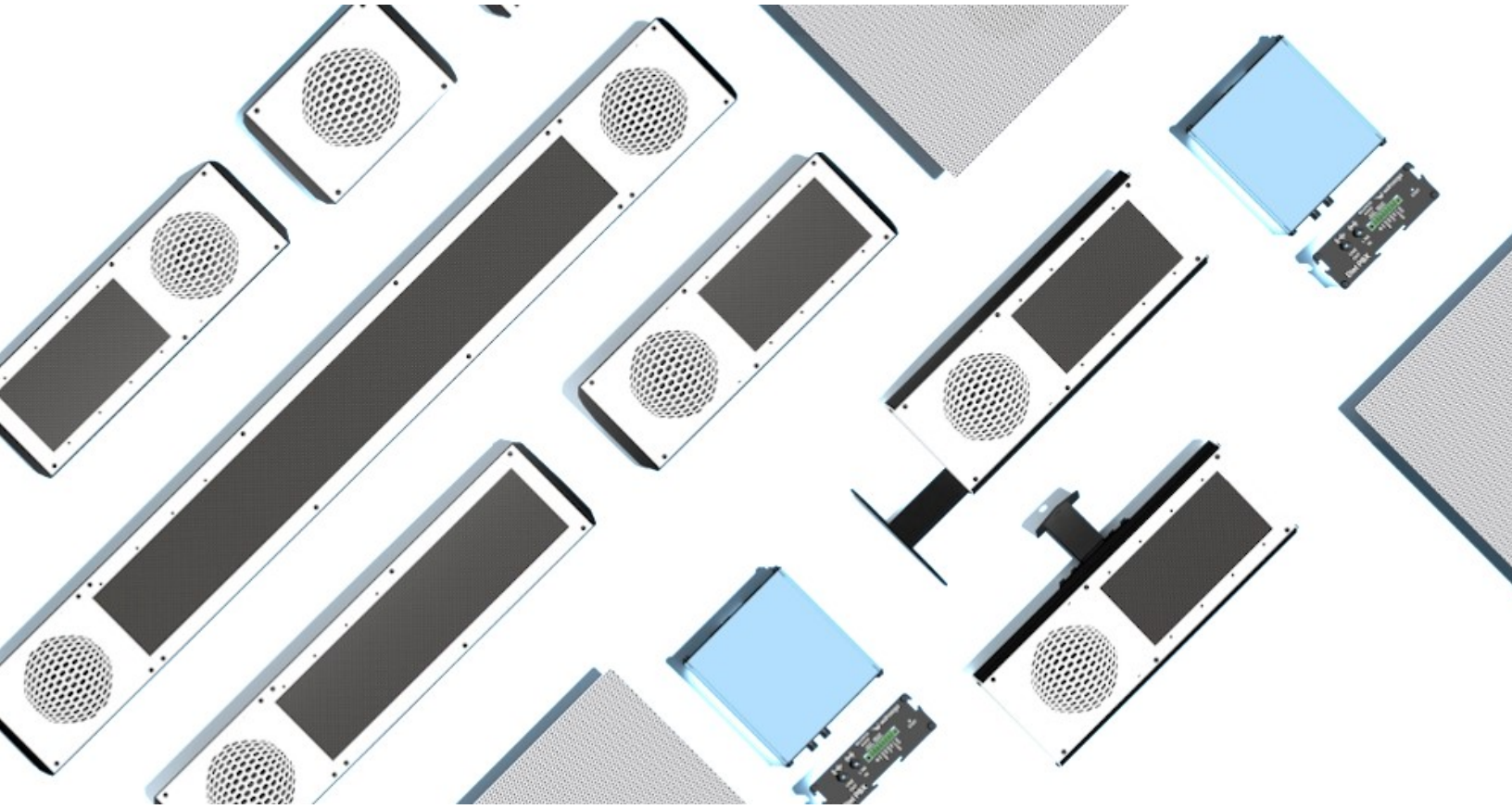
Wahsega Speaker or IP Display with InformaCast®

Application Note

Advanced Configuration



This application note will guide you through advanced XML configuration options for the Wahsega speaker or IP Display with InformaCast®.

Preface

Important Notice

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Introduction

Customize your speaker's InformaCast configuration file to push System, Network, SIP and InformaCast settings for faster initialization on larger projects.

Getting Started

1. On the InformaCast server, find or create the filename corresponding to your device's name and MAC address, in the format

   `InformaCastSpeaker<mac_address>.cfg`

   (For example, `InformaCastSpeaker012345678a9b.cfg`).

2. You may have two MAC addresses corresponding to the same device. If so, use the first address for your device, which is the one corresponding to "Room 1 InformaCast."

3. Edit the text file, adding the desired features corresponding to the options in the following sections. Be sure to follow the required format as explained below. Save to server.

4. Using "Reboot IP Speaker" option in the InformaCast configuration webpages, reboot your speaker for the changes to take effect.

5. Wait approximately one minute for speaker to reboot with changes.

If you have any difficulty, consult Troubleshooting or call Wahsega Support at 888.509.2379.

Example Configuration File

```
<InformaCastSpeakerConfiguration>

  <Servers>
    <InformaCast url="http://123.456.78.90:8081/InformaCast/admin?cmd=spkr"/>
  </Servers>

  <Firmware file="firmwares/wahsega_informacast_speaker_firmware.bin" />

  <wah:X_deviceFlatConfig xmlns:wah="urn:schemas-wahsega-com:DeviceFlatConfig-1-0">

      <wah:setting path="voip.accounts[0].enabled" value="true" />
      <wah:setting path="voip.accounts[3].enabled" value="true" />
      <wah:setting path="voip.accounts[0].informacast.max_streams" value="2" />
      <wah:setting path="voip.accounts[3].informacast.max_streams" value="2" />

      <wah:setting path="voip.accounts[1].enabled" value="true" />
      <wah:setting path="voip.accounts[1].user" value="123" />
      <wah:setting path="voip.accounts[1].name" value="Ext 123" />
      <wah:setting path="voip.accounts[1].sip.domain" value="sip.wahsega.com" />
      <wah:setting path="voip.accounts[1].sip.register" value="true" />
      <wah:setting path="voip.accounts[1].sip.loose_uri_matching.username" value="false" />
      <wah:setting path="voip.accounts[1].sip.local_port" value="5060" />
      <wah:setting path="voip.accounts[1].sip.authentication.username" value="456" />
      <wah:setting path="voip.accounts[1].sip.authentication.password" value="admin" />
      <wah:setting path="voip.accounts[1].informacast.enabled" value="true" />

      <wah:setting path="voip.accounts[4].enabled" value="true" />
      <wah:setting path="voip.accounts[4].user" value="124" />
      <wah:setting path="voip.accounts[4].name" value="Ext 124" />
      <wah:setting path="voip.accounts[4].sip.domain" value="sip.wahsega.com" />
      <wah:setting path="voip.accounts[4].sip.register" value="true" />
      <wah:setting path="voip.accounts[4].sip.loose_uri_matching.username" value="false" />
      <wah:setting path="voip.accounts[4].sip.local_port" value="5070" />
      <wah:setting path="voip.accounts[4].sip.authentication.username" value="789" />
     <wah:setting path="voip.accounts[4].sip.authentication.password" value="admin" />
      <wah:setting path="voip.accounts[4].informacast.enabled" value="true" />

      <wah:setting path="gemini.mode" value="2rooms" />
      <wah:setting path="gemini.buttons.panic.short_press.uri" value="342" />
      <wah:setting path="gemini.buttons.panic.long_press.uri" value="344" />

  </wah:X_deviceFlatConfig>

</InformaCastSpeakerConfiguration>
```

Breaking Down the Configuration File

- Do not alter the first section. (Your server location will be dependent on your server's configuration.)

```
<InformaCastSpeakerConfiguration>

  <Servers>
    <InformaCast url="http://123.456.78.90:8081/InformaCast/admin?cmd=spkr"/>
  </Servers>

  <wah:X_deviceFlatConfig xmlns:wah="urn:schemas-wahsega-com:DeviceFlatConfig-1-0">
```

- Insert the configuration options you would like to include. Be sure to format your inserted elements in the following manner:

```
<wah:setting path="[configuration option]" value="[acceptable value]" />
<wah:setting path="[configuration option]" value="[acceptable value]" />
```

- Do not alter the last section.

```
  </wah:X_deviceFlatConfig>

</InformaCastSpeakerConfiguration>
```

System

NTP Settings

The NTP (Network Time Protocol) section contains the settings needed to set the time via a network server.

system.ntp.dst

- When DST is true, adjustment for daylight saving time will be used. If false, adjustment will not be performed.
    - Data type – Boolean
    - Default value – “true”
    - Acceptable values
        - “true”
        - “false”

system.ntp.time_zone

- This string represents the GMT offset which will be used when setting the local time from the remote time server
    - Data type – String
    - Default value – “-300b”
    - Acceptable values
        - See table below

String	Meaning
"-720a"	(GMT-12:00) Eniwetok, Kwajalein
"-660a"	(GMT-11:00) Midway Island, Samoa
"-600a"	(GMT-10:00) Hawaii
"-540a"	(GMT-09:00) Alaska
"-480a"	(GMT-08:00) Pacific Time (US & Canada)
"-420b"	(GMT-07:00) Arizona
"-420a"	(GMT-07:00) Mountain Time (US & Canada)
"-360b"	(GMT-06:00) Central Time (US & Canada)
"-360a"	(GMT-06:00) Mexico City, Tegucigalpa
"-300c"	(GMT-05:00) Bogota, Lima, Quito
"-300b"	(GMT-05:00) Eastern Time (US & Canada)
"-300a"	(GMT-05:00) Indiana (east)
"-240b"	(GMT-04:00) Atlantic Time (US & Canada)
"-240a"	(GMT-04:00) Caracas, La Paz
"-210a"	(GMT-03:30) Newfoundland
"-180b"	(GMT-03:00) Brasilia
"-180a"	(GMT-03:00) Buenos Aires, Georgetown
"-120a"	(GMT-02:00) Mid-Atlantic
"-60a"	(GMT-01:00) Azores, Cape Verde Is.
"0"	(GMT) Casablanca, Monrovia
"0a"	(GMT) Dublin, Edinburgh, Lisbon, London
"60a"	(GMT+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna
"60b"	(GMT+01:00) Belgrade, Bratislava, Budapest, Ljubljana, Prague
"60c"	(GMT+01:00) Brussels, Copenhagen, Madrid, Paris, Vilnius
"60d"	(GMT+01:00) Sarajevo, Skopje, Sofia, Warsaw, Zagreb
"120a"	(GMT+02:00) Athens, Bucharest, Cairo, Istanbul, Minsk
"120b"	(GMT+02:00) Harare, Helsinki, Jerusalem, Pretoria, Riga, Tallinn

String	Meaning
"180a"	(GMT+03:00) Baghdad, Kuwait, Riyadh
"180b"	(GMT+03:00) Moscow, St. Petersburg, Volgograd
"210a"	(GMT+03:30) Tehran
"240a"	(GMT+04:00) Abu Dhabi, Baku, Muscat, Tbilisi
"270a"	(GMT+04:30) Kabul
"300a"	(GMT+05:00) Ekaterinburg, Islamabad, Karachi, Tashkent
"330a"	(GMT+05:30) New Delhi
"360a"	(GMT+06:00) Astana, Almaty, Colombo, Dhaka
"420a"	(GMT+07:00) Bangkok, Hanoi, Jakarta
"480a"	(GMT+08:00) Beijing, Hong Kong, Singapore, Taipei
"540a"	(GMT+09:00) Seoul, Tokyo, Yakutsk
"570a"	(GMT+09:30) Adelaide, Darwin
"600a"	(GMT+10:00) Canberra, Guam, Port Moresby, Vladivostok
"660a"	(GMT+11:00) Magadan, Solomon Islands
"720a"	(GMT+12:00) Fiji, Kamchatka, Marshall Islands, Wellington

Administrator Settings

The administrator section contains the username and password of the administrative user.

system.administrator.username

- This is the username used to log onto the system via telnet, http or https.
    - Data type – String
    - Default value – “admin”
    - Acceptable values – Any (should be ≤ 32 characters)

system.administrator.password

- This is the password used to log onto the system via telnet, http or https. The password must be in plain-text in this XML file. (It is stored encoded on the device.)
    - Data type – String
    - Default value – “admin”
    - Acceptable values – Any (should be ≤ 32 characters)

Network

WAN

The “WAN” settings control how the WAN interface is configured, including IP address and connectivity settings.

network.wan.mode

- This setting controls how the WAN interface’s IP address should be configured, using a static address or broadcasting for a DHCP address
    - Data type – String
    - Default value – “Static”
    - Acceptable values
        - “DHCP”
        - “Static”

network.wan.host

- The name to report as a hostname for services that request this information, such as DHCP or DNS.
    - Data type – String
    - Default value – Empty string
    - Acceptable values – Any

network.wan.domain

- The domain name to use for computing incomplete DNS searches.
    - Data type – String
    - Default value – Empty string
    - Acceptable values – Any

Static Addressing

The WAN interface can be set to a static IP address, for which multiple settings are required for full connectivity. ***NOTE: network.wan.mode value must be set to "Static" for the following elements to take effect.***

network.wan.static.address

- The IP address to use when the WAN interface is configured with a static IP address.
    - Data type – String
    - Default value – "0.0.0.0"
    - Acceptable values – Any (no whitespace)

network.wan.static.mask

- The subnet mask to use when the WAN interface is configured with a static IP address.
    - Data type – String
    - Default value – "255.255.0.0"
    - Acceptable values – Any (no whitespace)

network.wan.static.gateway

- The IP address of the gateway router to use when the WAN interface is configured with a static IP address.
    - Data type – String
    - Default value – "0.0.0.0"
    - Acceptable values – Any (no whitespace)

network.wan.static.dns.primary

- The primary DNS server (IP Address) to use when the WAN interface is configured with a static IP address.
    - Data type – String
    - Default value – “0.0.0.0”
    - Acceptable values – Any (no whitespace)

network.wan.static.dns.secondary

- The secondary DNS server (IP Address) to use when the WAN interface is configured with a static IP address.
    - Data type – String
    - Default value – “0.0.0.0”
    - Acceptable values – Any (no whitespace)

network.wan.static.dns.tertiary

- The tertiary DNS server (IP Address) to use when the WAN interface is configured with a static IP address.
    - Data type – String
    - Default value – “0.0.0.0”
    - Acceptable values – Any (no whitespace)

SNMP

The SNMP section controls global SNMP parameters and system variables.

network.snmp.sys_contact

- The system contact person. This is equivalent to "sysContact" from RFC 1213, which it describes as "the textual identification of the contact person for this managed node, together with information on how to contact this person."
    - Data type – String
    - Default value – Empty string
    - Acceptable values – Any (should be ≤ 255 characters)

network.snmp.sys_name

- The system name. This is equivalent to "sysName" from RFC 1213, which it describes as "an administratively-assigned name for this managed node. By convention, this is the node's fully-qualified domain name."
    - Data type – String
    - Default value – Empty string
    - Acceptable values – Any (should be ≤ 255 characters)

network.snmp.sys_location

- The system location. This is equivalent to "sysLocation" from RFC 1213, which it describes as "the physical location of this node (e.g., 'telephone closet, 3rd floor')."
    - Data type – String
    - Default value – Empty string
    - Acceptable values – Any (should be ≤ 255 characters)

VoIP

VoIP accounts include SIP accounts, InformaCast accounts, and non-InformaCast multicast accounts (i.e., *Room x RTP Priority 2*). All notations below refer to Account[x].

Room 1 InformaCast = Account 0
Room 1 SIP = Account 1
Room 1 RTP Multicast (“Priority 2”) = Account 2

Room 2 InformaCast = Account 3
Room 2 SIP = Account 4
Room 2 RTP Multicast (“Priority 2”) = Account 5

Enter desired values and settings for each room individually.

InformaCast Accounts

voip.accounts[0] = Room 1 InformaCast

voip.accounts[3] = Room 2 InformaCast

voip.accounts[x].enabled

- When an account is enabled, it may be used to receive InformaCast broadcasts. When disabled, the account’s settings are retained and may be edited, but the account cannot be used.
    - Data type – Boolean
    - Default value – “true”
    - Acceptable values
        - “true”
        - “false”

voip.accounts[x].informacast.max_streams

- Maximum number of audio broadcasts to play simultaneously. To disable audio mixing, set this value to “1”.
    - Data type – Single integer
    - Default value – “3”
    - Acceptable values
        - “1”
        - “2”
        - “3”

SIP Accounts

voip.accounts[1] = Room 1 SIP

voip.accounts[4] = Room 2 SIP

voip.accounts[x].enabled

- When an account is enabled, it may be used to make and receive SIP calls. When disabled, the account’s settings are retained and may be edited, but the account cannot be used.
    - Data type – Boolean
    - Default value – “true”
    - Acceptable values
        - “true”
        - “false

voip.accounts[x].user

- Telephone extension or user ID associated with the account, e.g., “jdoe” or “123”.
    - Data type – String
    - Default value – Empty string
    - Acceptable values – Any (no whitespace)

voip.accounts[x].name

- Friendly name of the user, e.g., “Jane Doe” or “Extension 123”.
    - Data type – String
    - Default value – Empty string
    - Acceptable values – Any

voip.accounts[x].sip.domain

- Specifies the Internet domain (either a domain/hostname or IP address) where the account’s username (voip.accounts[x].user) resides.
    - Data type – String
    - Default value – Empty string
    - Acceptable values – Any (no whitespace)

voip.accounts[x].sip.register

- Determines whether or not the account will register with a server to send or receive SIP calls. If set to “false”, the account will operate in peer-to-peer (P2P) mode. **NOTE: This value must be the *opposite* value of that listed for *voip.accounts[x].sip.loose_uri_matching.username* (below).**
    - Data type – Boolean
    - Default value – “true”
    - Acceptable values
        - “true”
        - “false

voip.accounts[x].sip.loose_uri_matching.username

- If the SIP account is set to loosely match the username, it means that any request sent to the device where the hostname is a match will be handled by the device. If an account exists that exactly matches the username, it will handle the request, otherwise the account with loosely matching username will handle the request. **NOTE: This value must be the *opposite* value of that listed for *voip.accounts[x].sip.register* (above)**.
    - Data type – Boolean
    - Default value – “false”
    - Acceptable values
        - “true”
        - “false”

voip.accounts[x].sip.local_port

- Specifies the network port on which the account listens for SIP messages. If set to 0, the default port (5060) is assumed.
    - Data type – Unsigned 16-bit integer
    - Default value – “0” (automatic)
    - Acceptable values – “0” to “65535”

voip.accounts[x].sip.transport

- Specifies the transport protocol to use for this account’s network traffic. The default setting of “auto” generally results in unencrypted UDP.
    - Data type – String
    - Default value – “auto”
    - Acceptable values
        - “auto”
        - “udp”
        - “tcp”
        - “tls”

voip.accounts[x].sip.authentication.username

- If the SIP server for this account requires authentication, this username value is provided to the server as a credential.
    - Data type – String
    - Default value – Empty string
    - Acceptable values – Any

voip.accounts[x].sip.authentication.password

- If the SIP server for this account requires authentication, this password value is provided to the server as a credential. The password must be in plain-text in this XML file. (It is stored encoded on the device.)
    - Data type – String
    - Default value – Empty string
    - Acceptable values – Any (limit 32 characters)

voip.accounts[x].informacast.enabled

- When “true”, this setting enables the SIP client to be auto-configured by InformaCast to register with the InformaCast SIP Server. For this to work, the speaker must also be configured to use SIP on the InformaCast server.
    - Data type – Boolean
    - Default value – “false”
    - Acceptable values
        - “true”
        - “false

RTP Priority 2 Accounts

voip.accounts[2] = Room 1 RTP Multicast (priority 2)

voip.accounts[5] = Room 2 RTP Multicast (priority 2)

voip.accounts[x].enabled

- When an account is enabled, it may be used to receive non-InformaCast RTP Multicast broadcasts. These broadcasts will be assigned the lowest priority level of any incoming call or broadcast. When disabled, the account's settings are retained and may be edited, but the account cannot be used.
    - Data type – Boolean
    - Default value – "true"
    - Acceptable values
        - "true"
        - "false

voip.accounts[x].user

- The multicast IP address this account should listen on to receive RTP audio, e.g., "239.255.255.255".
    - Data type – String
    - Default value – Empty string
    - Acceptable values – From "224.0.0.1" to "239.255.255.255"
        - Note: Some addresses, particularly in the 224.xx.xx.xx range, are globally reserved and should not be used! Consider using addresses in the 239.255.xx.xx range, which are "Administratively Scoped Local Addresses."

voip.accounts[x]. rtp_multicast.port

- Specifies the UDP port on which the account listens for RTP audio broadcasts. If set to 0, the default port (5004) is assumed.
    - Data type – Unsigned 16-bit integer
    - Default value – "0" (automatic)
    - Acceptable values – "1" to "65535"

Room Mode

Configure your intercom for single room or two-room operation and configure panic button functionality.

gemini.mode

- Configures speaker mode for 1-room-1-speaker, 1-room-2-speakers, or 2-room mode.
    - Data type – String
    - Default value – “1room_1speaker”
    - Acceptable values
        - “1room_1speaker”
        - “1room_2speakers”
        - “2rooms”

gemini.buttons.panic.short_press.uri

- SIP phone number to call when the panic button is pressed for less than two seconds.
    - Data type – String
    - Default value – Empty string
    - Acceptable values – Any (no whitespace)

gemini.buttons.panic.long_press.uri

- SIP phone number to call when the panic button is pressed for two seconds or longer.
    - Data type – String
    - Default value – Empty string
    - Acceptable values – Any (no whitespace)

Display Settings

Configure settings specific to an IP Display, including text color and flasher function.

gemini.display.time.24_hour

- Display time in 12-hour or 24-hour format.
    - Data type – Boolean
    - Default value – “false”
    - Acceptable values
        - “true”
        - “false”

gemini.display.time.color

- Configures default color of time displayed.
    - Data type – String
    - Default value – “white”
    - Acceptable values
        - “white”
        - “gray”
        - “primary”
        - “skyblue”
        - “cyan”
        - “blue”
        - “magenta”
        - “violet”
        - “pink”
        - “red”
        - “coral”
        - “orange”
        - “yellow”
        - “green”

gemini.display.date.color

- Configures default color of date displayed.
    - Data type – String
    - Default value – “white”
    - Acceptable values
        - “white”
        - “gray”
        - “primary”
        - “skyblue”
        - “cyan”
        - “blue”
        - “magenta”
        - “violet”
        - “pink”
        - “red”
        - “coral”
        - “orange”
        - “yellow”
        - “green”

gemini.display.text.color

- Configures default color of text displayed.
    - Data type – String
    - Default value – “white”
    - Acceptable values
        - “white”
        - “gray”
        - “primary”
        - “skyblue”
        - “cyan”
        - “blue”
        - “magenta”
        - “violet”
        - “pink”
        - “red”
        - “coral”
        - “orange”
        - “yellow”
        - “green”

InformaCast Message Color

Color mapping allows you to specify a text color to use when displaying InformaCast text messages within a specified (audio) priority range. Up to 1000 Priority Color Maps may be specified (***x***), using integers *0-999*. Priority Color Map value*, Priority Range Start*, *Priority Range End*, and *Priority Range Color* must all be specified for each color map. Priority ranges may not overlap.

gemini.display.text.priority_color_map[x].priority_range_start

- Numerical value for start of this priority range.
    - Data type – String
    - Default value – none
    - Acceptable values – "1" to "999" (Must be greater than or equal to *gemini.display.text.priority_color_map[x].priority_range_end* value.)

gemini.display.text.priority_color_map[x].priority_range_end

- Numerical value for end of this priority range.
    - Data type – String
    - Default value – none
    - Acceptable values – "1" to "999" (Must be less than or equal to *gemini.display.text.priority_color_map[x].priority_range_start* value.)

gemini.display.text.priority_color_map[x].priority_range_color

- Configures display color for this particular InformaCast message priority range.
    - Data type – String
    - Default value – “white”
    - Acceptable values
        - “white”
        - “gray”
        - “primary”
        - “skyblue”
        - “cyan”
        - “blue”
        - “magenta”
        - “violet”
        - “pink”
        - “red”
        - “coral”
        - “orange”
        - “yellow”
        - “green”

Flashers

Like InformaCast message color mapping, flasher behavior is configured as an array. Each flasher will have its own array(s) for

gemini.flashers[0] = Left Flasher

gemini.flashers[1] = Center Flasher

gemini.flashers[2] = Right Flasher (white only)

Color mapping allows you to specify a text color to use when displaying InformaCast text messages within a specified (audio) priority range. Up to 1000 Priority Color Maps may be specified (***x***), using integers *0-999*. Priority Color Map value*, Priority Range Start*, and *Priority Range End, Flash Pattern, Flash Color, and Flash Brightness* must all be specified for each color map. Priority ranges may not overlap.

Troubleshooting

If, for any reason, your speaker does not properly reboot or you cannot access it through your browser, you can simply reopen the configuration file in the InformaCast server and follow steps 1-4 in Getting Started to re-edit. If you still have problems, you can erase all of the elements you've added and replace the code with the following block, *replacing the InformaCast server IP address with your own*:

```
<InformaCastSpeakerConfiguration>

  <Servers>
    <InformaCast url="http://123.456.78.90:8081/InformaCast/admin?cmd=spkr"/>
  </Servers>

  <wah:X_deviceFlatConfig xmlns:wah="urn:schemas-wahsega-com:DeviceFlatConfig-1-0">

  </wah:X_deviceFlatConfig>

</InformaCastSpeakerConfiguration>
```

Reboot your speaker once again, waiting at least one minute for all changes to take effect.

You can also restore your speaker to factory default settings, following the instructions in Appendix A of the InformaCast Speaker User's Guide.

For further support, contact Wahsega at 888.509.2379 or support@wahsega.com.