGroup01TTL>
  <PagingGroup01LineOut>No</PagingGroup01LineOut>
  <PagingGroup01Code></PagingGroup01Code>
  <PagingGroup02Addr>239.168.3.8</PagingGroup02Addr>
  <PagingGroup02Port>9000</PagingGroup02Port>
  <PagingGroup02Name>Warehouse</PagingGroup02Name>
  <PagingGroup02TTL>255</PagingGroup02TTL>
  <PagingGroup02LineOut>No</PagingGroup02LineOut>
  <PagingGroup02Code></PagingGroup02Code>

```

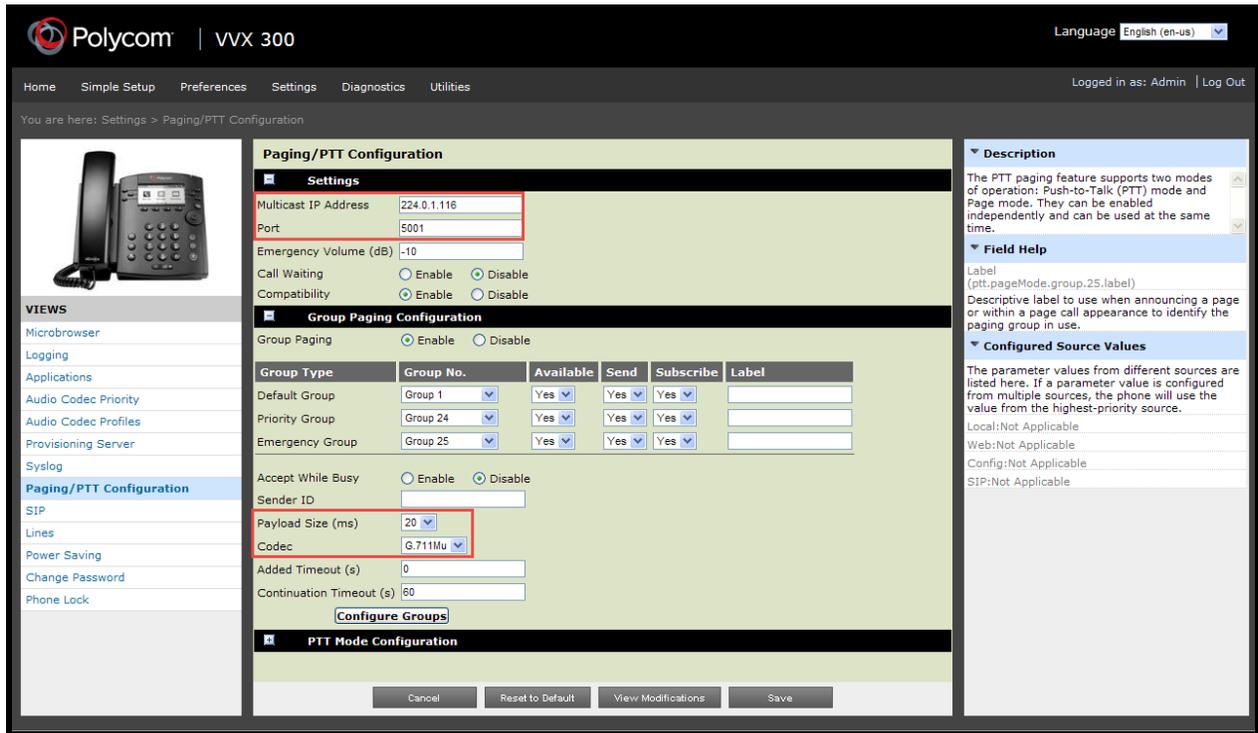
**Note:** *SendPolycom* is enabled in this example configuration. While the paging group configuration reflects an even-numbered port, as it does in [Figure 8-1](#), the CyberData Paging Server will send a second multicast stream to the configured Paging Group Address and the next higher Port number (Paging Group Port + 1) for Polycom interoperability. The CyberData Paging Server assumes the Polycom phones will use an odd-numbered port.

In this example, when Paging Group 01 is selected, the CyberData paging server will send a second audio stream to the next higher port. This results in the second stream being sent to port 5001, or the 224.0.1.116:5001 address.

Since the SPA supports RFC 1889 and Polycom Group Paging multicasts, you may configure the SPA to join the standard multicast group address containing an even-numbered port or a Polycom Group Paging address containing an odd-numbered port.

The Polycom Group Paging multicast IP address and port number is used for both Group Paging and PTT modes on a Polycom IP phone running UC Software version 4.0 and higher.

**Figure 8-3. Polycom IP Phone – Paging/PTT Configuration**



The following settings should be configured under Group Paging Configuration:

- Payload Size = 20 ms
- Codec = G.711Mu

2. Navigate to the **Multicast Configuration** page of the SPA’s web interface.
3. Check the box to *Enable Multicast operation* at the top of the page.
4. Enter the multicast IP address and port numbers used by the V3.1 Paging Server and/or Polycom IP phones into the multicast IP address and port number fields for the desired priority groups on the SPA’s **Multicast Configuration** page. See [Figure 8-4](#).

When configuring the Polycom Paging group, we will use the odd-numbered port although the SPA supports both even-numbered and odd-numbered ports.

**Table 8-1. Example SPA Paging Groups**

SPA Paging Group	Address	Port
Priority 9	234.2.1.1	2000
Priority 8	224.0.1.116	5001
Priority 7	239.168.3.8	9000

5. If you are configuring the SPA to join Polycom Paging groups, select the desired channel/group numbers at the bottom of the Multicast Configuration page.

Each of the three Polycom channel/group menus can be individually disabled or set to channel/group numbers 1 through 25. See [Figure 8-4](#).

6. **Save** and **Reboot** to store changes.

**Figure 8-4. SPA Multicast Configuration**

# CyberData v3.1 SPA

## Multicast Settings

Enable Multicast Operation:

Priority	Address	Port	Name	Beep	Buffer
9	234.2.1.1	2000	Emergency	<input type="checkbox"/>	<input type="checkbox"/>
8	224.0.1.116	5001	Polycom Group Paging	<input type="checkbox"/>	<input type="checkbox"/>
7	239.168.3.8	9000	Warehouse Only	<input type="checkbox"/>	<input type="checkbox"/>
6	239.168.3.7	8000	MG6	<input type="checkbox"/>	<input type="checkbox"/>
5	239.168.3.6	7000	MG5	<input type="checkbox"/>	<input type="checkbox"/>
4	239.168.3.5	6000	MG4	<input type="checkbox"/>	<input type="checkbox"/>
3	239.168.3.4	5000	MG3	<input type="checkbox"/>	<input type="checkbox"/>
2	239.168.3.3	4000	MG2	<input type="checkbox"/>	<input type="checkbox"/>
1	239.168.3.2	3000	MG1	<input type="checkbox"/>	<input type="checkbox"/>
0	239.168.3.1	2000	Background Music	<input type="checkbox"/>	<input type="checkbox"/>

Polycom Default Channel    1 ▼

Polycom Priority Channel    24 ▼

Polycom Emergency Channel    25 ▼

*SIP calls are considered priority 4.5*

*Port range can be from 2000-65535*

*Priority 9 is the highest and 0 is the lowest*

*A higher priority audio stream will always supersede a lower one*

*\* You need to reboot for changes to take effect*

## Autoprovisioning

If you are autoprovisioning the SPA, use the following steps to configure the SPA to join multicast paging groups receiving pages from the CyberData V3.1 Paging Server and Polycom phones.

1. Identify the multicast IP addresses and port numbers for each paging group you need to configure. See [Table 8-1](#) for example paging groups.
2. Set *EnableMulticastOperation* to **Yes** under MulticastSettings in the autoprovisioning template.
3. Each MGROUP corresponds to a numbered priority, as shown on the Multicast Configuration page in the web interface (see [Figure 8-4](#)). 0 is the lowest priority and 9 is the highest priority reserved for emergencies. Enter the multicast IP addresses and port numbers for each paging group according to the appropriate priority.

**Figure 8-6. Autoprovisioning Example – Multicast Groups**

```

<NightringerSettings>
  <MulticastSettings>
    <EnableMulticastOperation>Yes</EnableMulticastOperation>

    <MGROUPAddress9>234.2.1.1</MGROUPAddress9>
    <MGROUPPort9>2000</MGROUPPort9>
    <MGROUPName9>Emergency</MGROUPName9>
    <MGROUPBuffer9>No</MGROUPBuffer9>
    <MGROUPBeep9>No</MGROUPBeep9>

    <MGROUPAddress8>224.0.1.116</MGROUPAddress8>
    <MGROUPPort8>5001</MGROUPPort8>
    <MGROUPName8>PolycomPaging</MGROUPName8>
    <MGROUPBuffer8>No</MGROUPBuffer8>
    <MGROUPBeep8>No</MGROUPBeep8>

    <MGROUPAddress7>239.168.3.8</MGROUPAddress7>
    <MGROUPPort7>9000</MGROUPPort7>
    <MGROUPName7>Warehouse</MGROUPName7>
    <MGROUPBuffer7>No</MGROUPBuffer7>
    <MGROUPBeep7>No</MGROUPBeep7>
  
```

4. If you are configuring the SPA to join Polycom Paging groups, enter the desired group numbers at the bottom of the MulticastSettings section of the template.

Each of the three Polycom group menus can be individually disabled or set to channel/group numbers 1 through 25.

**Figure 8-7. Autoprovisioning Example – Polycom Paging Groups**

```
<PolycomDefaultGroup>1</PolycomDefaultGroup>  
<PolycomPriorityGroup>24</PolycomPriorityGroup>  
<PolycomEmergencyGroup>25</PolycomEmergencyGroup>  
</MulticastSettings>
```

## 9.0 Frequently Asked Questions

**Q:** The device is connected to our network and configured. It is showing as online in our RingCentral management interface. For some reason when we conduct a page it will not broadcast from the paging adapter. All of our phones will page, but not the adapter. If we run audio tests from the adapter, they are heard over the PA system. Is there a misconfiguration on the adapter?

**A:** You have verified the SPA is verified with RingCentral. Audio tests play locally over the analog PA. Great job troubleshooting so far!

It's important to note the paging menu is enabled in the SPA's default configuration. When configuring the SPA for auto-answer paging in a RingCentral Paging Only group with paging-capable phones, be sure to check the box to *Bypass DTMF Menus (Go straight to page)* on the **Device Configuration** page of the web interface as noted in [Section 5.0 Configuration Procedure: Auto-Answer Paging](#) on page 28. This setting will effectively disable the paging menu and allow for auto-answer paging.

## 10.0 Contact CyberData Corporation

### Sales

For sales-related questions, please visit our [Contact CyberData Sales](#) web page for more information.

### Technical Support

For CyberData Technical Support, please submit a [Contact CyberData VoIP Technical Support](#) form on our website.

The CyberData VoIP Technical Support Contact form initiates a troubleshooting ticket which CyberData uses for quality assurance purposes.

Additionally, the Contact VoIP Tech Support form tells us which phone system you are using, the make and model of the network switch, and other essential troubleshooting information we need to efficiently assist with a resolution. Please also include as much detail as possible in the Describe Problem section of the form. Your installation is extremely important to us.

### Documentation Feedback

We realize changes to the software or hardware of the RingCentral Cloud PBX solution may render this document obsolete. We welcome and encourage documentation feedback to ensure continued applicability.