

User's Guide

Audio Checklist

(NORSEE Certified Edition)

Models:

1- Audio Checklist

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Revision History

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1.0	07/01/2024	First Release

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2 General Overview

The Microkit Audio Checklist is a digital device that plays pre-stored audio files checklists using the airplane intercom or audio panel. The unit can also connect directly to a headset providing the headset can amplify the audio output of the unit.

The Audio Checklist unit comes with a remote control which is used to trigger playing the checklist when required. The Audio Checklist unit also offers external push-buttons interface option to trigger playing the checklist, up to 3 optional push-buttons can be installed on the aircraft panel and then configured to trigger a specific checklist such as the Emergency Checklist, or Landing (on final) Checklist with a single push.

Owners/Operators are able to upload their own checklists using the built-in WiFi interface.

The remote control offers direct access to specific checklists such as the “Emergency Checklist” using a single dedicated button, and it also offers fast navigation to the next checklist that needs to be played once the button is pressed. Several emergency checklists can be stored and accessed using the single dedicated button on the remote or the optional panel push buttons if installed.

The Audio Checklist unit offers up to 9 standard checklists which are controlled either via a dedicated configured button or via the NEXT/PREV remote buttons. It also offers up to 6 Emergency Checklists that are sequenced using either the dedicated remote control emergency button or by using the optional panel push-button interface.

NOTE: This Audio Checklist is not a replacement for an actual airplane approved checklist. Microkit's Audio checklist is designed to be an extra aid and pilots/operators should still carry the airplane approved checklist to satisfy any regulations or operational requirements.

3 Audio Files Overview

Owners need to upload their prepared checklists either by recording the audio to files, or by using one of many freely available online TTS services (text-to-speech engines), refer to the full example below that uses the free tier Amazon Polly.

Owners can also download a single ZIP file for their make/model once shared by other users and hosted on our product page. **Please share your audio files for others to use directly.**

There are two methods to organize audio files structure for the Audio Checklists. Owners can use a single audio file per sub-checklist, or several audio files for that sub-checklist, where each item in this sub-checklist has its own audio file. Both methods can co-exist, meaning a specific sub-checklist can be a single audio file, while a different one can be of multiple audio files. The advantage of having several files per sub-checklist is the ability to configure the Audio Checklist unit to STOP after each item in this sub-checklist and continue to the next item once the STEP button is pressed. If there is only one audio file for a sub-checklist, the STOP/STEP combination is not available. This feature gives owners/operators great flexibility in regard to certain checklists where they want time to perform each item compared to a different checklist where

they just hear all items one after each other without interruption just to check or verify. An example is provided below the actual file structure.

Audio File Format

File Format: MP3

Sampling Rate: 22050 Hz **or** 24000 Hz.

All files must have the same sampling rate, and two options are provided due to the fact that several Text-To-Speech sites offer one of these. A setting within the Audio Files section on the WiFi page allows this selection.

Audio File Naming Convention

The unit accepts audio files named 0.mp3 to 999.mp3.

This naming convention allows the unit to correctly save the uploaded file(s) and associate each file with a specific checklist.

All files from 0.mp3 to 99.mp3 are associated with Emergency Checklists.

Files from 100.mp3 to 199.mp3 are associated with Checklist 1

Files from 200.mp3 to 299.mp3 are associated with Checklist 2

And so on, till files 900.mp3 to 999.mp3 are associated with Checklist 9.

The first file of the range, for example for Checklist 3, file named 300.mp3 is the first one to be played on that checklist. It is recommended that the first audio file for each list contains the name of the list itself. For example, if you decide that Checklist 3 to be the Cruise Checklist, and this checklist is going to be of multiple files, then 300.mp3 contains the audio: “**Cruise**” or “**Cruise Checklist**” then the next file in the sequence can contain the first item of the cruise checklist, the first file can also contains both the name of the checklist and the first item after a half a second pause, an example of this is shown below.

This next file can be 301.mp3, but it can also be 305.mp3, assuming no files named 301 to 304 are available.

The unit plays the next file in sequence regardless if there is a gap in the file naming. It is also recommended to leave a gap between files on the same sub-checklist.

In the example above, if the **Cruise Checklist** contains 6 items, the suggested naming convention is

300.mp3 : contains the checklist name

304.mp3 : contains item 1

308.mp3 : contains item 2

...

...

324.mp3 : contains item 6.

The reason for this suggestion is planning ahead, if in the future you decide to add another item to the Cruise Checklist due to an upgrade on your panel or airplane equipment, and this item needs to be between item 1 and item 2, then you can easily insert a single file item by naming it 305.mp3 or 306.mp3 for example. If the Cruise Checklist files were named 300.mp3 to 307.mp3, then the option would be to either put the new item at the end (308.mp3) or create a new set and upload the files again, the unit asks you if you want to overwrite a file name that it detected already available.

As the above Cruise Checklist now contains several files, you have the option to configure the unit to STOP after playing each item, and continue playing after you press the STEP button. Basically you are stepping through the checklist one item at a time. If the STOP option is not enabled

for that checklist and there are several files available for this checklist, the unit pauses between each item and plays the next item automatically, the pause amount can be configured within the WiFi pages.

For the same example above, it is also possible to create a single audio file for the Cruise Checklist, which first contains the name of the checklist followed by all 6 items all in one audio file. The pause between each item is now controlled by the audio file recording itself, and the STOP/STEP option can not be used on this checklist as it's only a single file.

Text-To-Speech

At the time of writing, Amazon is offering free usage of Amazon Polly when opening a free Amazon AWS account. This covers 5 million characters per month for 12 months. There are also several free online sites that convert text to MP3 file format. The example below was created using Amazon Polly.

Many, if not all, text-to-speech sites use SSML (Speech Synthesis Markup Language) which allows adding pauses or breaks and other controls for converting the text to audio.

A screenshot below shows an example of creating the first audio file for “**Pre Start Checklist**”, with the first item on the checklist being “**Seat Belts Fastened**”.

Using the same format, repeat with other items, and download the audio file generated for each item. Click on SSML to enable it if it was disabled by default.

Text-to-Speech Info

Save to S3
Download
▶ Listen

Engine Info

Generative
Produces the most expressive and adaptive speech using Generative AI.

Long-Form
Produces the most natural sounding speech for longer content.

Neural
Produces more natural and human-like speech than Standard Engine.

Standard
Produces natural-sounding speech.

Language Info **Voice** Info

English, US ▼

Matthew, Male ▼

Input text Info **SSML** Info

```
<speak>
Pre Start Checklist
<break time="0.5s"/>
Seat Belts
<break time="0.5s"/>
Fastened
</speak>
```

98 characters used

Restore default text
Clear text

Click Listen to check the audio, adjust text if needed then click Download. For certain words such as “EFIS”, you may need to type “eefus” to get the correct pronunciation. Rename the downloaded audio file according to our naming convention, place all files together then archive the files to a single ZIP file.

Uploading Audio Files

The Audio Checklists accepts a ZIP file that contains several files, either all audio files for several checklists or files for a specific checklist. You can also upload a single MP3 file at a time.

Once a file or a ZIP file is uploaded using the WiFi interface, and before saving the file, the unit decodes the file(s) and shows the list along with how it will be saving these files, such as the uploaded file(s) association with which checklist.

4 Wi-Fi Connection

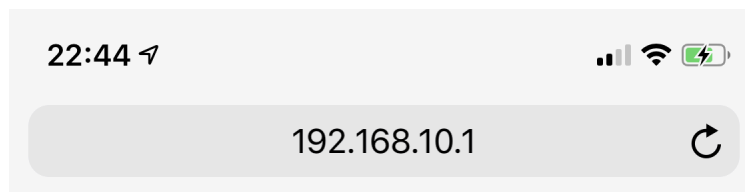
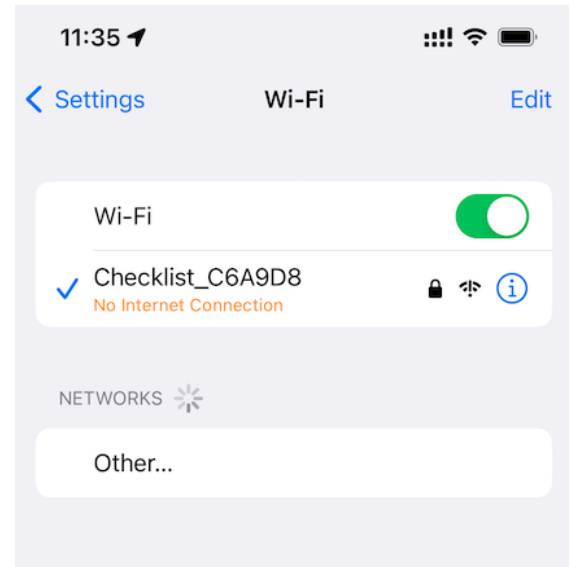
The Audio Checklist offers a Wi-Fi access point (AP) allowing Wi-Fi connection to the device to load the local pages. This provides access from any Wi-Fi capable device such as phones, tablets, or laptops. Once connected to the unit WiFi access point, use any browser to load the unit pages.

Use your device Wi-Fi Search and look for **Checklist_xxxxxx**. The xxxxxx is the unique serial number of the unit.

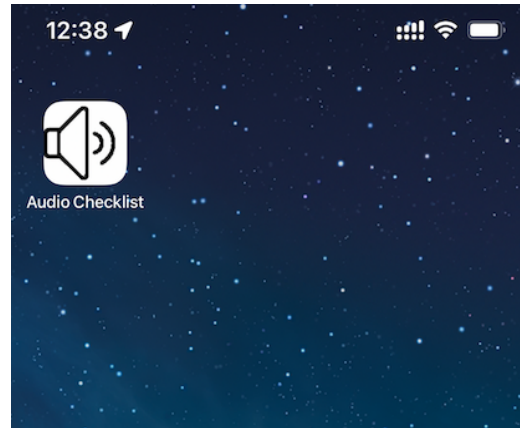
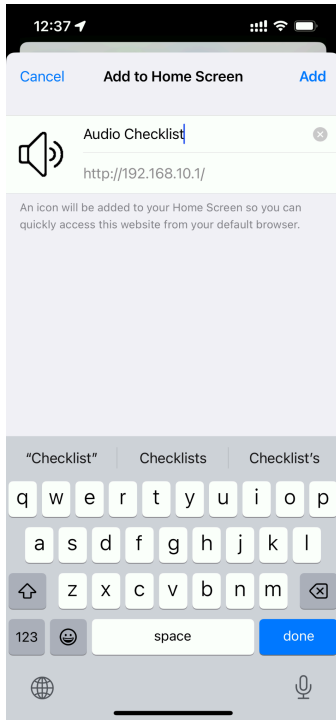
The default Wi-Fi Password: **audiochecklist**

It is common to get a “No Internet Connection” message as this is a device to unit directly with no internet access.

Once connected, use your device Browser (Safari / Chrome / others) to connect to the system. Input **http://192.168.10.1** on the browser. **Some browsers may accept 192.168.10.1 directly and others may need http://**



For faster access, make a bookmark or a home screen icon, for example on iOS; use “Add to Home Screen” which will save the IP address above to that icon link for direct access.



5 Wi-Fi Menu

5.1 Main Page

This is the main page. Connecting to the unit's WiFi to load the pages is only for setup or configuration. Once the unit is configured, there is no need to connect to the unit's Wi-Fi access point or load the pages.

Audio Checklist

- Checklists Control
- Emergency Checklists
- Audio Files
- Remote Control
- Add-on Buttons
- WiFi & System Options

Firmware: 1.00 (E51)

Unit ID: C6A9D8 (1.00)

5.2 Checklist Control

Use this page to **enable** required checklists once your audio files are uploaded to the Audio Checklist unit.

Refer to the “Audio Files” section for the file structure and uploading procedure.

There are a total of 9 checklists; Checklist 1 through Checklist 9 and a total of 6 Emergency Checklists which are on a separate page. Rename any Checklist to the desired description (for your reference only). The unit starts on Checklist 1 and moves in sequence of these enabled checklists.

Enable/Disable Checklists

Name	Files	Stop	Enabled
<input type="text" value="Pre Start"/>	8	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="text" value="Take Off"/>	20	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="text" value="Cruise"/>	20	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text" value="Descent"/>	11	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="text" value="IFR Approach"/>	7	<input type="checkbox"/>	<input type="checkbox"/>
<input type="text" value="Downwind"/>	14	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="text" value="Final"/>	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="text" value="Checklist 8"/>	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="text" value="Checklist 9"/>	0	<input type="checkbox"/>	<input type="checkbox"/>

Pause before playing next

1 second ▾

Update

“**Stop**” option stops the unit from playing the next sub-item in that checklist until the **STEP** remote button is pressed to hear the next sub-item.

“**Pause**” option provides a pause between sub-items in the checklists that do not have “**Stop**” enabled. If the “**Stop**” is not enabled on a checklist; the unit plays the checklist fully with the set “**Pause**” if there is more than one audio file available for that checklist.

Refer to the Section 3 “Audio Files Overview” for detailed information about the file structure and STOP/STEP/PAUSE options.

5.3 Emergency Checklists

Up to 6 different emergency checklists can be configured. Select which files associated with each emergency checklist; among files 0.mp3 to 99.mp3 and enable it. The STOP option is also available similar to the standard checklists.

If more than one emergency checklist is enabled, cycle through these checklists with the dedicated remote control emergency button or an external button if installed.

Files can be shared among all the emergency checklists allowing a common entry to be reused on a different emergency checklist without the need to create the audio file again.

Emergency Checklists

Name	Files	Stop	Enabled	
Engine Failure	5	No	Yes	Edit
Engine Fire	3	No	Yes	Edit
Electrical Fire	3	No	Yes	Edit
Engine Rough	0	No	No	Edit
Emergency Checklist 5	0	No	No	Edit
Emergency Checklist 6	0	No	No	Edit

Name	Stop	Enabled
<input type="text" value="Engine Failure"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Select Files for this Checklist

<input checked="" type="checkbox"/>	0.mp3	Play
<input checked="" type="checkbox"/>	1.mp3	Play
<input type="checkbox"/>	4.mp3	Play
<input type="checkbox"/>	6.mp3	Play
<input type="checkbox"/>	8.mp3	Play
<input checked="" type="checkbox"/>	10.mp3	Play

5.4 Audio Files

Upload Audio Files either combined in one ZIP file, or a single MP3 file at a time. The ZIP file must contain only MP3 files, no directories or other files. ZIP several MP3 files to one ZIP file and upload.

View Audio Files to download it again or listen/play an individual file.

Delete all Audio Files allows the full deletion of the all uploaded audio files to start fresh. Note that deleting all files does not disable any enabled or configured checklists, this needs to be done manually after uploading a new set to reconfigure the system.

5.5 Remote Control Options

The unit can be configured to use more than one remote control at the same time, this allows two remote controls to be used, for example, one for the co-pilot side.

WiFi Remote mimics the exact buttons of the remote control for testing or using via WiFi.

Audio Files Options

Upload Audio Files

View Audio Files

Delete all Audio Files

Audio Files Settings

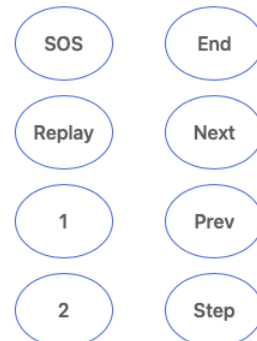
[Back](#)

Remote Control Options

Add new Remote

Delete all Remotes

WiFi Remote



5.6 Add-on Buttons

Buttons labeled 1 and 2 on the remote can be configured to run any enabled checklist. The three external push buttons also can be configured to trigger checklists either with a standard push, or a long push, allowing 3 external push buttons to function as 6 external buttons.

Audio Checklist units are shipped pre-configured to play “System OK” audio message when the button labeled “2” is pressed on the remote control. This allows immediate confirmation that the unit is installed correctly without the need to upload audio files.

5.7 WiFi & System Options

This page allows changing the default Wi-Fi network name with any other name, such as your Tail-Number. When changed, the system will restart, search and connect to the new Wi-Fi network name. Note, this is case-sensitive.

Configure External Triggers & Remote Buttons

Remote Buttons

Button 1

Button 2

Trigger 1

Single Press

Long Press

Trigger 2

Single Press

Long Press

Triggers 1 & 2

Single Press

Long Press

Save

WiFi & System Options

Change WiFi Network

Reset WiFi Network

Restart System

Firmware Update

When changing the password, make sure at least one of your devices (phone or iPad) saves the new password and can connect to the unit again without asking for the password. If you forget the new password, the only way to reset it is either by using a device (phone or iPad) that already saved the password and reset using this page or by returning the unit back for firmware re-programming. We have no way of knowing your new password if you are unable to connect to the unit.

6 Remote Control

The Audio Checklist unit is designed to play checklists in sequence, once you hear the first checklist, it remembers this and the next time you press NEXT, it plays the next checklist among the enabled checklists. For example, if your first checklist is “PreStart”, and the second enabled checklist is the “Taxi”; the first time you click the NEXT button, it plays the “PreStart” checklist, and the next click, it plays the “Taxi”, and so on, this allows logical transition to the next checklist as you are done with the previous one.

Emergency	Cycle through the emergency checklists in sequence.
End	Stop playing the currently playing checklist
Replay	Play again the last checklist that was played.
Next	Play the next checklist in the sequence.
Prev	Play the previous checklist in the sequence.
Step	Step to the next item if enabled
1 & 2	Custom configured buttons.

