

[AN048]



ADVANCED
NETWORK DEVICES

Onboard Sound Playback

Version 1.5

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Static Electric Warning



TROUBLESHOOTING AND ADDITIONAL RESOURCES

Complete Support Site: <https://www.anetd.com/user-support/>
SIP Configuration Help: <http://www.ipspeaker.com/support30/help/settings.html#sip>
GPIO Configuration Help: <http://www.ipspeaker.com/support30/help/settings.html#gpio>
AND Legal Disclaimer: <https://www.anetd.com/legal/>

OVERVIEW

Firmware version 1.6 or newer supports onboard sound playback. IPBTN supports this feature with Firmware version ips30.0.0289 or newer. This functionality makes it possible to store audio files directly on the device for playback.

Audio on the device enables more flexibility when integrating applications that can send HTTP triggers, even those without the capability to send sounds. This feature also enables devices such as the IPBTN (Smart IP Button) to send a sound directly to an endpoint via a SIP call. Other benefits include scheduling chimes to play on the device at regular intervals, as well as triggering speaker devices to play onboard sounds without that sound file impacting network traffic, thus freeing up bandwidth for other IP-based alerts and events.

This document describes device specifications, setup, and playback options for this capability.

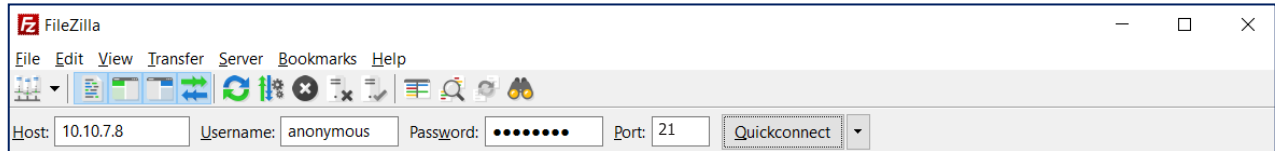
DEVICE SPECIFICATIONS

Device Storage	8MB maximum
Audio Formats	G.711 μ -law and A-law (and other types in certain circumstances) Note: You can use this G.711 conversion tool to format user-provided audio files to the proper format: http://g711.org

DEVICE SETUP

Load audio files onto the device using FTP as follows:

- 1) Login to the device using an FTP client such as FileZilla with the following credentials:

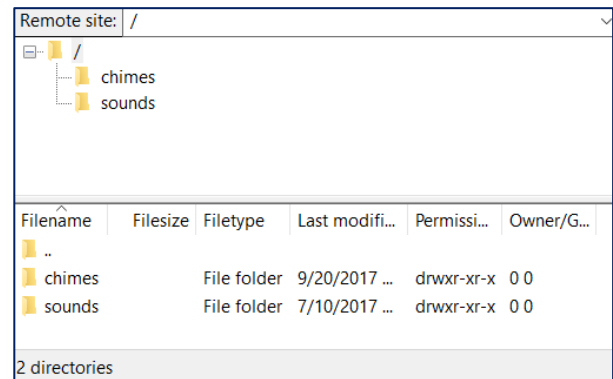


User: anonymous
 Password: Use device's HTTP Control Password
 Host IP address: The IP address of the device
 Port: 21 (Standard FTP)

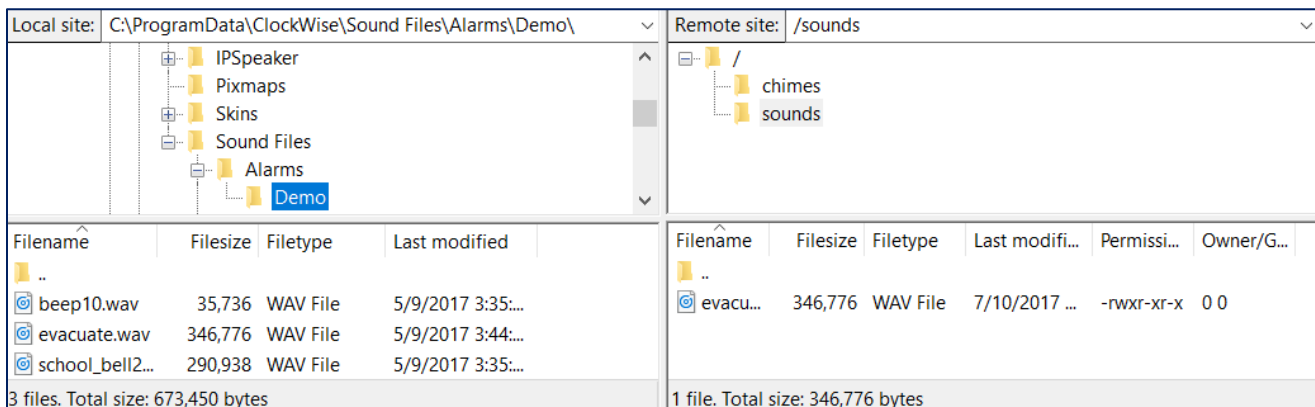
- 2) Right-click over the Remote Site window, and select *Create Directory* to create the following directories on the device (if not already in place)

Note the directory names must be in lowercase:

/sounds
 /chimes

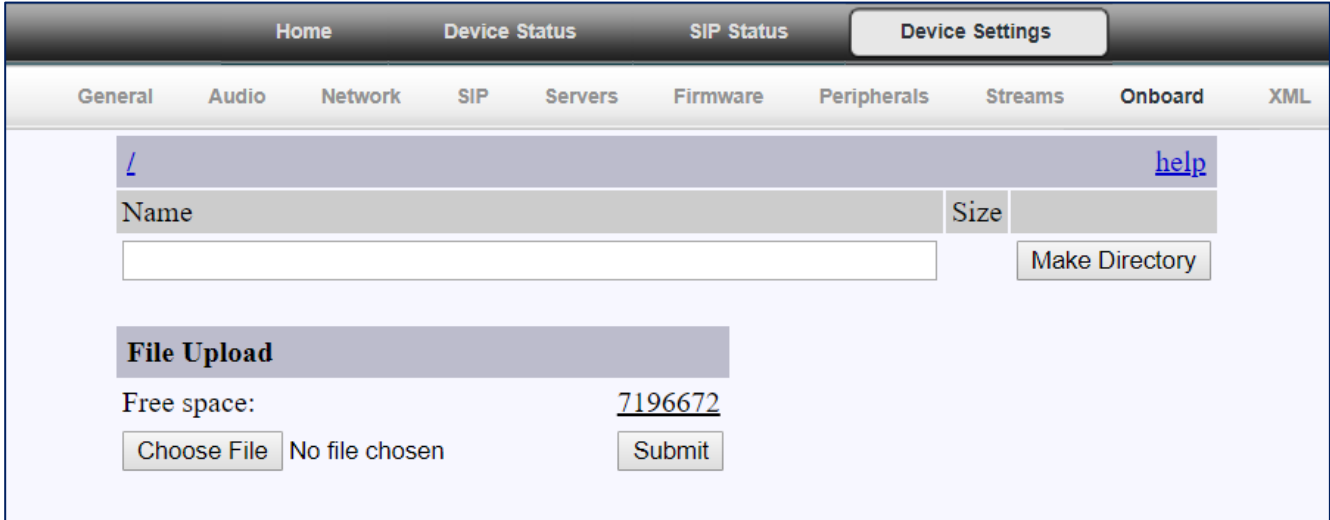


- 3) Copy sound file(s) to the /sounds and/or /chimes subdirectories of the device.



For the Smart IP Button (IPBTN), load audio files as follows:


- a. From an Internet browser, access the device's web interface by navigating to **Device Settings** → **Onboard** menu in the device's web interface.



The screenshot shows the web interface with the following elements:

- Navigation tabs: Home, Device Status, SIP Status, **Device Settings** (selected).
- Sub-navigation tabs: General, Audio, Network, SIP, Servers, Firmware, Peripherals, Streams, **Onboard**, XML.
- URL bar: / help
- Table header: Name, Size
- Form: An empty text input field for the name, followed by a "Make Directory" button.
- Section: **File Upload**
- Free space: 7196672
- Buttons: "Choose File" (No file chosen), "Submit"

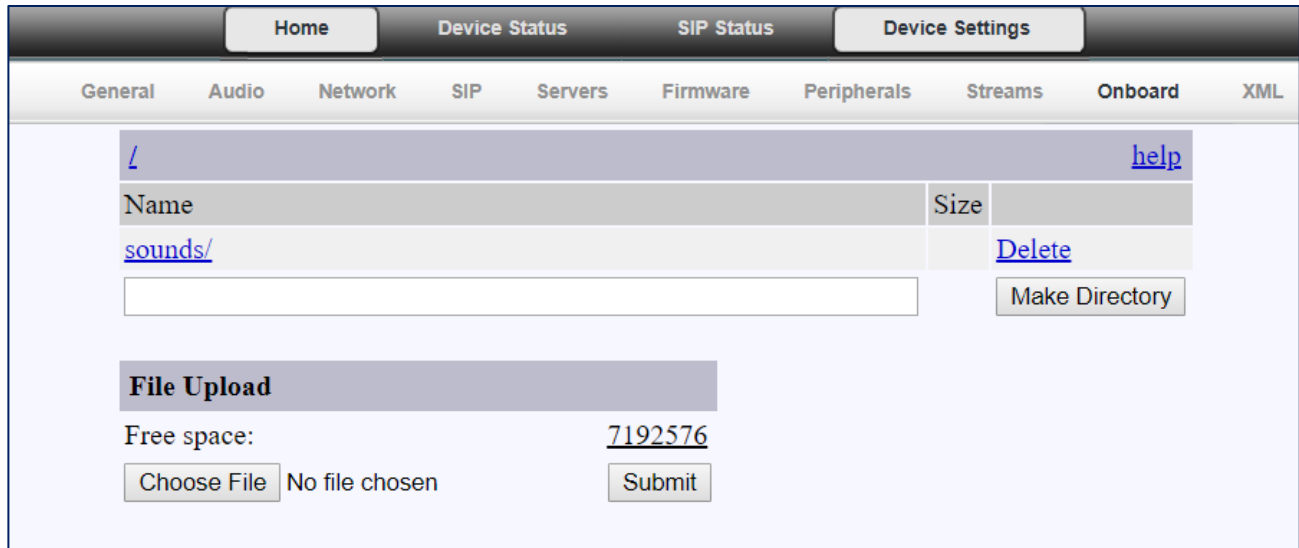
- b. If not created, enter "sounds" and click Make Directory.



The screenshot shows the web interface with the following elements:

- Navigation tabs: Home, Device Status, SIP Status, **Device Settings** (selected).
- Sub-navigation tabs: General, Audio, Network, SIP, Servers, Firmware, Peripherals, Streams, **Onboard**, XML.
- URL bar: / help
- Table header: Name, Size
- Form: The text input field now contains "sounds", and the "Make Directory" button is highlighted with a red border.
- Section: **File Upload**
- Free space: 7196672
- Buttons: "Choose File" (No file chosen), "Submit"

c. Once created, click the "sounds" directory to navigate into it.

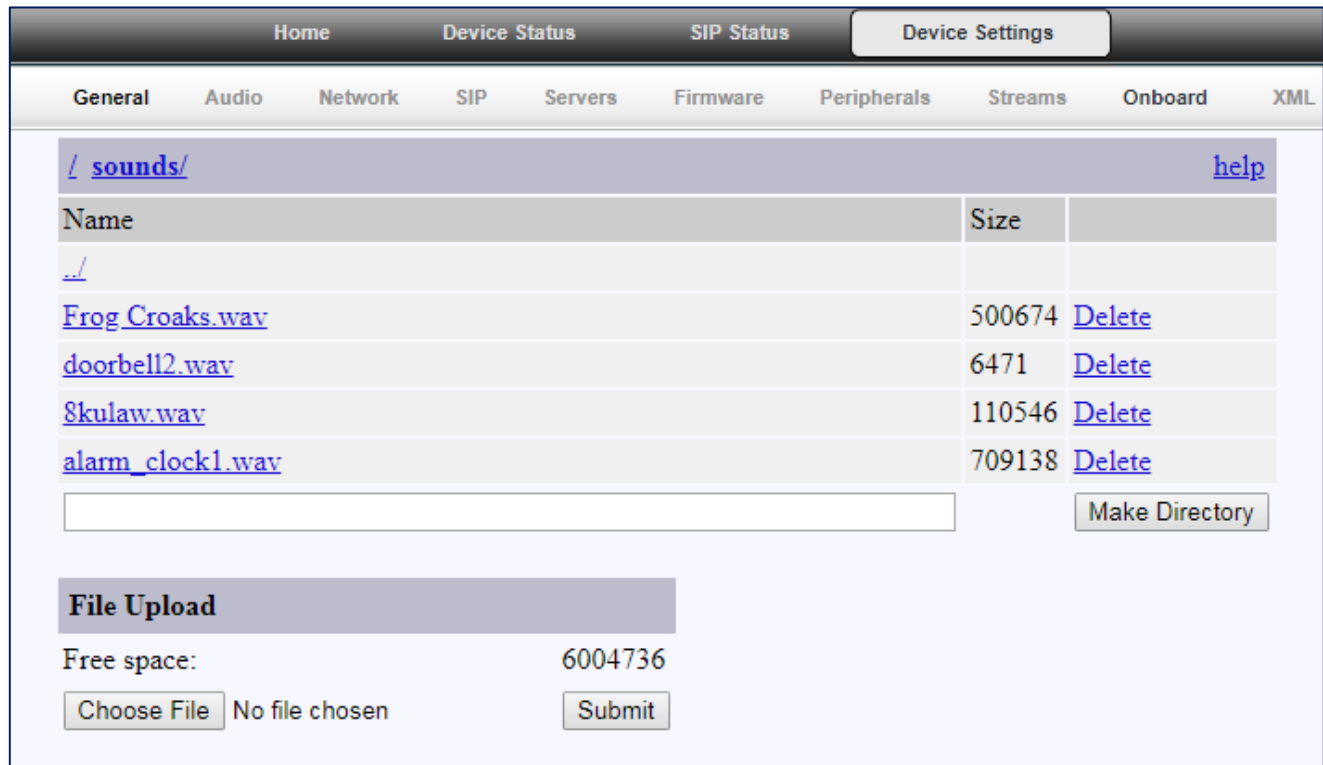


The screenshot shows the 'Device Settings' page with the 'Onboard' tab selected. The breadcrumb path is '/ sounds/'. A table lists the current directory contents:

Name	Size	
sounds/		Delete

Below the table is a 'File Upload' section with 'Free space: 7192576' and buttons for 'Choose File', 'No file chosen', and 'Submit'.

d. Click the *Choose File* button to browse and select the sound file to upload, then click *Submit*.



The screenshot shows the 'Device Settings' page with the 'Onboard' tab selected. The breadcrumb path is '/ sounds/'. A table lists the files in the directory:

Name	Size	
.		
Frog Croaks.wav	500674	Delete
doorbell2.wav	6471	Delete
Skulaw.wav	110546	Delete
alarm_clock1.wav	709138	Delete

Below the table is a 'File Upload' section with 'Free space: 6004736' and buttons for 'Choose File', 'No file chosen', and 'Submit'.

PLAYBACK OPTIONS

GPIO Functionality

Use GPIO settings to trigger onboard sounds. After uploading the sounds to the device, go to **Device Settings** → **Peripherals**, and update the **GPIO x Input Audio Trigger File** field with the sound file. Also set the **GPIO x Input Audio Trigger Priority**, **GPIO x Input Audio Trigger Volume**, and **GPIO x Input Audio Trigger IP Port** as needed. Configure these settings for both GPIO 0 and GPIO 1 if appropriate.

Home
Device Status
SIP Status
Device Settings

General
Audio
Display
Network
SIP
SIP2
Servers
Firmware
Peripherals
Streams
Priorities
Scheduler
XML

Save Peripherals Changes

GPIO Settings [help](#)

Parameter	Stored value	New Value
GPIO 0 Input Description		<input type="text"/>
GPIO 0 Input Inversion	No	No <input type="button" value="v"/>
GPIO 0 Detection Time (ms)	0	<input type="text" value="0"/>
GPIO 0 Removal Time (ms)	0	<input type="text" value="0"/>
GPIO 0 Transitions Send SNMP Trap	No	No <input type="button" value="v"/>
Activate GPIO 0 Output During GPIO 0 Input	No	No <input type="button" value="v"/>
Activate GPIO 1 Output During GPIO 0 Input	No	No <input type="button" value="v"/>
GPIO 0 Input Audio Trigger File	bell_10.wav	<input type="text" value="bell_10.wav"/>
GPIO 0 Input Audio Trigger Priority	50	50 <input type="button" value="v"/>
GPIO 0 Input Audio Trigger Volume	3.000	<input type="text" value="3.000"/>
GPIO 0 Input Audio Trigger IP:port		<input type="text"/>
GPIO 1 Input Description		<input type="text"/>
GPIO 1 Input Inversion	No	No <input type="button" value="v"/>
GPIO 1 Detection Time (ms)	0	<input type="text" value="0"/>
GPIO 1 Removal Time (ms)	0	<input type="text" value="0"/>
GPIO 1 Transitions Send SNMP Trap	No	No <input type="button" value="v"/>
Activate GPIO 0 Output During GPIO 1 Input	No	No <input type="button" value="v"/>
Activate GPIO 1 Output During GPIO 1 Input	No	No <input type="button" value="v"/>
GPIO 1 Input Audio Trigger File	alarm.wav	<input type="text" value="alarm.wav"/>
GPIO 1 Input Audio Trigger Priority	50	50 <input type="button" value="v"/>
GPIO 1 Input Audio Trigger Volume	3.000	<input type="text" value="3.000"/>
GPIO 1 Input Audio Trigger IP:port	239.8.9.10:24500	<input type="text" value="239.8.9.10:24500"/>

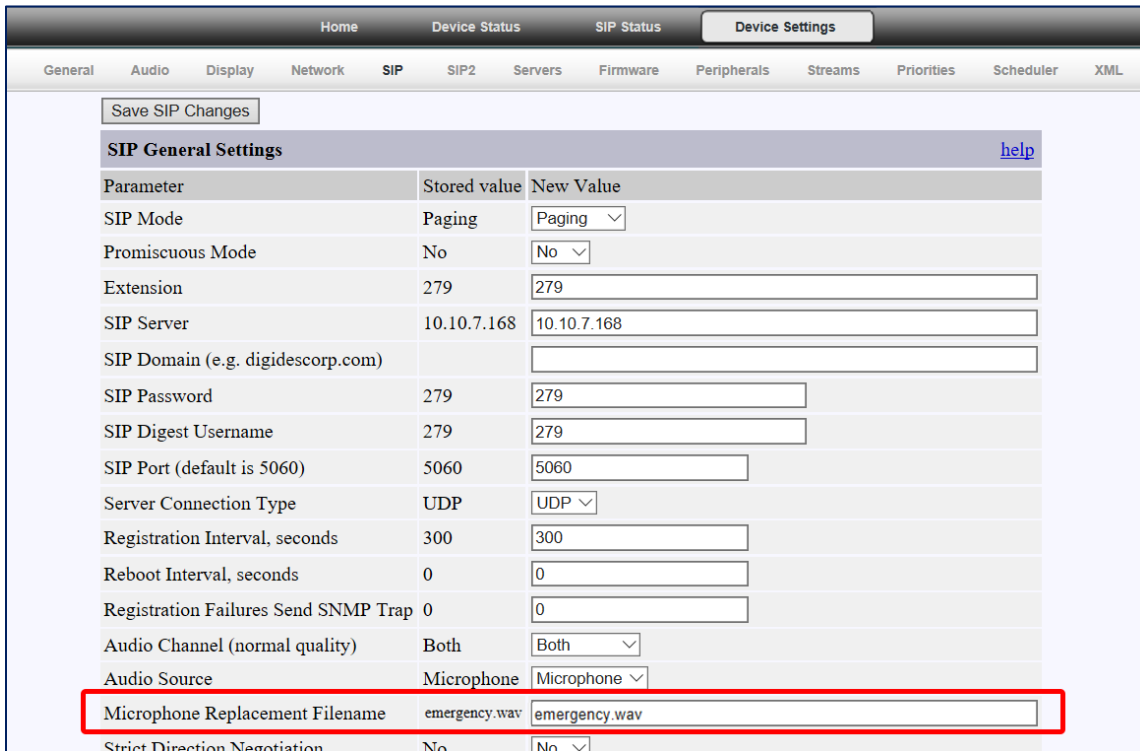
If using a configuration file, include the following parameters in the GPIO tag (values included for example purposes):

```
<GPIO
  audtrig_file_name_gpio0="bell_10.wav"
  audtrig_vol_gpio0="3.000"
  audtrig_priority_gpio0="50"
  audtrig_file_name_gpio1="alarm.wav"
  audtrig_vol_gpio1="3.000"
  audtrig_priority_gpio1="50"
  audtrig_send_port_gpio1="24500"
  audtrig_send_ip_gpio1="239.8.9.10"
  ...
/>
```


SIP Functionality

Use SIP settings to setup the device to stream the onboard sound back to the caller when triggered by a SIP call. After uploading the sounds to the device, add the filename under **Device Settings** → **SIP** in the **Microphone Replacement Filename** field. For IPBTN, include the full path and filename, e.g. sounds/emergency.wav.

Note: Audio file playback will repeat until the SIP call is dropped.



Parameter	Stored value	New Value
SIP Mode	Paging	Paging <input type="text"/>
Promiscuous Mode	No	No <input type="text"/>
Extension	279	279 <input type="text"/>
SIP Server	10.10.7.168	10.10.7.168 <input type="text"/>
SIP Domain (e.g. digidescorp.com)		<input type="text"/>
SIP Password	279	279 <input type="text"/>
SIP Digest Username	279	279 <input type="text"/>
SIP Port (default is 5060)	5060	5060 <input type="text"/>
Server Connection Type	UDP	UDP <input type="text"/>
Registration Interval, seconds	300	300 <input type="text"/>
Reboot Interval, seconds	0	0 <input type="text"/>
Registration Failures Send SNMP Trap	0	0 <input type="text"/>
Audio Channel (normal quality)	Both	Both <input type="text"/>
Audio Source	Microphone	Microphone <input type="text"/>
Microphone Replacement Filename	emergency.wav	emergency.wav <input type="text"/>
Strict Direction Negotiation	No	No <input type="text"/>

If using a configuration file, add the following parameter to the SIPConfig tag (value included for example purposes):

```
<SIPConfig
  mic_replacement_filename="emergency.wav"
  ...
/>
```

For the Smart IP Button (IPBTN), add the following (value included for example purposes):

```
<SIPConfig
  mic_replacement_filename="sounds/emergency.wav"
  ...
/>
```

Chimes

Use the Scheduler for chimes onboard the device. After creating a subdirectory for a chime library within the `/chimes` directory of the device, go to **Device Settings** → **Scheduler** to configure the following parameters:

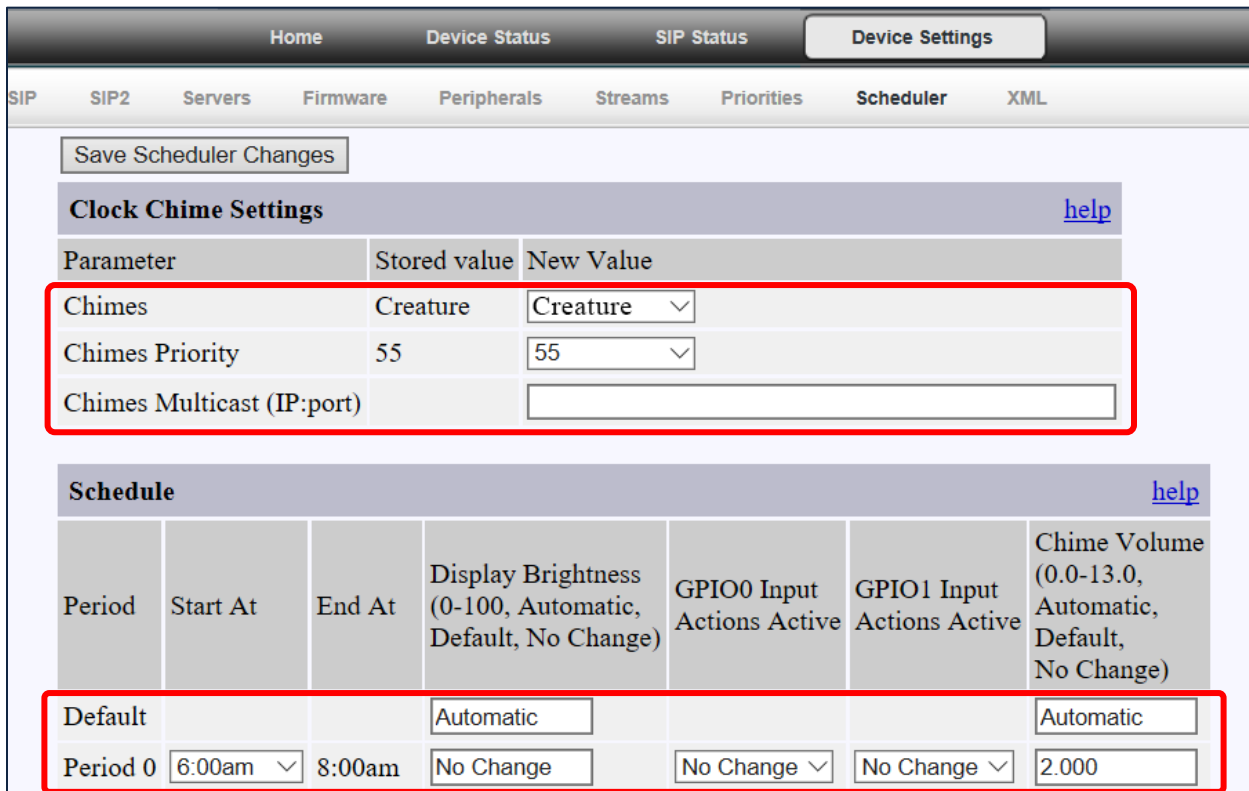
Clock Chime Settings

- *Chimes* Directory name of the chimes library (e.g., "Creature")
- *Chimes Priority* As desired (1=highest / 100=lowest / 55=default)
- *Chimes Multicast (IP:Port)* If specified, the chime audio will stream to this multicast address port, instead of playing back locally on the device loudspeaker (e.g., 239.8.9.10:24500)

Schedule

- *Schedule Details* As desired
- *Volume* (0.0=off / 13.0=loudest)

Note: The *Chime Volume* column only appears once you have selected a chime library. Choosing "Automatic" allows the chime volume to adjust automatically based on the ambient light level. The lower the ambient light level, the lower the chime volume. "Default" uses the default chime volume setting specified at the top of the schedule table chime volume column.



The screenshot shows the 'Device Settings' page with the 'Scheduler' tab selected. It features two main sections: 'Clock Chime Settings' and 'Schedule'.

Clock Chime Settings (highlighted with a red box):

Parameter	Stored value	New Value
Chimes	Creature	Creature
Chimes Priority	55	55
Chimes Multicast (IP:port)		

Schedule (highlighted with a red box):

Period	Start At	End At	Display Brightness (0-100, Automatic, Default, No Change)	GPIO0 Input Actions Active	GPIO1 Input Actions Active	Chime Volume (0.0-13.0, Automatic, Default, No Change)
Default			Automatic			Automatic
Period 0	6:00am	8:00am	No Change	No Change	No Change	2.000

If using a configuration file, add the following parameter to the Schedule tag (value included for example purposes):

```
<Schedule chime_type="Creature" chime_vol_default="Automatic" >  
  <Period start_at="600" chime_vol="2.000" />  
</Schedule>
```