



Morse Notifier Free/Pro

USER GUIDE

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1 Program description

Morse Notifier is an Android app which can be used to announce a variety of events using Morse code.

The events that can be announced are:

- Incoming calls.
- Incoming SMS and MMS messages.
- System events such as WiFi status, battery charging status, and battery state.
- A hourly chime.
- Custom reminders/alarms (pro version only).
- Notifications from 3rd-party apps (pro version only).

Morse Notifier is very handy for people than often find themselves in situations where they cannot use their hands to pick up the phone, to check a notification or to read an incoming SMS message (e.g when they are driving). Morse Notifier is also ideal for visually impaired people that find it difficult to read text on their devices. Last but not least, Morse Notifier is a great tool to motivate and assist you to learn CW!

Morse Notifier is available in two versions: The free version and the pro version. Both the free and the pro versions are fully functional, without advertisements of any kind. The only difference between the two versions is that the pro version has additional options to support custom reminders and announcement of notifications from other, 3rd party, apps like Facebook, Hangouts, Whatsapp, Viber, GMail, etc.

The list below highlights some of the most important features of Morse Notifier:

- Morse code is played using sound, phone vibration, or both.
- CW speed can be customized with additional options for Farnworth's spacing.
- Audio tone frequency, volume and shape can be customized.
- Announcements while being played, can also be displayed window with synchronized text and Morse code (ideal for learning Morse code).
- Announcements can be customized differently for each type of event.
- Incoming call and SMS/MMS announcements can be configured to contain the contact information, the phone number and/or any other arbitrary text.
- The hourly chime can be customized with arbitrary text and can also be muted during specific hours of the day (e.g. sleep time).
- Custom reminders can be setup to fire at user-specified times of the day and user-specified days of the week (pro version).
- App notifications (notifications from other apps) can be filtered using a powerful set of user-specified criteria and announced using custom text (pro version).

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3 Installation

Morse Notifier can be installed as any other app via Google Play Store.

Morse Notifier Free:

<https://play.google.com/store/apps/details?id=com.dof100.morsenotifier.free>

Morse Notifier Pro:

<https://play.google.com/store/apps/details?id=com.dof100.morsenotifier>

4 Granting permissions

In order to function properly, Morse Notifier needs access to some of your device capabilities (e.g. adjusting the sound level) as well as to some of your personal information stored in your device (e.g. access to contact information in order to properly announce incoming calls).

Depending on your Android version, you may be asked to grant some or all the necessary permissions during installation from Google Play Store. On newer Android versions (Android 5.0 and later) you will also be explicitly asked for the more important permissions when you run the app for the first time. You may also revoke these permissions later, any time you wish.

A list of all the necessary permissions, needed by Morse Notifier to function properly, is given in Section 9, among with a short explanation for each one of them.

Figure 1 depicts the process of asking for missing permissions, the first time you run the App.

The first three screens (Figures 1a,1b and 1c), depict the process of asking permissions to access phone calls, SMS messages and contacts. On Android versions prior to 5.0, these permissions are given during installation. On Android versions 5.0 and newer, the user is explicitly asked the first time the app is run. The user can revoke these permissions any time he/she wishes using the his/her smartphone's settings (see forward, Section 7).

To be able to read and announce notifications sent from other apps (pro version only, Android v4.3 and later) Morse Notifier needs an additional special permission (notification access) that the user must grant by himself/herself. Morse Notifier will inform the user the first time he/she runs the app (Figure 1d) and, then, if the user wishes to grant this permission, Morse Notifier will open the relevant Android Security Settings screen (Figure 1e) for the user to enable this permission. Upon enabling Notification Access, Android will show a confirmation dialog where the user has once more to confirm that he/she allows access (Figure 1f).

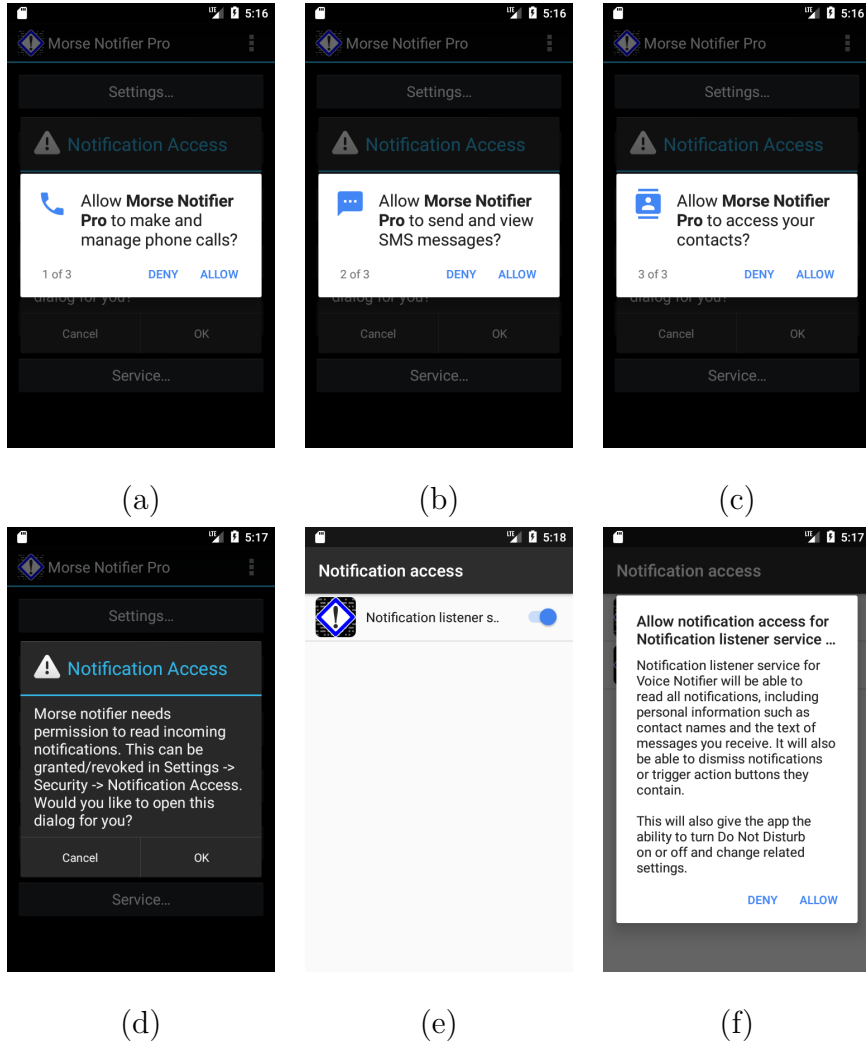


Figure 1: Asking for permissions the first time you run Morse Notifier: (a,b,c) Asking for permissions to access phone calls, SMS messages and contacts. (d) Asking the user to grant notification access. (e) Enabling notification access. (f) confirmation dialogue.

Important note for Xiaomi users. In order for Morse Notifier to work correctly in Xiaomi devices, users must also explicitly give Morse Notifier's service the permission to "Autostart" whenever the phone restarts, using Xiaomi's built-in Startup manager. The startup manager is normally located under Security → Permissions → Autostart. Morse Notifier will inform Xiaomi users the first time they run the app and, then, if they wish, Morse Notifier will open the relevant settings screen for them to enable Autostart.

5 Main Menu

Figure 2 depicts the main screen of Morse Notifier Free and Morse Notifier Pro. Both versions have the same options.

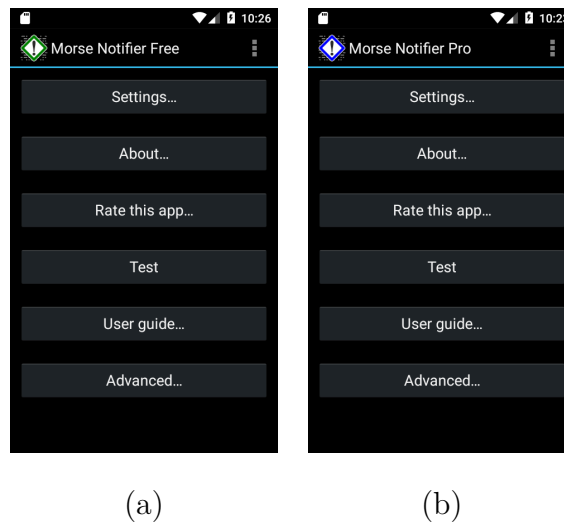


Figure 2: Main menu: (a)Morse Notifier Free, (b) Morse Notifier Pro

The first option (Settings, see forward Section 6) opens the settings configuration screen.

The second option (About) opens the about box with useful information about this app, the version number and a list of acknowledgments.

The third option (Rate this app) opens Google Play Store entry for this app in order to help the user rate this app, if he/she wishes to do so

The fourth option (Test) plays a test message in order to test the sound settings, sound level, etc. The test message is played using the settings (output channel) for incoming calls. (See forward section 6.5)

The fifth option (Instructions) downloads and opens the latest version of this manual. The manual is in pdf form and can also be downloaded from:

http://100dof.com/software/morsenotifier/manual_morse_notifier.pdf

Finally, the last section (Advanced, see forward Section 7) will open the "Advanced" screen which provides access to useful information and advanced system parameters.

6 Settings

The Settings menu (Figure 3) can be selected from the main menu.

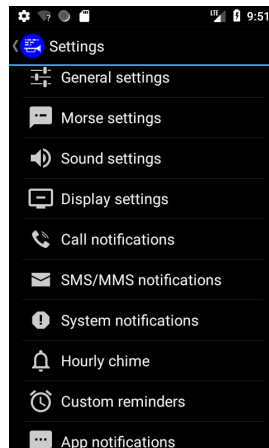


Figure 3: Settings menu

Under the settings menu, the user can adjust various parameters that define the behavior of Morse Notifier. For easy access, settings are split into different sections (Figure 3): General settings, Morse settings, Sound settings, Display settings, Call notifications, SMS/MMS notifications, System notifications, App notifications, Hourly chime and Custom reminders.

6.1 General settings

Under “General Settings” (Figure 4) the user can define some general parameters which affect the operation of this app:

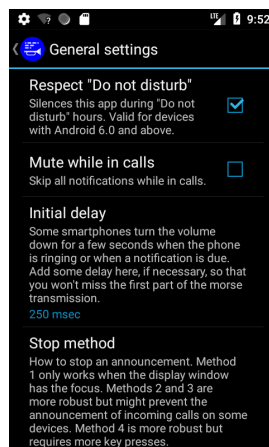


Figure 4: General settings

Respect “Do not disturb”. This option prevents this app from generating notifications while the device is in a “Do not disturb” mode (for devices with Android 6.0 and later).

Mute while in calls. Check this option in order to prevent this app from generating notifications while you are in a phone call.

Initial delay. Some smartphones turn the volume down for a few seconds when the phone is ringing or when a notification is due. Add some delay here (in msec), if necessary, so that you won't miss the first part of the Morse transmission.

Stop Method. Here you can define the method used to stop a Morse announcement. By default, you should be able to press the volume down method anytime to stop a Morse announcement. If the above does not work or causes problems (e.g. Morse announcements stop unexpectedly), you can check one of the alternative methods. Method 1 (Volume down) only works when the display window has the focus. Method 2 (Volume down) and Method 3 (Volume up or volume down) are more robust but might prevent the Morse announcement of incoming calls on some devices. Method 4 (Volume up-down alternately) is more robust but requires more key presses.

Please note that on some devices, stopping a Morse announcement might be impossible for incoming calls using the volume up/down methods.

6.2 Morse settings

Under “Morse Settings” (Figure 5) the user can define parameters regarding the generated Morse code and its transmission.

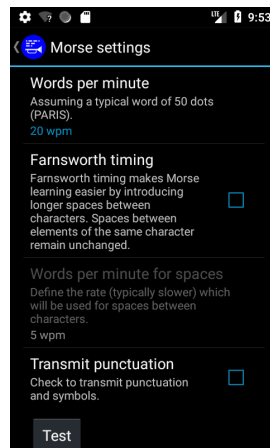


Figure 5: Morse settings

The customization options available in the “Morse settings” screen are the following:

Words per Minute. This is the speed of the generated Morse code. The speed is defined in Words per Minute (wpm), assuming a typical word of 50 dots duration (PARIS).

Farnsworth timing. Here you can enable/disable Farnsworth timing. Farnsworth timing can be explained as sending the characters at a faster speed than words. This is especially useful to those learning Morse code, because it allows them to learn at a normal speed but gives them more “thinking” time between characters. Enabling Farnsworth timing, Morse Notifier allows the definition of a different (typically slower) speed for spaces between characters and words.

Transmit punctuation. Check to transmit punctuation and symbols. If you are learning Morse Code and you find punctuation confusing, un-check this option to omit punctuation and symbols.

Test. Pressing the “Test” button will cause the transmission of a sample sequence in order to check the current settings.

6.3 Sound settings

The Sound settings screen (Figure 6) can be used to customize the sound of Morse announcements.

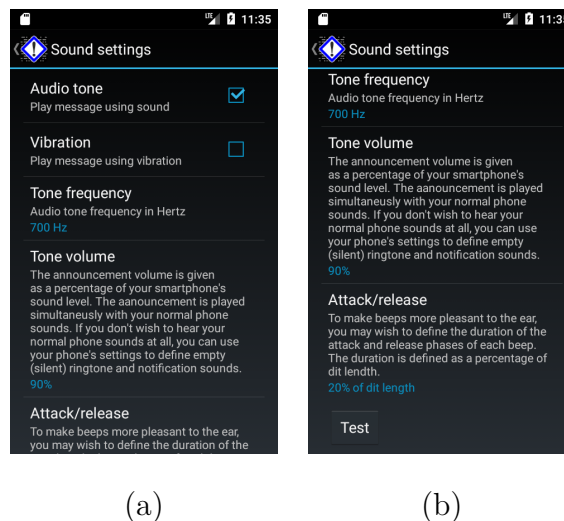


Figure 6: (a) Sound settings, (b) Sound settings (cont)

The customization options available in the “Sound settings” screen are the following:

Audio tone. Use this setting to enable/disable audio output.

Vibration. Enable/disable vibration of Morse code.

Tone frequency. Define the audio frequency of the beeps in Hertz.

Tone volume. Here you can define the Morse code volume as a percentage of your smartphone’s sound level. All announcements are played simultaneously with your normal phone sounds. If you don’t wish to hear your normal phone sounds at all, you can use your phone’s settings to define empty (silent) ringtone and notification sounds.

Attack/release. To make beeps “smoother” and more pleasant to the ear, you may wish to define the duration of the attack and release phases of each beep (the ramp time). The Attack/release duration is defined as a percentage of dit length.

For example, 10% attack/release duration means that to play a dit of, lets say 50 msec, the first 5 msec will be spent increasing the volume from zero to the maximum tone volume. Then the volume will stay constant for 40 msec and then it will be decreasing for another 5 msec.

Consequently, 0% ramp time means a rectangular waveform and 50% ramp time is a triangular waveform.

Test. Pressing the “Test” button will cause the transmission of a sample sequence in order to check the current settings.

6.4 Display settings

The display settings screen (Figures 7a, 7b) can be used to customize scrolling message window (Figure 7c) that accompanies Morse announcements.

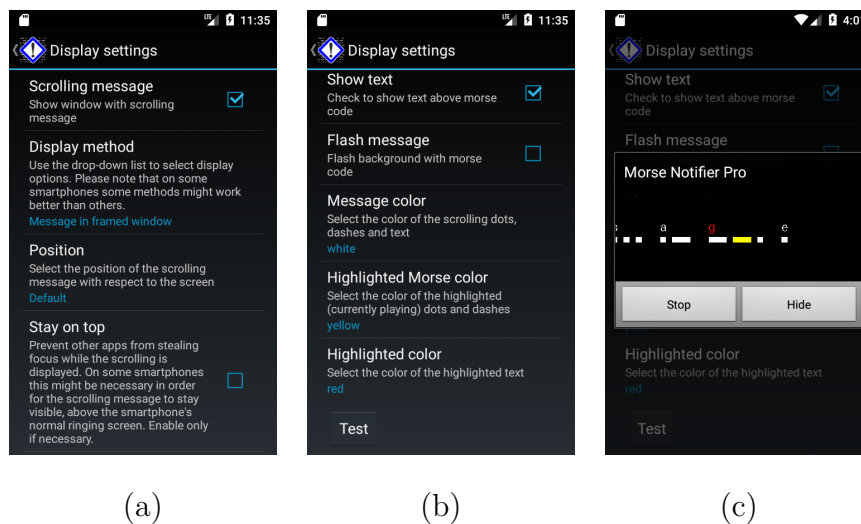


Figure 7: (a) Display settings, (b) Display settings (cont), (c) Scrolling message window

The customization options available in the “Display settings” screen are the following:

Scrolling message. Check this box to enable or completely disable the scrolling message window.

Display method. Use the drop-down list to select the display method for the scrolling message. The available options are to display the scrolling message in a framed window with stop and hide buttons, and to display it without any window. For the later option there are two methods. On some smartphones, some methods might look better than others.

Position. Select the position of the scrolling message with respect to the screen. This can either be the default position (decided by the Android OS) or a user defined position at the center of the screen, at the bottom of the screen, or at the top of the screen. This option is useful if you don't want the scrolling message to hide other useful information that may be on the screen (e.g. When the phone is ringing, you don't want the scrolling message to hide the answer/reject buttons).

Stay on top. Prevent other apps from stealing focus while the scrolling message is displayed. On some smartphones this might be necessary in order for the scrolling message to stay visible, above the smartphone's normal ringing screen. Enable this option only if it is necessary.

Show text. Check to show the actual text above the dits and dahs of the Morse code

Flash message. Enable this option to flash the background with the Morse code. This option might be useful for hearing impaired people, or in case your phone is on silent mode and you would like some visual destruction.

Message color. Use this option to customize the color of the scrolling dots, dashes and text. The default color is white (Figure 7c).

Highlighted Morse color. Select the color of the highlighted elements (dots and dashes). The highlighted elements are the one that are currently played. The default color is yellow (Figure 7c).

Highlighted color. Select the color of the highlighted (currently playing) character. The default color is red (Figure 7c).

Test. Pressing the "Test" button will cause the transmission of a sample sequence in order to check the current settings.

6.5 Call notifications

The call notifications screen (Figure 8) allows the customization of the announcements of incoming calls.

The customization options available in the "Call notifications" screen are the following:

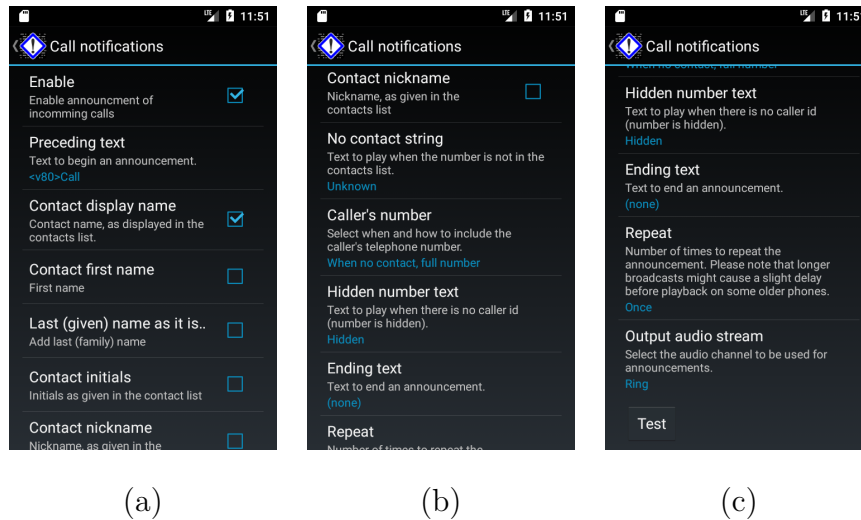


Figure 8: Call settings.

Enable. Check this box to enable the announcement of incoming calls.

Preceding text. The text entered here will be used to introduce incoming call announcements.

Contact display name. If checked, and if a contact exists for the calling number, the contact’s display name will be added in the announcement. The “display name” is the name of the contact, exactly as it is displayed in the smartphone’s contact’s list, according to the preferences set by the user (e.g. Last name first, first name first, etc.).

Contact first name. If checked (and if a contact exists), the first (given) name of the contact will be added in the announcement.

Contact last name If checked (and if a contact exists), the last (family) name of the contact will be added in the announcement.

Contact initials. If checked (and if a contact exists), the contact initials will be added in the announcement. If initials are explicitly defined by the user for this contact (possible on some Android versions/devices) then these, user-defined, initials will be used, otherwise the initials will be constructed by Morse Notifier using the first characters of the first name and the last name of the contact.

Contact nickname. If checked and if a contact exists and a nickname is defined for this contact, the nickname will be added in the announcement.

No contact string. The string defined here will be added in the announcement if the calling number is not in the contacts list (unknown number).

Caller’s number. Use the drop-down list to select when and how to announce the caller’s telephone number. The available options are: (a) **Never**. The telephone number is never announced. (b) **Always, full number**. The telephone number is always announced. (c) **When no contact, full number**. The telephone number is only announced if there is no contact information stored for this number. (d) **Always, last 3 digits only**. Only the last three digits of the telephone number are announced (for brevity and/or privacy). (e) **When no contact, last 3 digits only**. The last three digits of the telephone number are announced, only if no contact information is found for this telephone number.

Hidden number text. Text to add to the announcement if there is no caller id (the calling number is hidden).

Ending text. The text entered here will be appended at the end of the announcement.

Repeat. Number of times to repeat the announcement. The user can either set a fixed number of times or a fixed duration. In the later case, shorter messages will be repeated more times than longer messages. Please note that longer broadcasts might cause a slight delay before playback on some older phones.

Output audio stream. Android differentiates between different audio output “streams” for different types of sounds. Each audio stream has different properties and can also be adjusted to a different volume level.

Use the drop-down list to select the output stream used by Morse Notifier for incoming call announcements. The available options are:

(a) **Alarm**. Audio stream for alarms. The alarm stream is not muted when your phone is in silent mode. (b) **Music**. Audio stream for music and other media playback. Outputs through headphones when headphones are plugged. (c) **Notification**. Stream used for various notifications (d) **Ring**. Stream used to play the ringtone. If headphones are plugged, the ring stream usually plays simultaneously on both the phone’s speaker and the headphones. (e) **System**. Used for system sounds.

The default stream for incoming call notifications is the “ring” stream.

Test. Pressing the “Test” button will cause the transmission of a sample sequence in order to check the current settings.

6.6 SMS/MMS notifications

The SMS/MMS notifications screen (Figure 9) allows the customization of announcements of incoming SMS and MMS messages.

The customization options available in the “SMS/MMS notifications” screen are the following:

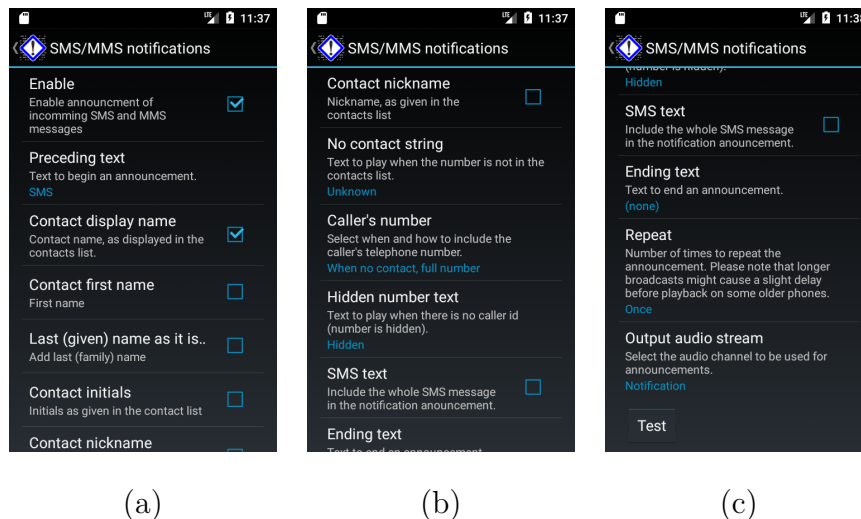


Figure 9: SMS settings

Enable. Check/uncheck this box to enable/disable the announcement of incoming SMS and MMS messages.

Preceding text. The text entered here will be used to begin the announcement of SMS and MMS messages.

Contact display name. If checked, and if a contact exists for the calling number, the contact’s display name will be added in the announcement. The “display name” is the name of the contact, exactly as it is displayed in the smartphone’s contact’s list, according to the preferences set by the user (e.g. Last name first, first name first, etc.).

Contact first name. If checked (and if a contact exists), the first (given) name of the contact will be added in the announcement.

Contact last name If checked (and if a contact exists), the last (family) name of the contact will be added in the announcement.

Contact initials. If checked (and if a contact exists), the contact initials will be added in the announcement. If initials are explicitly defined by the user for this contact (possible on some Android versions/devices) then these, user-defined, initials will be used, otherwise the initials will be constructed by Morse Notifier using the first characters of the first name and the last name of the contact.

Contact nickname. If checked and if a contact exists and a nickname is defined for this contact, the nickname will be added in the announcement.

No contact string. The string defined here will be added in the announcement if the calling number is not in the contacts list (unknown number).

Caller’s number. Use the drop-down list to select when and how to announce the telephone number sending the message. The available options are: (a) **Never**. The telephone number is never announced. (b) **Always, full number**. The telephone number is always announced. (c) **When no contact, full number**. The telephone number is only announced if there is no contact information stored for this number. (d) **Always, last 3 digits only**. Only the last three digits of the telephone number are announced (for brevity and/or privacy). (e) **When no contact, last 3 digits only**. The last three digits of the telephone number are announced, if no contact information is found for this telephone number.

Hidden number text. Text to add to the announcement if there is no caller id (the telephone number if the sender is hidden).

SMS text. If checked, the text of the SMS message will be included in the announcement.

Ending text. The text entered here will be appended at the end of the announcement.

Repeat. Number of times to repeat the announcement. The user can either set a fixed number of times or a fixed duration. In the later case, shorter messages will be repeated more times than longer messages. Please note that longer broadcasts might cause a slight delay before playback on some older phones.

Output audio stream. Android differentiates between different audio output “streams” for different types of sounds. Each audio stream has different properties and can also be adjusted to a different volume level.

Use the drop-down list to select the output stream used by Morse Notifier for incoming SMS and MMS messages. The available options are:

(a) **Alarm**. Audio stream for alarms. The alarm stream is not muted when your phone is in silent mode. (b) **Music**. Audio stream for music and other media playback. Outputs through headphones when headphones are plugged. (c) **Notification**. Stream used for various notifications (d) **Ring**. Stream used normally to play the ringtone when the phone rings. If headphones are plugged, the ring stream usually plays simultaneously on both the phone’s speaker and the headphones. (e) **System**. Used for system sounds.

The default stream for SMS/MMS announcements is the “Notification” stream.

Test. Pressing the “Test” button will cause the transmission of a sample sequence in order to check the current settings.

6.7 System notifications

The system notifications screen (Figure 10) allows the customization of announcements of system events related to battery status, wifi connection status and charging state.

The customization options available in the “System notifications” screen are the following:

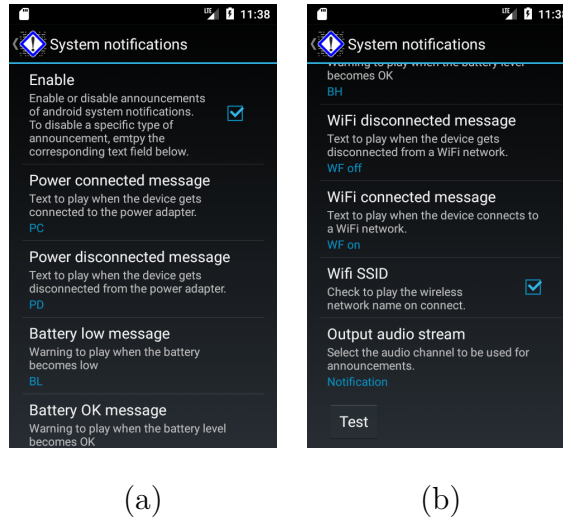


Figure 10: System notifications settings

Enable. Check/uncheck this box to enable/disable the announcement of all system notifications at once. You can disable the announcement of individual notifications by clearing the relevant message text below.

Power connected message. The text entered here will be played when the device gets connected to the power adapter. Clear the text to disable this specific announcement.

Power disconnected message. The text entered here will be played when the device gets disconnected from the power adapter. Clear the text to disable this specific announcement.

Battery low message. The text entered here will be played when the battery level becomes low. Clear the text to disable this specific announcement.

Battery OK message. The text entered here will be played when the battery level becomes good. Clear the text to disable this specific announcement.

WiFi disconnected message. The text entered here will be played when the device gets disconnected from a WiFi network. Clear the text to disable this specific announcement.

WiFi connected message. The text entered here will be played when the device connects to a WiFi network. Clear the text to disable this specific announcement.

Wifi SSID. Check this box to append the wireless network name (SSID) in the “WiFi connected” announcement.

Output audio stream. Android differentiates between different audio output “streams” for different types of sounds. Each audio stream has different properties and can also be adjusted to a different volume level.

Use the drop-down list to select the output stream used by Morse Notifier for the announcement of system notifications. The available options are:

(a) **Alarm.** Audio stream for alarms. The alarm stream is not muted when your phone is in silent mode. (b) **Music.** Audio stream for music and other media playback. Outputs through headphones when headphones are plugged. (c) **Notification.** Stream used for various notifications (d) **Ring.** Stream used normally to play the ringtone when the phone rings. If headphones are plugged, the ring stream usually plays simultaneously on both the phone’s speaker and the headphones. (e) **System.** Used for system sounds.

The default stream for the announcement of system notifications is the “Notification” stream.

Test. Pressing the “Test” button will cause the transmission of a sample sequence in order to check the current settings.

6.8 Hourly chime

The Hourly chime screen (Figure 11) allows the customization of a hourly message which will be announced using Morse code!

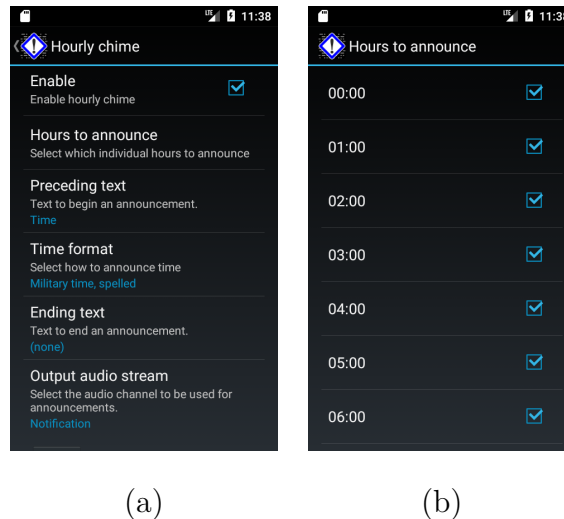


Figure 11: Hourly chime settings

The customization options available in the “Hourly chime” screen are the following:

Enable. Check or uncheck this box to enable or disable the hourly chime.

Hours to announce. Select which individual hours to announce. Can be used to silence the chime for specific hours of the day such as night hours.

Time format. Select how to announce time. The available options are: (a) **Spelled military time** (b) **Full hours in 12h format**, (c) **Full hours in 24h format**.

Output audio stream. Android differentiates between different audio output “streams” for different types of sounds. Each audio stream has different properties and can also be adjusted to a different volume level.

Use the drop-down list to select the output stream used by Morse Notifier for the hourly chime. The available options are:

(a) **Alarm.** Audio stream for alarms. The alarm stream is not muted when your phone is in silent mode. (b) **Music.** Audio stream for music and other media playback. Outputs through headphones when headphones are plugged. (c) **Notification.** Stream used for various notifications (d) **Ring.** Stream used normally to play the ringtone when the phone rings. If headphones are plugged, the ring stream usually plays simultaneously on both the phone’s speaker and the headphones. (e) **System.** Used for system sounds.

The default stream for the hourly chime is the “Notification” stream.

Test. Pressing the “Test” button will cause the transmission of a sample sequence in order to check the current settings.

6.9 Custom reminders (pro version only)

The custom reminders screen (Figure 12) allows the definition of custom messages which can be announced at specific times of the day.

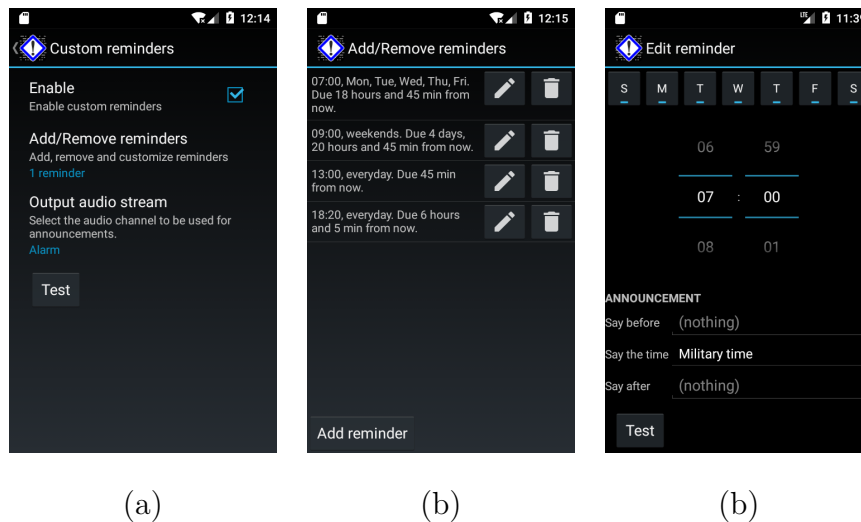


Figure 12: (a) Custom reminders settings, (b) the “Add/Remove reminders” screen, (c) the “Edit reminder” screen

The options available in the “Custom reminders” screen are the following:

Enable. Check/uncheck this box to enable/disable custom reminders

Add/Remove reminders. Use this button to enter the “Add/Remove reminders” screen (Figure 12b) where you can add, remove and edit reminders.

Output audio stream. Android differentiates between different audio output “streams” for different types of sounds. Each audio stream has different properties and can also be adjusted to a different volume level.

Use the drop-down list to select the output stream used by Morse Notifier for custom reminders. The available options are:

(a) **Alarm.** Audio stream for alarms. The alarm stream is not muted when your phone is in silent mode. (b) **Music.** Audio stream for music and other media playback. Outputs through headphones when headphones are plugged. (c) **Notification.** Stream used for various notifications (d) **Ring.** Stream used normally to play the ringtone when the phone rings. If headphones are plugged, the ring stream usually plays simultaneously on both the phone’s speaker and the headphones. (e) **System.** Used for system sounds.

The default stream for custom reminders is the “alarm” stream.

Test. Pressing the “Test” button will cause the transmission of a sample sequence in order to check the current settings.

6.9.1 The “Add/Remove reminders” screen

The “Add/Remove reminders” screen (Figure 12b) can be used to add, remove and edit reminders. It is invoked from the custom reminders screen, pressing the “Add/Remove reminders” button.

The “Add/Remove reminders” screen displays a list of all user-defined reminders. The user can add reminders to the list by pressing the “Add reminder” button located at the bottom of the screen. The user can delete any reminder by pressing its “Delete” button (a small trashcan icon located besides each reminder). Similarly, the user can edit a reminder by pressing its “Edit” button which is a small pencil icon besides the delete button. The “Edit” button opens the “Edit reminder” screen (see next section).

6.9.2 The “Edit Reminder” screen

The “Edit reminder” screen (Figure 12c) is shown every time the user creates a new reminder (by pressing the “Add reminder” button in the “Add/Remove reminders” screen) or when editing an existing reminder (by pressing the small pencil button besides an existing reminder) .

On the top of the “Edit Reminder” screen there is a selector to edit the reminder time in 24h format, and there are also seven buttons, one for each weekday (Sunday to Saturday) which can be used to enable or disable the specific reminder for specific weekdays.

Below the weekday and time selection, there are the following options which can be used to customize how the reminder will be announced:

Say before. Here the user can enter the text that will be used at the beginning of the announcement. Can be left blank.

Say the time. Use the drop-down list to select if (and how) the time will be announced. The available options are: (a) **Do not announce time.** (b) **Military time.**

Say after. This is the text appended at the end of the announcement. Can be left blank.

6.10 App notifications (pro version only)

Morse Notifier pro can announce events from other apps like Facebook, Hangouts, Whatsapp, Viber, GMail, Telegram, Skype, etc. The App notifications screen (Figure 13) allows the user to define from which apps to announce and how to announce each one of them.

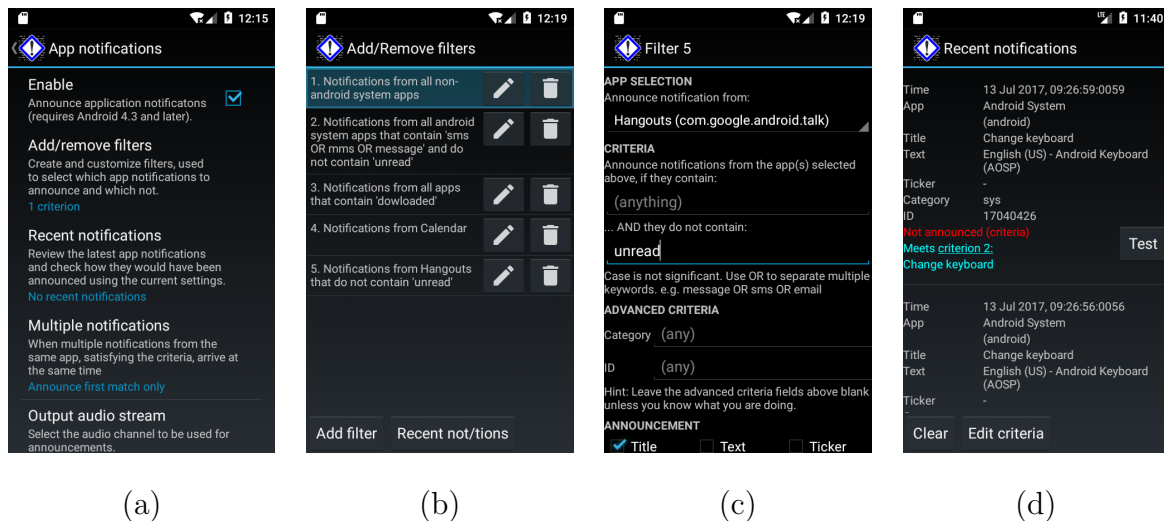


Figure 13: (a) App notification settings, (b) the “Add/Remove filters” screen, (c) the “Edit filter” screen, (d) the “Recent notifications” screen.

The customization options available in the “App notifications” screen are the following:

Enable. Check or uncheck this box in order to enable or disable App notifications

Add/Remove filters. Use this button to enter the “Add/Remove filters” screen (Figure 13b, Section 6.10.1), where the user can create his/her own filters to select which app notifications to announce and how to announce each one of them using Morse code.

Recent notifications. This option leads to the “Recent notifications” screen (Figure 13d, Section 6.10.3) where the user can review all recent notifications from all apps installed in his/he phone and check how they would have been announced by Morse Notifier using the current settings.

Multiple notifications. Sometimes, multiple notifications from the same app arrive at the same time. This is very common with some apps which tend to emit notifications in batches, usually with different information related to the same event. For example, a chat app may emit one notification to alarm the user for an incoming message, immediately followed by another notification telling the number of unread messages.

Use the drop down list to select the behavior of the Morse Notifier when multiple notifications from the same app, passing the criteria established by the filters, arrive at the same time. Available options are: (a) **Announce all.** Announce all notifications that meet the criteria. (b) **Announce best match.** Only announce the notification that passes the filter located higher in the filter-list (lower filter number). If multiple notifications meet the highest filter, then announce the first one of them (the notification that arrives first). (c) **Announce first.** Only announce the first notification from each app. (d) **Announce last.** Only announce the last notification from each app.

Output audio stream. Android differentiates between different audio output “streams” for different types of sounds. Each audio stream has different properties and can also be adjusted to a different volume level.

Use the drop-down list to select the output stream used by Morse Notifier for the announcement of app notifications. The available options are:

(a) **Alarm.** Audio stream for alarms. The alarm stream is not muted when your phone is in silent mode. (b) **Music.** Audio stream for music and other media playback. Outputs through headphones when headphones are plugged. (c) **Notification.** Stream used for various notifications (d) **Ring.** Stream used normally to play the ringtone when the phone rings. If headphones are plugged, the ring stream usually plays simultaneously on both the phone’s speaker and the headphones. (e) **System.** Used for system sounds.

The default stream for the announcement of app notifications is the “Notification” stream.

Test. Pressing the “Test” button will cause the transmission of a sample sequence in order to check the current settings.

6.10.1 The “Add/Remove filters” screen

The “Add/Remove filters” screen (Figure 13b) where you can add, remove or edit filters, is invoked from the app notifications screen, pressing the “Add/Remove filters” button.

The “Add/Remove filters” screen displays a list of all user-defined filters. There is an “Add filter” button at the bottom of the screen which can be used to add new filters, and there are “Edit” (a small pencil icon) and “Delete” (a small trashcan icon) buttons besides each filter in the list.

Besides the “Add filter” button at the bottom of the screen, there is also a “Recent notifications” button, which brings the “Recent notifications” screen (See forward, Section 6.10.3). This is very convenient in order for the user to easily test the behavior of his/her list of filters against the actual notifications posted by actual apps installed on his/her phone.

6.10.2 The “Edit filter” screen

The “Edit filter” screen (Figure 13c) is shown every time the user creates a new filter (by pressing the “Add filter” button in the “Add/Remove filter” screen) or when editing an existing filter (by pressing the small pencil button besides an existing filter) .

A Morse Notifier’s filter contains of a set of criteria that have to be met in order for a notification to “pass” the filter and get announced. A “filter” also includes a set of properties that define the way a notification gets announced if it passes the criteria.

More specifically, the options found inside a Morse Notifier filter are:

App selection: App name. This is a drop-down list of all apps and system services installed in the device. The user can either select a single app to announce notifications from, or one of the three predefined groups of apps that appear on the top of the drop-down list: (a) **All apps**, (b) **All system apps**, (c) **All non-system apps**.

Criteria: Notification contains. Here, the user may define one or more keywords that must be found inside the notification text in order for the notification to pass the filter. More than one keywords may be combined using “OR”. For example, to distinguish notifications for incoming messages out of other types of notifications, one could have entered “message OR sms OR email”. Case is not significant.

Criteria: Notification does not contain. Here, the user may define one or more keywords that must NOT exist inside the notification text in order for the notification to pass the filter. More than one keywords may be combined using “OR”. Case is not significant.

Advanced criteria: Category. The notification category is a keyword, assigned by the app that produces the notification to describe the purpose of the notification. The category is usually one of the following: **call, msg, email, event, promo, alarm, progress, social, error, transport, sys, service, recommendation, status, reminder**, but can also be **any arbitrary keyword**. It is advised for the user to have a look under “recent notifications” in order to check the category of the notifications of interest and to determine if/how the category can be used for filtering. Multiple categories can be combined using “OR”. Case is not significant.

Advanced criteria: ID. The notification ID is an integer number that describes the notification and is assigned by the app that produces the notification. The user is advised to check recent notifications to determine if the notification ID can be used for filtering. Multiple IDs can be combined using “OR”.

Announcement: Say before. The text entered here (if not empty) will be used to introduce the announcement.

Announcement: Title. Check this box to include the notification title in the announcement. The title of the notification is usually the first line of the notification, as it appears in the notification area of your phone or tablet.

Announcement: Text. Check this box to include the notification text in the announcement. The notification text is usually the second line of the notification, as it appears in the notification area of your phone or tablet.

Announcement: Ticker. Check this box to include the notification ticker text in the announcement. The ticker is the scrolling message appearing in the status bar in pre-Android 5.0 devices and now, since Android 5.0, used for accessibility services.

Announcement: Say after. The text entered here (if not empty) will be appended at the end of the announcement.

6.10.3 The “Recent notifications” screen

The “Recent notifications” screen (Figure 13d) is invoked from the app notifications screen, by pressing the “Recent notifications” button.

The “Recent notifications” screen depicts a list of recent notifications emitted from all apps installed on the device.

More specifically, the list contains the 10 more recent notifications that were captured during the last 24 hours. Notifications older than 24 hours are purged. If needed, the user can purge all stored notifications by entering “**recent notifications clear**” as a service command (See Section 7). Moreover, the user can prevent Morse Notifier from maintaining a recent notifications list by entering service command “**recent notifications off**”. Recent notifications can be re-enabled by entering “**recent notifications on**”.

For each notification the following information is displayed:

Time. The date and time the notification was created and captured by Morse Notifier.

App. The app or service that created the notification.

Title. The title (first line) of the notification.

Text. The text (second line) of the notification.

Ticker. The ticker text of the notification (used mostly for accessibility services)

Category. The category of the notification as assigned by the app/service that produced it.

ID. The ID of the notification, as assigned by the app/service that produced it.

Below the notification information, in green or red text, the user can check if the notification was actually announced by Morse Notifier and if the notification would have been announced now, using the current set of criteria and how it would have been announced (cyan text).

Consider for example, the first notification, shown at the top of the list in (Figure 13d). The notification was produced by “Android System” on July 13, 2017, 09:26. As shown by the red text, this specific notification was not announced at that time by Morse Notifier because it did not meet any of the criteria (did not pass any of the filters) defined at that time. However, with the current set of filters (obviously the user has changed the filters since then) the notification would have now been announced because it meets filter #2. The announcement would have now been “Change keyboard” and the user can easily check how this announcement sounds by pressing the “Test” button.

7 Advanced

The “Advanced” screen (Figure 14) can be selected from the main menu.

Under the “Permissions” subsection, the user can see at a glance if Morse Notifier has the necessary permissions to read the user’s contacts (READ_CONTACTS), to read the phone’s state (READ_PHONE_STATE) and to read SMS messages (READ_SMS). Granted permissions are displayed with green color, denied permissions with red. The “App settings” button can be used to open Android’s App Info page for Morse Notifier, where the user can grant/revoke permissions as he/she wishes.

Under the “Notification access” subsection, the user can easily check if Morse Notifier has the necessary access to 3-rd party app notifications (pro version only). The “Notification Access” button opens the relevant Android’s settings screen, where the user can grant/revoke access to Morse Notifier’s notification listener service.

Please note that for some smartphones, a reboot might be required after the user enables notification access in order for Morse Notifier’s notification listener service to start properly. That is, if you cannot see a green “Access enabled, service sunning” indication (as in Figure 14b) after you enable the notification listener service, please reboot the phone.

Finally, under “Service Command”, the user can type advanced debugging commands in case he/she is instructed to do so from 100dof support. Service commands can be used, for example, to change specific parameters of the app in order to solve specific problems, to enable/disable logging, to test audio output, etc.

8 Text fields - Tags and special characters

Text tags can be inserted in text fields to alter the default behavior of Morse Notifier for a specific announcement. For example `<v80>` inside the “Preceding text” (Figure 15) of call announcements forces volume level 80 for all call announcements, overriding the default volume level defined under audio settings. The same effect could have been achieved if, for example, the `<v80>` tag had been placed inside the “Ending text” field.

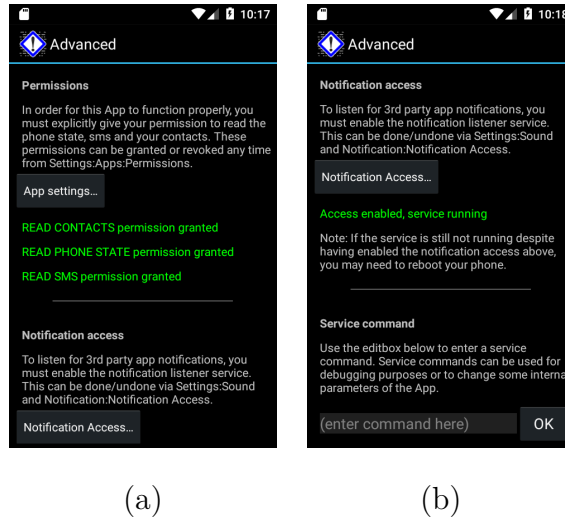


Figure 14: Advacned screen

Text tags can be placed inside any text field, in any position (start, end, middle) and affect the whole announcement. Additionally, more than one text tags can be inserted in the same text field.

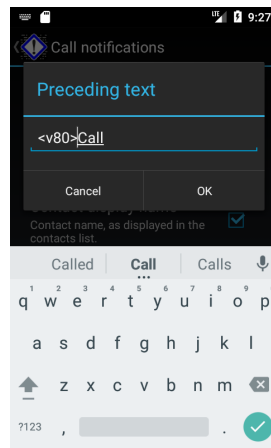


Figure 15: Use of text tags. Text tags can be inserted in any text field to alter Morse Notifier's default behavior for a specific announcement

Morse Notifier understands the following text tags:

- **<a1>** or **<a0>** enables or disables audio for a specific announcement.
- **<b1>** or **<b0>** enables or disables vibration for a specific announcement.
- **<d1>** or **<d0>** enables or disables the scrolling window message for a specific announcement.
- **<fX>** forces a specific frequency for an announcement, overriding the default frequency defined in audio settings. **X** is the frequency in Hertz, and can be any number from 1 to 25000.

- **<sX>** forces a specific speed level for an announcement, overriding the default speed defined in Morse settings. **X** is the speed in WPM.
- **<vX>** forces a specific volume level for an announcement, overriding the default volume defined in audio settings. **X** is the volume level as a percentage of the smartphone's current volume level can be any number from 1 to 100.
- **<rX>** forces an announcement to repeat **X** times.

In addition to text tags, the vertical column “|” can be used inside any text field to concatenate two characters (remove the intra-character pause between them) and can be used inside any Morse Notifier's text field to produce prosigns. E.g K|A is announced as -...-.

9 Permissions

In order to function properly, Morse Notifier needs the following permissions:

ACCESS_NETWORK_STATE, ACCESS_WIFI_STATE. Needed in order to notify you when your phone is connected/disconnected to a new network.

MODIFY_AUDIO_SETTINGS. Needed in order to modify your smartphone's sound output according to your settings.

READ_CONTACTS. Needed in order to notify you with the contact name for incoming calls and SMS/MMS messages.

READ_PHONE_STATE. Needed in order to know when the phone is ringing and the power status.

RECEIVE_SMS, RECEIVE_MMS, RECEIVE_WAP_PUSH. Needed in order to notify you with incoming SMS and MMS messages.

READ_SMS. Needed in order to announce the contents of incoming SMS messages, if configured to do so.

VIBRATE. Needed in order to vibrate the Morse code.

RECEIVE_BOOT_COMPLETED. Needed in order for the app to start automatically when your phone starts/reboots.

BIND_NOTIFICATION_LISTENER_SERVICE, REORDER_TASKS. Needed to read app notifications.

WRITE_INTERNAL_STORAGE. Needed in order to save debug logs in the internal storage dedicated by the OS to Morse Notifier (saved data can not be read by any other app. They can only be read by Morse Notifier).

SYSTEM_ALERT_WINDOW. Needed in order to display the notification window with the scrolling Morse code above all other windows.

Important note for Xiaomi users. In order for Morse Notifier to work correctly in Xiaomi devices, users must additionally give Morse Notifier's service the permission to "Autostart" using Xiaomi's built-in Startup manager. The startup manager is normally located under Security → Permissions → Autostart.

10 Disclaimer

The author of this software accepts no responsibility for damages resulting from the use of this product and makes no warranty or representation, either express or implied, including but not limited to, any implied warranty of merchantability or fitness for a particular purpose. This software is provided "AS IS", and you, its user, assume all risks when using it.

11 Acknowledgments

This application was created using the Android SDK.

For the hourly chime and the custom reminders functionality this app makes use of the evernote/android-job library, licensed under the Apache 2.0 license.

12 Privacy Policy

Morse Notifier does not communicate any information (personal or not) to us. Moreover, we do not collect any personal information. If you send us an email (e.g. for support or feedback) we will keep your email for future correspondence but we will not share any information contained in this email and we will not use your email address to spam you.

13 Support

For support via email, please contact:

support@100dof.com

For voice support, please use the following land line:

+30 2811 112775

For general questions & feedback, please contact:

info@100dof.com