

Work by Speech

User Guide

Work by Speech is the first program in the world that allows efficient work on a computer by speech without needing a keyboard and mouse.

1. Work by Speech requirements:

- Windows 10 64-bit or Windows 11
- .NET Framework 4.7.2 or higher
- English language (United States, United Kingdom, Canada, India or Australia) set as:
 - Windows display language (Start -> Settings -> Time & Language -> Language)
 - Windows speech language (Start -> Settings -> Time & Language -> Speech)
 - Windows speech recognizer language (Start -> Control Panel -> Ease of Access -> Speech Recognition -> Advanced speech options -> Language)
- Any microphone

2. Recommended microphone for speech recognition

- This application works well even with the cheapest microphones. The main disadvantage of using such microphones is the fact that they have low sensitivity and SNR (signal to noise ratio). It means that in order to achieve high speech recognition accuracy, a cheap microphone must be placed close to the mouth.
- A good microphone has sensitivity around -40 dB while having high SNR. Such a microphone works well even if placed approximately 20 inch away from the user. A microphone with a sensitivity rating of -40 dB is more sensitive than -50 dB, and -50 dB is more sensitive than -60 dB.
- When it comes to microphone pickup patterns, it's best to choose a cardioid microphone for speech recognition, because it's most sensitive to sound coming from the front.
- If you are in a noisy environment:
 - Use a headset microphone or a cardioid desktop microphone placed close to your mouth.
 - A microphone with high sensitivity isn't necessary.
 - You should speak into the microphone with a normal sound volume.

3. Recommended Windows settings:

- Windows auto login enabled.
- Start -> Settings -> Time & Language -> Speech -> Recognize non-native accents for this language: **OFF** (it's most likely better if this option is OFF even if you are a non-native speaker).
- **Windows 11:**
 - Start -> Settings -> Time & language -> Typing -> Show text suggestions when typing on the physical keyboard: **ON**.
 - Start -> Settings -> Privacy & security -> Speech -> Online speech recognition: set this to **ON** if you want to use better dictation.

- **Windows 10:**

- Start -> Settings -> Typing -> Show text suggestions as I type on the software keyboard: **ON**.
- Start -> Settings -> Privacy -> Speech -> Online speech recognition: set this to **ON** if you want to use better dictation.

4. Setting up speech recognition:

- 1) Make sure that your microphone is connected to your computer.
- 2) Work by Speech uses the default microphone for speech recognition. Go to Start -> Settings -> System -> Sound and make sure that your microphone is set as the default input device.
- 3) If your microphone has a knob that allows changing volume, set it to the highest volume possible.
- 4) Make sure that your microphone is working correctly by going to Start -> Settings -> System -> Sound. In Sound settings, go to Input and under Test your microphone, look for the blue bar that rises and falls as you speak into your microphone. If the bar is moving, your microphone is working properly.
- 5) Go to Start -> Control Panel -> Ease of Access -> Speech Recognition -> Set up microphone.

This test will adjust your microphone volume based on how loud you speak. You should speak quietly during this test if you are in a quiet environment and want to speak quietly to your microphone while using Work by Speech. Make sure that the background noise is not louder than your speaking volume. You can always do this test again if necessary. After completing this test, your microphone volume will be set to recommended value. You can also manually change your microphone volume by going to Start -> Settings -> System -> Sound -> Input -> Device properties.




- 6) Work by Speech uses Windows Speech Recognition Engine for simple commands which works very well only if at least two voice trainings are completed.

Go to Start -> Control Panel -> Ease of Access -> Speech Recognition -> Train your computer to better understand you and complete two voice trainings (click *More training* after completing first voice training). If the voice training application would become unresponsive, click *Pause* and *Resume*.

Please do not click *Start Speech Recognition*. Doing so would start Windows Speech Recognition application. Work by Speech cannot work properly when Windows Speech Recognition application is running. Clicking *Start Speech Recognition* would also set your microphone volume to a value that was determined as the best for speech recognition after you completed the *Set up microphone* test.

If another user would like to use Work by Speech from the same computer, a new speech recognition profile must be created (Start -> Control Panel -> Ease of Access -> Speech Recognition -> Advanced speech options -> New). That user should also complete voice trainings which can be started by pressing *Train Profile*. Please do not check *Run Speech Recognition* at startup, because that would run Windows Speech Recognition application at system startup. Work by Speech can provide high speech recognition accuracy only for the user that trained the currently selected speech recognition profile. Restart Work by Speech every time you change the speech recognition profile.

5. Modes

- Work by Speech works in 3 modes:
 -  **OFF** – represented by red microphone icon (also in the system tray). The only voice command available in this mode is *Start speech recognition*.
 -  **Command** – represented by green microphone icon. This mode allows efficient work on a computer by using voice commands.
 -  **Dictation** – represented by blue microphone icon. This mode allows dictation.

6. Speech recognition window



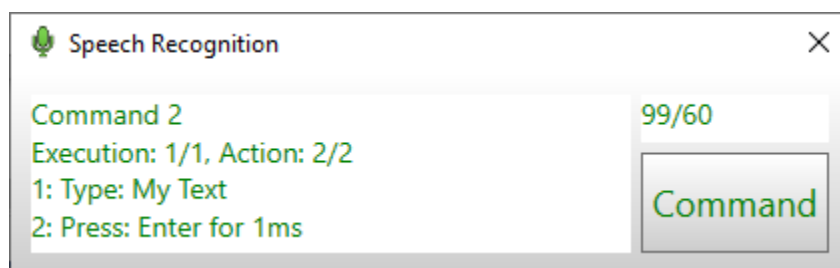
- It shows recognized speech, recognition confidence, required recognition confidence and current mode name in the *Mode* button.
- If required recognition confidence is not fulfilled, recognized speech appears as red text and action is not performed.
- If required recognition confidence is fulfilled, recognized speech appears as green text and action is performed.
- You can change the mode by using voice command, by clicking the *Mode* button or by right clicking Work by Speech icon in the system tray.
- The Mode button is visible when Work by Speech is listening to you and invisible when it is not.
- You can hide this window by clicking X in window's top right corner or by saying *Hide speech recognition*.

7. Dictation

- If *Use better dictation* is selected, Windows Dictation Tool will be used which provides higher speech recognition accuracy, but requires internet connection. Selecting this option also means that recognized dictation doesn't appear in the speech recognition window and the *Confidence required for dictation* setting is ignored.

8. Custom commands

- Custom commands are voice commands that you can create by yourself to perform actions that you want.
- These commands automate and speed up repetitive tasks.
- Custom commands are stored in profiles.
- Each profile can be associated with any program or a specific application. If a profile is associated with a specific program, all commands within it work only in that program.
- If more than one profile is associated with the same program, all of them will be used.
- Custom commands have higher priority than built-in commands. If a custom command is named the same as a built-in command, only the custom command is executed when its name is spoken.
- You may enable, disable and duplicate a profile by right clicking it and choosing the desired option.
- You may enable, disable, copy and paste a command by right clicking it and choosing the desired option.
- To execute a custom command, simply say its name while in *Command* mode.
- You may execute a command more than once if its max executions number is set to a value higher than 1.
- Do not set max executions number to a value higher than necessary.
- To increase the command's execution number say *twice* or *x times* after saying the command name.
- Multiple executions examples for command named *My Command* with max executions set to 50:
 - *My Command twice* – executes *My Command* twice
 - *My Command 8 times* – executes *My Command* 8 times
 - *My Command 50 times* – executes *My Command* 50 times
- The speech recognition window allows monitoring of custom commands execution.



9. Macro Recorder

- You can use the Macro Recorder to record a sequence of mouse movements, mouse clicks and keystrokes. The Macro Recording window can be opened by clicking the *Record* button in the Custom Command Management window.

- The Macro Recorder accurately records mouse movements when *Record Mouse Movements* option is selected. Mouse clicks are always recorded with cursor coordinates, so selecting this option is not recommended for recording simple mouse actions.
- Recorded macros can be added to a custom voice command and edited later. Other types of actions can be added to it. You can also share your macros with friends by using the *Export Profiles* feature.

10. Mousegrid

- The mousegrid divides the screen into up to 2550 figures.
- Each figure contains up to 2 characters. To read them you need to know the mousegrid alphabet which is described in the *Mousegrid Alphabet* document. Reading a string inside a figure moves the mouse cursor to the center of that string and performs mouse action that was chosen earlier by a voice command.
- You can move the mousegrid by saying up, down, left, right.
- Mousegrid types are:
 - **Hexagonal** – consists of regular hexagons (hexagons may be almost regular, because their height may be changed so screen is equally covered by them – the same thing can happen to the figures in other mousegrid types)
 - **Square** – consists of squares.
 - **Square horizontal precision** – consists of squares that are positioned in a way that increases mouse horizontal precision.
 - **Square vertical precision** – consists of squares that are positioned in a way that increases mouse vertical precision.
 - **Square combined precision** – consists of squares that are positioned in a way that increases mouse horizontal and vertical precision.
- Mousegrid lines can be used by every mousegrid type, but not hexagonal.
- Font color, font size and background color can be changed.
- Changing font size changes background surface area as well.

11. Smart mousegrid

- When Smart mousegrid is enabled, mouse control is sped up based on how you use each application. The more often a figure is chosen, the shorter code word(s) it has.
- Smart mousegrid works separately for each application.
- Smart mousegrid data is collected separately for each mousegrid type and desired figures number.

12. Open [application name] command

- This command can open any application that has a shortcut file (.lnk) in *C:\ProgramData\Microsoft\Windows\Start Menu\Programs*.
- If you can't open a program by using this command, you need to copy a shortcut to this application to *C:\ProgramData\Microsoft\Windows\Start Menu\Programs*.