



USER MANUAL



Version 1.0.1
Revised April 6, 2023

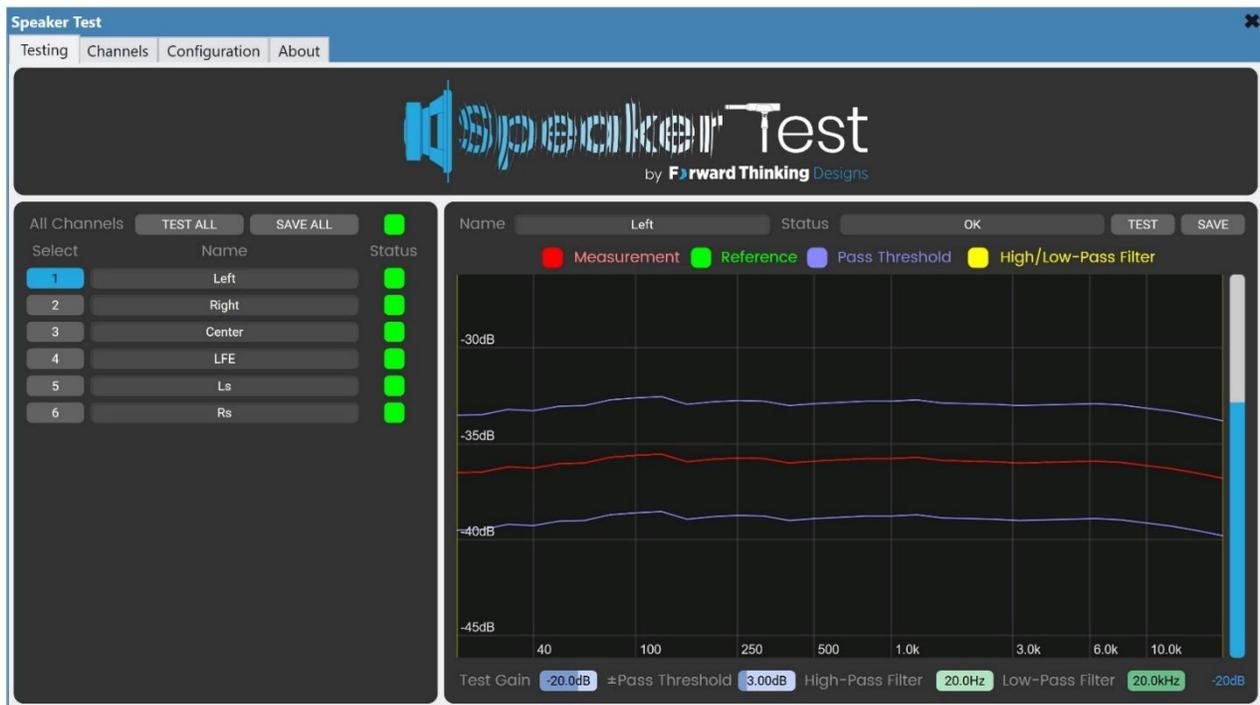
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OVERVIEW

Speaker Test is an automatic speaker testing plugin for QSC®'s Q-SYS™ version 9.0 and later, designed to give users a tool for automated checking and reporting of speaker health in a room environment. Utilizing a permanently installed microphone in the measurement space Speaker Test compares scheduled RTA measurements to a stored trace for each speaker and reports any anomalies that fall outside the predetermined parameters. Speaker Test then notifies technical personnel via Slack and/or email. Controls for Speaker Test can be easily placed on a User Control Interface (UCI) within Q-SYS™.

The Speaker Test plugin requires a license key to function but can be used in demo mode for 10 minutes to evaluate the plugin. The 10-minute period can be restarted by restarting the Q-SYS™ design. Use of the plugin in demo mode for commercial purposes is prohibited.



CONFIGURATION

Properties

Property	Function	Choices
License Key	Enter the license key here to activate the plugin.	
Channels	Specifies how many input and output channels the plugin will have.	1-64
Bandwidth	Specifies the bandwidth of the RTA measurement.	1/24, 1/12, 1/6, 1/3, 1 Octave

Properties	
Auto Speaker Test Properties	
License Key	
Channels	6
Bandwidth	1/3 Octave ▼
Show Debug	No ▼

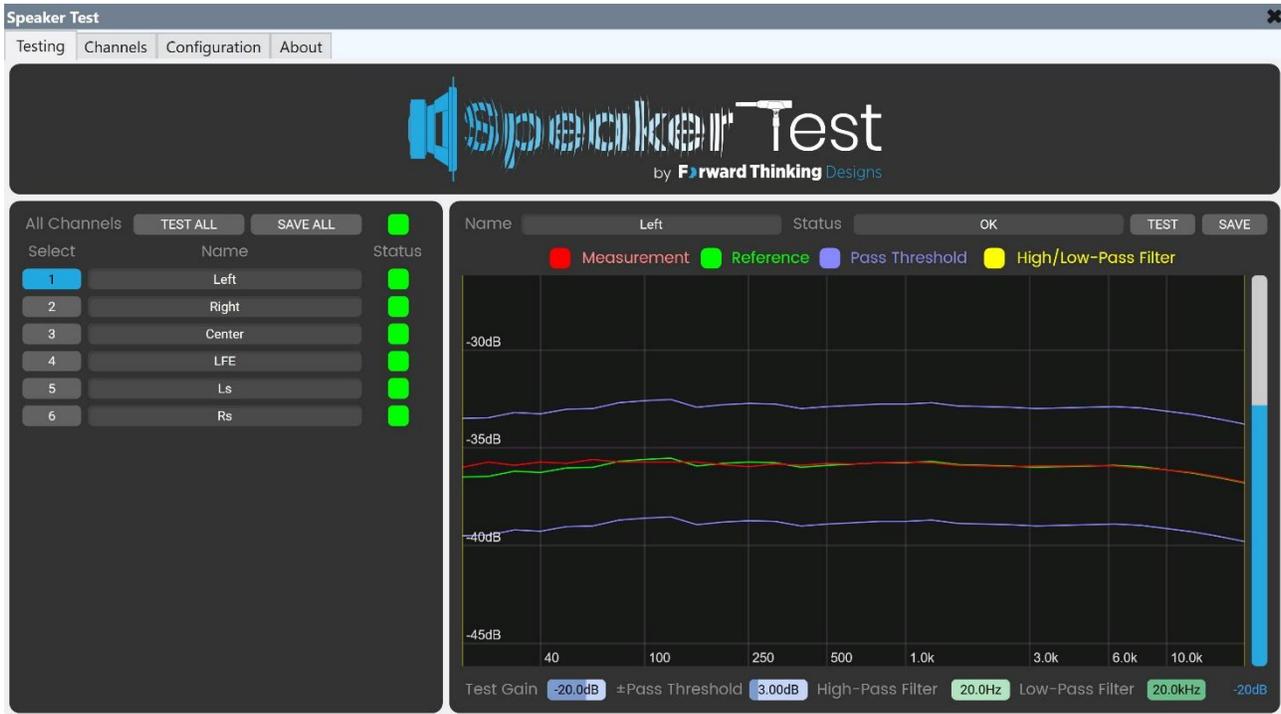
Setup

To configure Speaker Test, follow these steps:

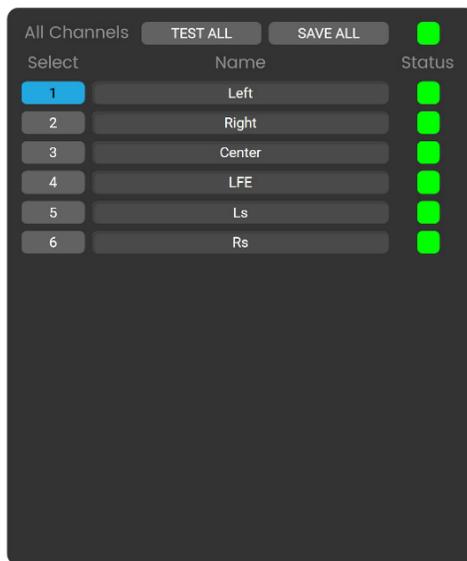
1. Enter your License Key given to you with the purchase of the plugin in the Properties window. Without a license the plugin will only function for 10 minutes.
2. Enter your desired Channel count in the plugin Properties panel. This configures the number of channels on the Speaker Test component. Max Channel count per plugin is 64.
3. Enter your desired measurement Band count in the plugin Properties panel. This configures the bandwidth of the Speaker Test measurement. Bandwidth can be set to 1/24, 1/12, 1/6, 1/3 or 1 octave.
4. Wire the desired inputs and outputs to the channel inputs and outputs on the component.
5. Wire an external microphone into the last input pin: RTA Input.
6. Place the desired controls on the User Control Interface.
7. The offline plugin settings are now finished, and the plugin should be run on an active Q-SYS™ Core using *Save to Core & Run*.
8. Congratulations, Speaker Test is now ready to use!

CONTROLS

Testing



Channel Pane



All Channels – Allows users to test and store traces for all channels sequentially and automatically.

Test All – Starts an automated test of all channels in order. If no reference measurement is stored this will create an initial trace to be used for later reference.

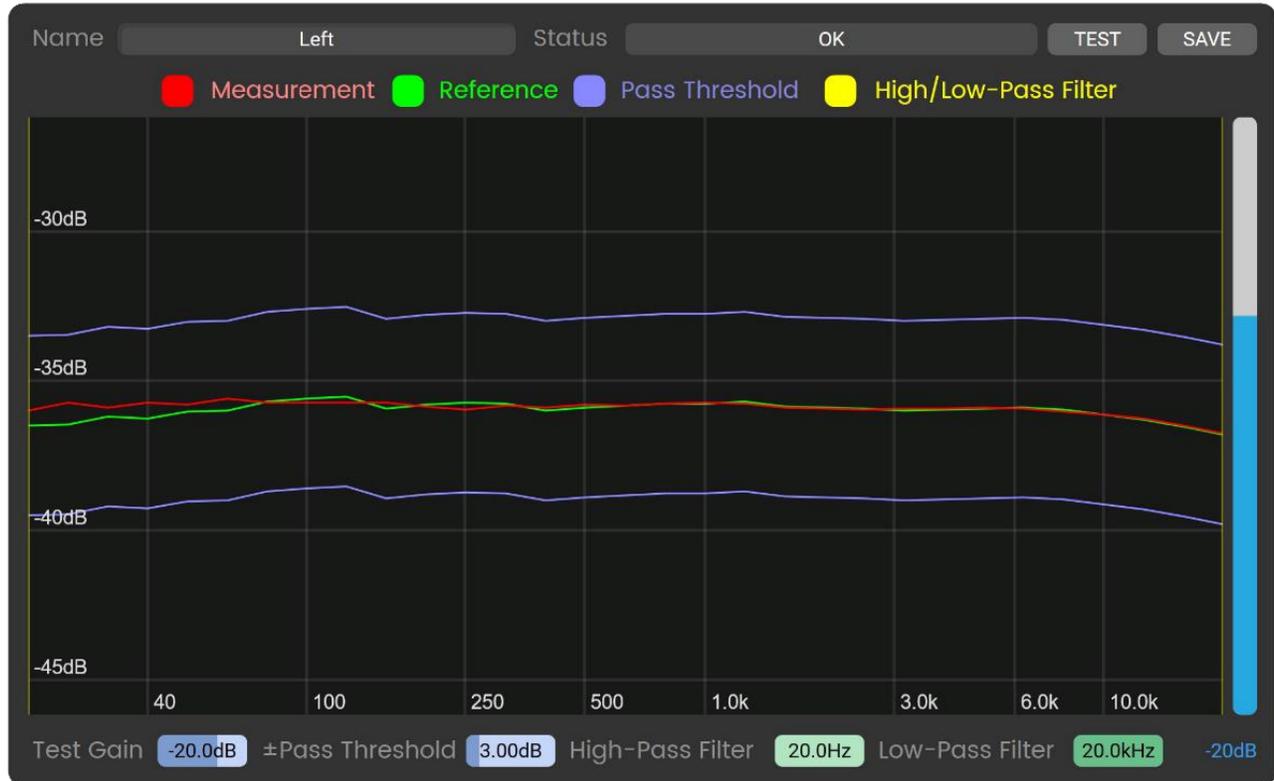
Save All – Stores the most recent traces to be used as reference for future measurements.

Select – Selects an individual channel for measurement.

Name – Allows users to name individual channels.

Status – Displays a red or green indicator to show pass/fail status of last run measurement.

Graph



Name – Displays the name of the speaker currently under test.

Status – Displays the status of the latest test, either “OK” or a reason for failure.

Test – Tests the individually selected speaker from the left pane.

Save – Saves the last trace as the reference trace for the selected speaker.

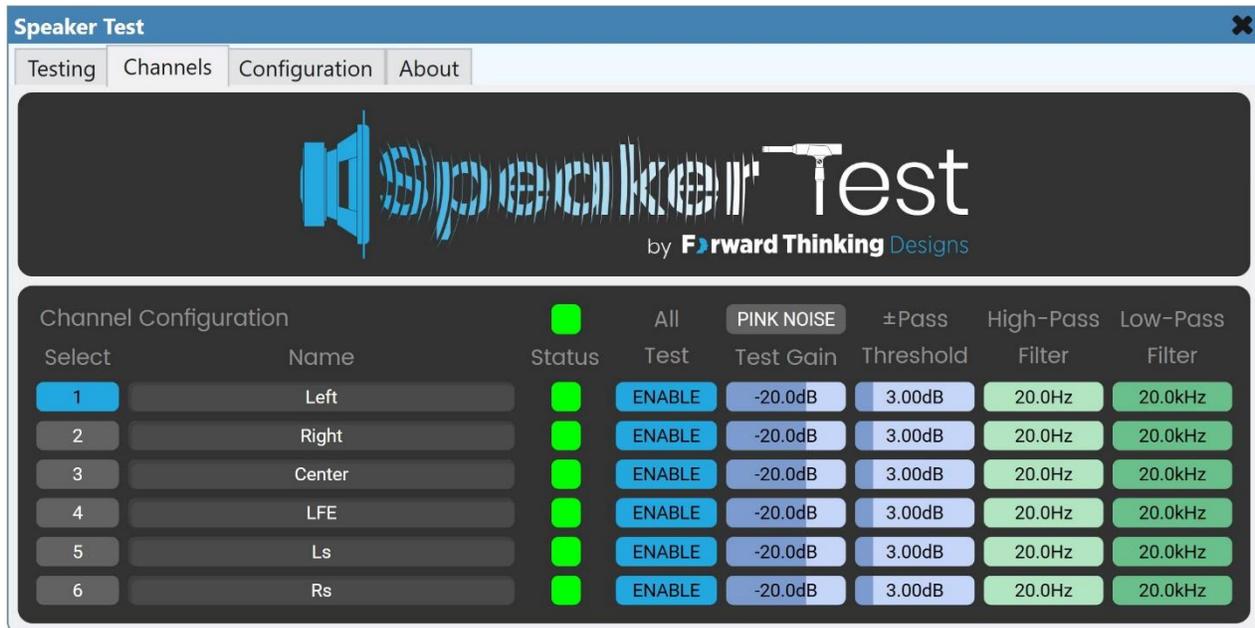
Test Gain – Sets the gain of the pink noise used for testing. This setting is per channel allowing different gains to be used for different speakers.

± Pass Threshold – Determines the threshold of the pass/fail state for each speaker. If the measurement (red) trace falls anywhere outside the threshold (purple) trace a failure will be reported.

High-Pass Filter – Allows the setting of a high-pass filter to ignore data below the set point to help prevent false failure indications from room noise, i.e., air handlers, etc.

Low-Pass Filter – Allows the setting of a low-pass filter to ignore data above the set point to help prevent false failure indications from room noise outside the usable range of the speaker, i.e., subwoofers do not need to be measured above 150Hz.

Channels



Channel Configuration

Select	Name	Status	Test	Test Gain	Threshold	Filter	Filter
1	Left	Green	ENABLE	-20.0dB	3.00dB	20.0Hz	20.0kHz
2	Right	Green	ENABLE	-20.0dB	3.00dB	20.0Hz	20.0kHz
3	Center	Green	ENABLE	-20.0dB	3.00dB	20.0Hz	20.0kHz
4	LFE	Green	ENABLE	-20.0dB	3.00dB	20.0Hz	20.0kHz
5	Ls	Green	ENABLE	-20.0dB	3.00dB	20.0Hz	20.0kHz
6	Rs	Green	ENABLE	-20.0dB	3.00dB	20.0Hz	20.0kHz

Select – Selects an individual channel for measurement.

Name – Allows users to name individual channels.

Status – Displays a red or green indicator to show pass/fail status of last run measurement.

Pink Noise – Mutes all inputs and turns on pink noise to the selected channel allowing for initial gain setting and also manual control of pink noise to a specific channel for further testing.

All Test – Click to enable the channel in the All Test sequence.

Test Gain – Sets the gain of the pink noise used for testing. This setting is per channel allowing different gains to be used for different speakers. Note: If the Test Gain is changed between the Reference and Measurement the test will be invalidated and an error will be reported.

± **Pass Threshold** - Determines the threshold of the pass/fail state for each speaker.

High-Pass Filter - Allows the setting of a high-pass filter to ignore data below the setting to help prevent false failure indications from room noise, i.e., air handlers, etc.

Low-Pass Filter - Allows the setting of a low-pass filter to ignore data above the setting to help prevent false failure indications from room noise outside the usable range of the speaker, i.e., subwoofers do not need to be measured above 150Hz.

Configuration

Top Pane

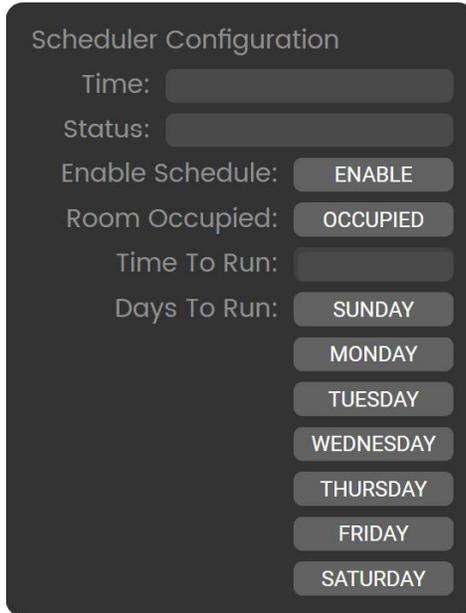
Venue Name – Sets the venue name.

Test Mode – Selects between Pink Noise and Sine Sweep as the test signal source.

Test Time – Sets the duration of the test on a per channel basis. The default is 10 seconds; however, reliable results should be achievable in as little as 5 seconds.

Signal Presence Threshold – Sets a threshold to determine if the speaker is actually producing any sound. This level should be set to slightly higher than the room’s noise floor. If no signal is present at the start of the test, the test will fail for that speaker and “Signal Presence Not Detected” will be reported.

Scheduler Configuration



Scheduler Configuration

Time:

Status:

Enable Schedule:

Room Occupied:

Time To Run:

Days To Run:

Time – Displays the current time of day based on the Core’s clock.

Status – Indicates the status of the scheduler.

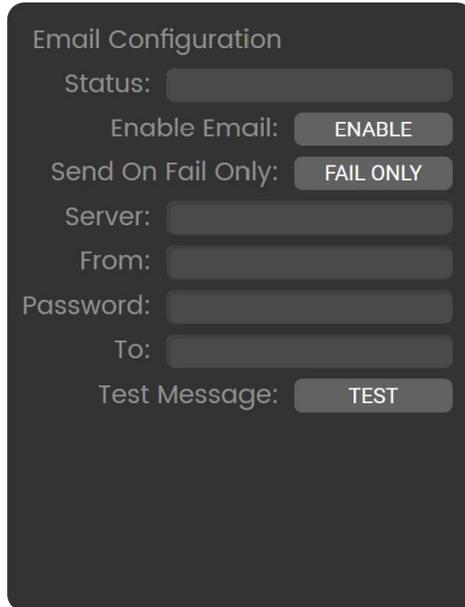
Enable Schedule – Determines if the test will run on the predetermined schedule/

Room Occupied – Enables the occupied mode which prevents the test from running if people are in the room. Requires an external input for determining room occupancy.

Time To Run – Sets the time that the schedule will run.

Days To Run – Determines which days of the week the test will run.

Email Configuration



Email Configuration

Status:

Enable Email:

Send On Fail Only:

Server:

From:

Password:

To:

Test Message:

Status – Shows a status message to indicate success (OK) or failure of sent email messages.

Enable Email – Allows sending of an email to a specified address to report status.

Send On Fail Only – Allows sending of an email only when failures are detected.

Server – Sets the email server to be used.

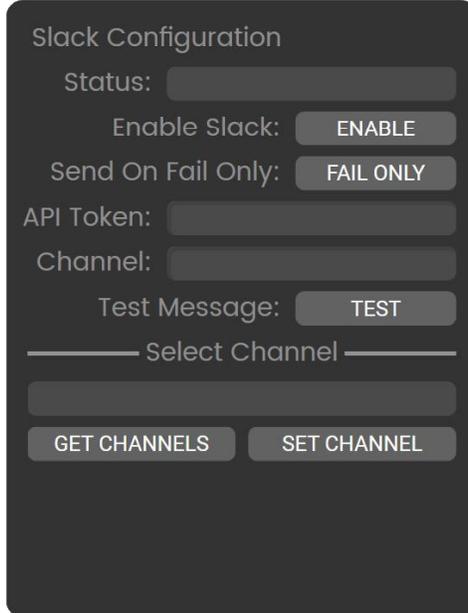
From – Sets the “From” address of the email.

Password – Sets the password for the above email account.

To – Sets the “To” address of where the email is to be sent. Multiple email addresses can be added separated by commas.

Test Message – Sends a test email message using the above settings.

Slack Configuration



The screenshot shows a dark-themed configuration panel titled "Slack Configuration". It contains several input fields and buttons: "Status:" with a text input field; "Enable Slack:" with an "ENABLE" button; "Send On Fail Only:" with a "FAIL ONLY" button; "API Token:" with a text input field; "Channel:" with a text input field; "Test Message:" with a "TEST" button; a "Select Channel" section with a list of channels (represented by a single input field in the image) and two buttons, "GET CHANNELS" and "SET CHANNEL".

Status – Shows a status message to indicate success (OK) or failure of sent Slack messages.

Enable Slack – Allows sending of a Slack message to a specified Slack channel to report status.

Send On Fail Only – Allows sending of a Slack message only when failures are detected.

API Token – Sets the Slack API token. The API token can be obtained from your Slack administrator.

Channel – Displays the Slack channel where messages will be sent.

Test Message – Sends a test Slack message using the above settings.

Get Channels – Retrieves a list of all available Slack channels based on the above settings.

Set Channel – Sets the Slack channel to the channel highlighted in the list.

APPENDIX A: CONTROL PINS

All

Pin Name	Control Type	Value Range	Pin Direction
Save	Boolean	True / False	Input / Output
Test	Boolean	True / False	Input / Output

Channel (for each)

Pin Name	Control Type	Value Range	Pin Direction
All Test Enable	Boolean	True / False	Input / Output
Name	String	User Defined	Input / Output
Pass	Boolean	True / False	Output

Email

Pin Name	Control Type	Value Range	Pin Direction
Enable	Boolean	True / False	Input / Output
Send On Fail Only	Boolean	True / False	Input / Output
Status	String		Output

Scheduler

Day

Pin Name	Control Type	Value Range	Pin Direction
Friday	Boolean	True / False	Input / Output
Monday	Boolean	True / False	Input / Output
Saturday	Boolean	True / False	Input / Output
Sunday	Boolean	True / False	Input / Output
Thursday	Boolean	True / False	Input / Output
Tuesday	Boolean	True / False	Input / Output
Wednesday	Boolean	True / False	Input / Output

General

Pin Name	Control Type	Value Range	Pin Direction
Current Time	String		Output
Enable	Boolean	True / False	Input / Output
Occupied	Boolean	True / False	Input / Output
Status	String		Output
Time	String	User Defined	Input / Output

Slack

Pin Name	Control Type	Value Range	Pin Direction
Enable	Boolean	True / False	Input / Output
Send On Fail Only	Boolean	True / False	Input / Output
Status	String		Output

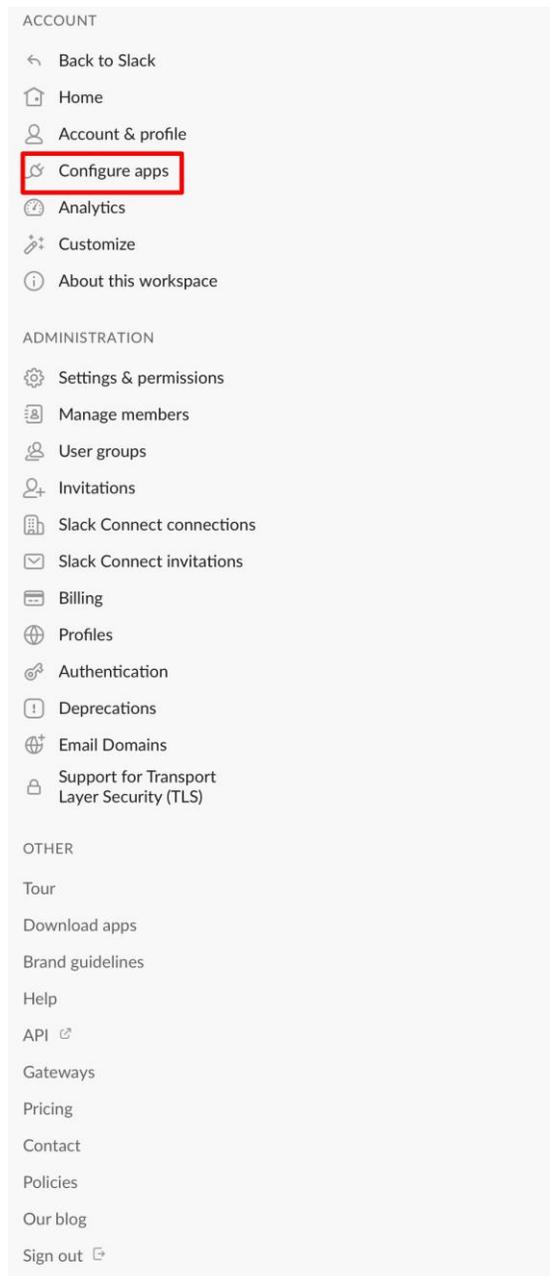
General

Pin Name	Control Type	Value Range	Pin Direction
All Pass	Boolean	True / False	Output
Disable	Boolean	True / False	Input / Output

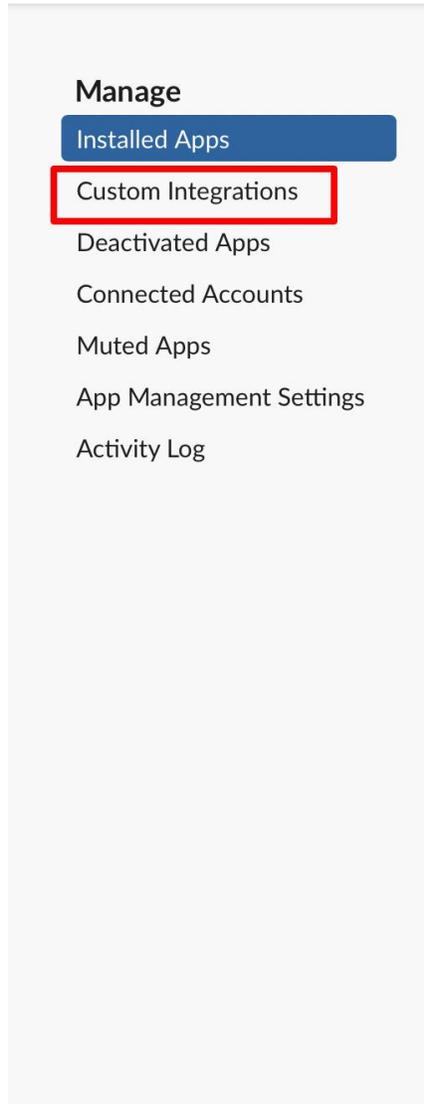
APPENDIX B: SLACK INTEGRATION

To configure Slack to accept message from Speaker Test follow these steps:

In Slack, go to **Settings & Administration** -> **Workspace Settings** -> **Configure apps**.



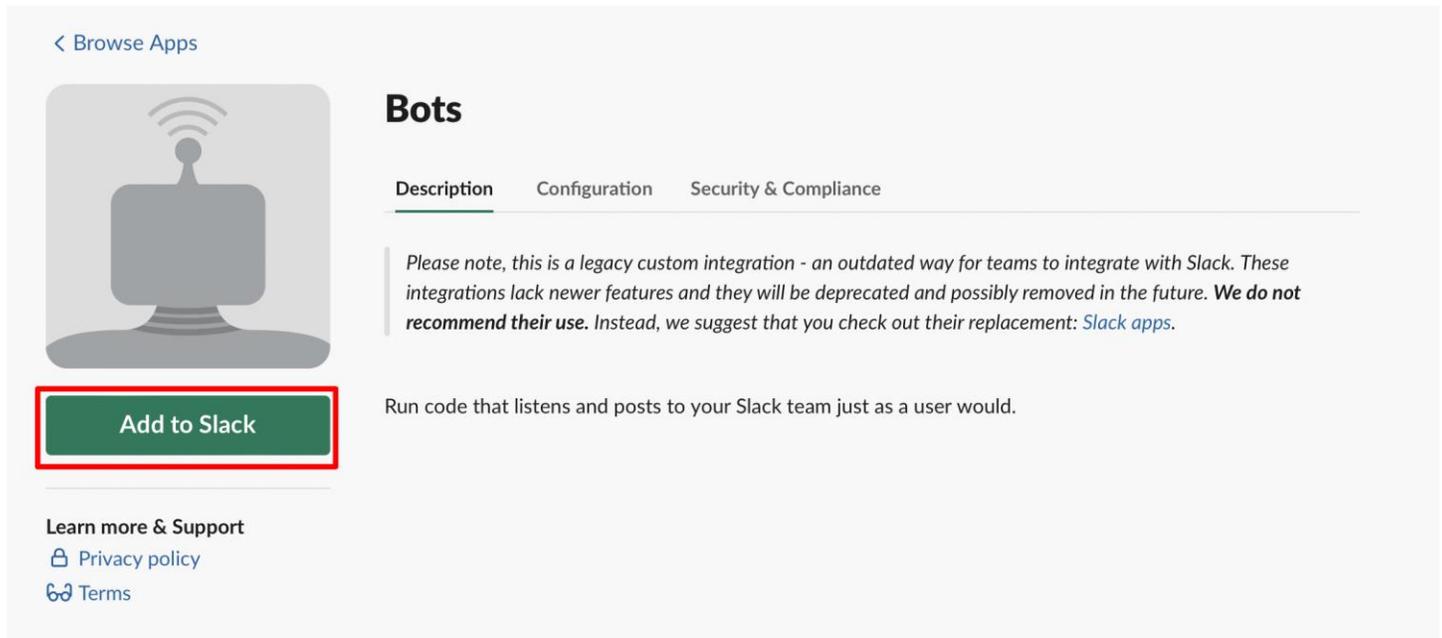
Under **Manage** click on **Custom Integrations**.



In **Configured Custom Integrations** you should see any figured Bots.



In the **Bots** section, click on Add to Slack.



< Browse Apps

Bots

[Description](#) [Configuration](#) [Security & Compliance](#)

Please note, this is a legacy custom integration - an outdated way for teams to integrate with Slack. These integrations lack newer features and they will be deprecated and possibly removed in the future. **We do not recommend their use.** Instead, we suggest that you check out their replacement: [Slack apps](#).

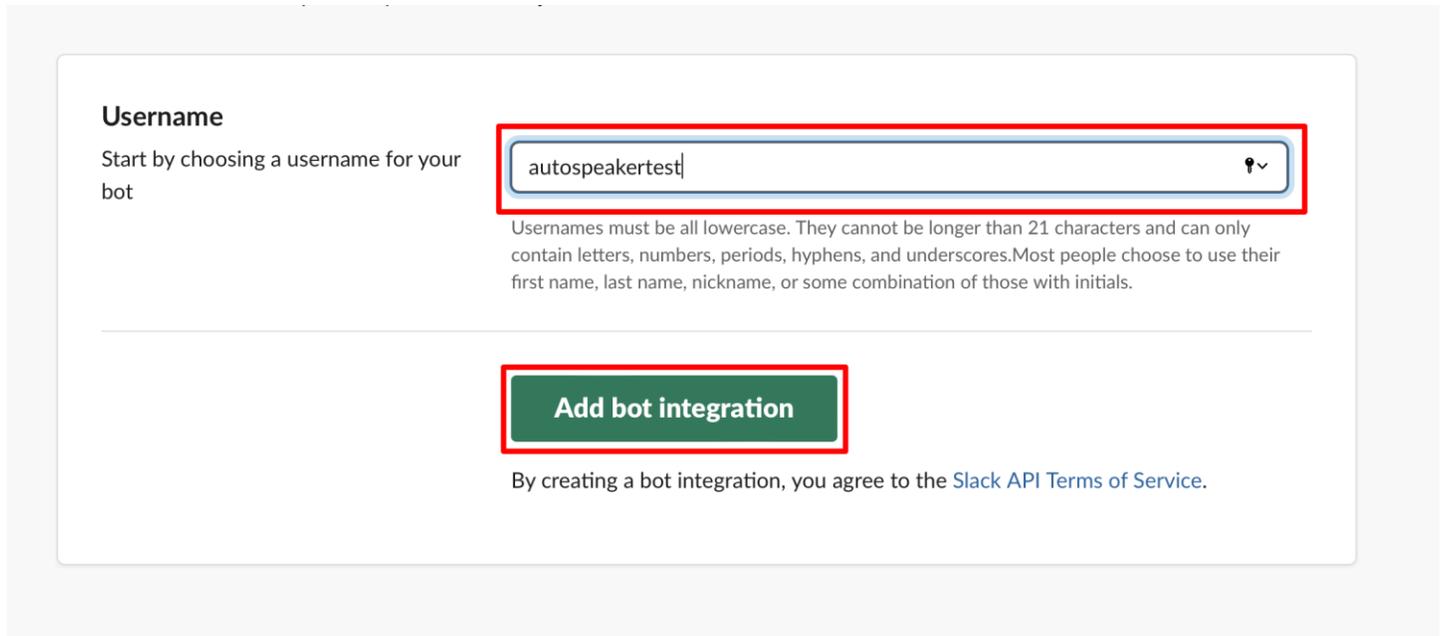
Run code that listens and posts to your Slack team just as a user would.

Add to Slack

Learn more & Support

- [Privacy policy](#)
- [Terms](#)

In the **Username** section, create a name for your Bot Integration. Click on **Add bot integration**.



Username

Start by choosing a username for your bot

Usernames must be all lowercase. They cannot be longer than 21 characters and can only contain letters, numbers, periods, hyphens, and underscores. Most people choose to use their first name, last name, nickname, or some combination of those with initials.

Add bot integration

By creating a bot integration, you agree to the [Slack API Terms of Service](#).

SUPPORT

For plugin support and feedback please contact us at:

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LICENSE

Use of this plugin is contingent on your acceptance of our Plugin Software License Agreement. This license agreement is available to view at:

ForwardThinkingDesigns.com/license