

## Keyboard Configuration

You can utilize the functions from CASIO System Library API to write an application that configures the keys of the hardware keyboard according to your needs.

### Hardware Keyboard Editor



### Quickstart

Install either KeybdAppCE.CAB (Windows Embedded CE) or KeybdAppWM.CAB (Windows Mobile). With this sample application you can make settings for all supported devices. If specific settings are not supported by a certain device at run-time, they will be ignored.

- Select a key, make your settings, and press *Create* to add an entry to config file.
- For standard keys, specify the ID, the input modes, and the virtual key code.
- Specify up to 16 different codes per key by zero based index. Codes will be used consecutively by pressing the key once more, e.g. A, B, and then C.
- Delete entries from config file through *Remove* from the main menu.
- Activate config file through *Enable* from the main menu or by soft reset.

Settings will be saved to configuration file automatically. The configuration file resides in the application directory.

Example: How can I set the comma to the button labeled with the period for numeric input mode?

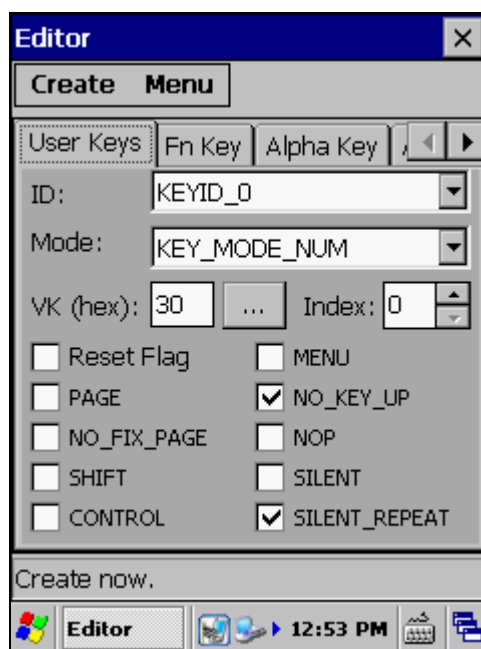
- On the tab User Keys, select KEYID\_PERIOD and KEY\_MODE\_NUM.
- Enter "bc" as virtual key code. Alternatively, you can press the button with the tree dots and select "comma". Then, confirm your selection with OK.
- Leave all other fields unchanged.
- From main menu, select *Enable* and confirm with OK.
- Finally, you can go to the tab Test to verify your new settings.
- If you leave the editor now and confirm to save the settings to config file, your setup will be loaded automatically again after soft reset operation.

## User Keys

You can assign new key codes to nearly all keys of the hardware keyboard, except for e.g. the Fn key.

1. Select the key of the hardware keyboard that you want to configure, e.g. select KEYID\_0 for the key that is labeled with the zero.
2. Select the desired input mode for your configuration, e.g. **numeric** (KEY\_MODE\_NUM), **alphabetic – uppercase** (KEY\_MODE\_ALPHA), or **alphabetic – lowercase** (KEY\_MODE\_ALPHAS). If you want to configure the key for all input modes, repeat this step accordingly.
3. Enter the desired key code as hexadecimal value with two digits. Alternatively, press the button with the three dots to display a list with virtual key codes. You can find a list of virtual key codes also in the appendix. Set the code to zero, if you want to disable the key.
4. The key code applies to the selected index. When you press the key first, the code of index 0 is sent. If you press the key once more, the code of index 1 is sent, etc. You can specify up to 16 different codes.
5. Select the modifiers you want to apply.
6. Finally, press *Create* from the main menu to add your settings to config file. Once the settings are added, you can modify them without pressing *Create* again. If you want to delete the settings, select *Remove* from the main menu.

To assist you, default settings are displayed for numeric input mode.



There are different modifiers that you can add.

- **Reset Flag**: All settings for the given key and input mode are ignored, and the specified key is reset to factory default settings.
- **PAGE**: Determines changeover key operation. If it is omitted, all specified codes (up to 16) will be put out at once. Only valid for index 0.
- **NO\_FIX\_PAGE**: Determines special key that does not output characters, e.g. the trigger key. Only valid for index 0.

- **SHIFT**: Combines VK\_SHIFT with the virtual key code.
- **CONTROL**: Combines VK\_CONTROL with the virtual key code.
- **MENU**: Combines VK\_MENU with the virtual key code.
- **NO\_KEY\_UP**: Normally used when key operation can be repeated by holding the key down continuously.
- **NOP**: Normally combined with NO\_KEY\_UP to prevent key repeat for special keys, e.g. the trigger key. Instead, an application can monitor the key state as held down, but the key code is not sent repeatedly.
- **SILENT**: No key click sound.
- **SILENT\_REPEAT**: No key repeat sound. Normally combined with NO\_KEY\_UP.

Please refer to the appendix for further details about the underlying codes.

## ***Fn Key***

The Fn key allows special actions in combination with other keys. You can either lock the key operation globally or certain actions only.

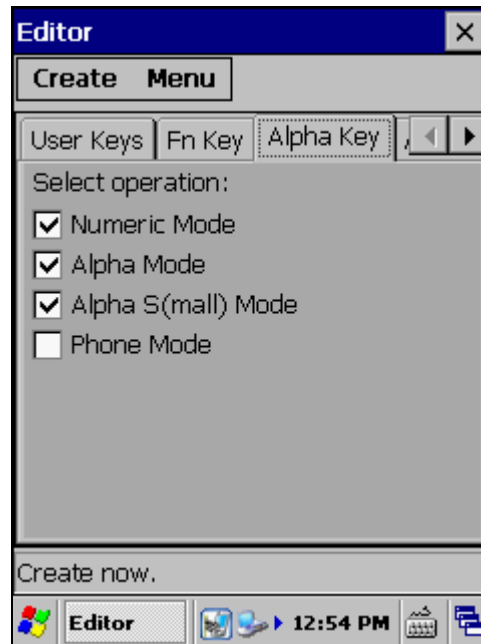
New user key settings cannot be made in combination with the Fn key. If you do not want to use the default settings, please disable Fn key globally.



Please do not forget to press *Create* to add your settings to config file.

## ***Alpha Key***

Here you can specify the input modes that are allowed on the mobile device. New key settings cannot be made for *Phone* input mode. If you do not want to use default settings from *Phone* input mode, please disable it.



When you disable an input mode that is currently active, that input mode will still be valid until you press the designated key to change it.

Please do not forget to press *Create* to add your settings to config file.

### App Keys

Applications can be launched in combination with the Fn key. Select the desired key combination and click on the button with the three dots to pick an executable file.

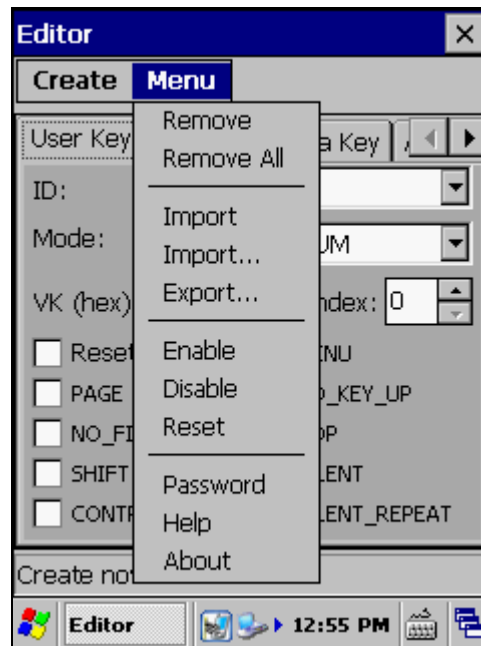
Press *DEL* to clear that assignment.



Please do not forget to press *Create* to add your settings to config file.

## Main Menu

From the main menu you can access enhanced operations.



- Remove: Delete the currently displayed entry from the list.
- Remove All: Delete all entries from the list.
- Import: Read current settings from keyboard driver. Existing entries will be removed or updated.
- Import...: Read settings from file.
- Export...: Write settings to file.
- Enable: Activate all settings from the list.
- Disable: Disable all settings from the list.
- Reset: Reset all keyboard settings to default.
- Password: Add or edit password to access the editor.
- Help: Display instructions.
- Version: Display version number.

## Appendix

### Small Version

For easy deployment you can generate a small solution that consists only of KeybdConfig.exe and your configuration file.

- Go to the folder SMALLVERSION.
- Update the configuration file KeySettings.kbd according to your needs, but do not change the file name.
- Execute the make.bat to build new CAB file.
- Finally, deploy the CAB file to target devices.

Remarks: Please do not use the small version concurrently to the full version with editor. Please decide to use either the one or the other.

## Configuration Files

Configuration files have the extension KBD. The default configuration file resides in the application directory and is named KeySettings.KBD. This file is loaded and saved automatically.

By default the sample application adds a shortcut to KeybdConfig.exe into the StartUp folder of Windows. Therefore, KeybdConfig.exe is started after each soft reset operation. It enables the settings from the default configuration file. Alternatively, you can specify another config file by passing its full path as first parameter of the command line.

Beside the version information, each line of the config file consists of a command and its parameters, where the last parameter stands for the reset flag.

Example:

Version 1.00

SysSetEnableKeyMode;SYS\_ENABLE\_KEYMODE\_NUM, SYS\_ENABLE\_KEYMODE\_ALPHA;False

AppKey;Fn7LaunchPath;\Program Files\CASIO\System\TextEditor.exe;False

SysSetFnKeyOperation;STATE\_FN\_0, STATE\_FN\_1;False

SysSetFnKeyLock;True;False

SysSetUserDefineKey;KEYID\_0;KEY\_MODE\_NUM;2004041;0;0;0;0;0;0;0;0;0;0;0;0;False

## User Keys

SysSetUserDefineKey;KEYID\_0;KEY\_MODE\_NUM;2004041;0;0;0;0;0;0;0;0;0;0;0;0;False

**Pattern:** [Function];[ID];[Mode];[Key Code with Modifiers];...;[Reset Flag]

In the sample above, the key labeled with zero (KEYID\_0) will be set in numeric input mode to “b” (0x41) with NO\_KEY\_UP (0x4000) and SILENT\_REPEAT (0x2000000) as modifiers. The value will be set for the first index. The other 15 available positions remain empty. The reset flag is set to false. Therefore, the settings will be enabled and not deleted.

## Fn Key

SysSetFnKeyOperation;STATE\_FN\_0, STATE\_FN\_1;False

**Pattern:** [Function];[Prohibited Key Combinations];[Reset Flag]

SysSetFnKeyLock;True;False

**Pattern:** [Function];[Global Status – True or False];[Reset Flag]

In the samples above, the key combinations “Fn” + “0” and “Fn” + “1” are prohibited. Furthermore, the operation of the “Fn” key is disabled globally.

## Alpha Key

SysSetEnableKeyMode;SYS\_ENABLE\_KEYMODE\_NUM, SYS\_ENABLE\_KEYMODE\_ALPHA;False

**Pattern:** [Function];[Allowed Input Modes];[Reset Flag]

In the sample above, numeric and alpha mode are allowed, while the other modes are disabled.

## App Keys

AppKey;Fn7LaunchPath;\Program Files\CASIO\System\TextEditor.exe;False

**Pattern:** [Function];[Key Combination];[Path];[Reset Flag]

In the sample above, the key combination of “Fn” and “7” will launch the text editor.

**Remarks**

For a list of available parameters, please refer to the System Library Manual and the System Library header file.

***However, we strongly recommend using the editor to modify the config file.***

**Virtual Key Codes**

Symbolic Constant	Hexadecimal Value	Mouse or Keyboard Equivalent
VK_LBUTTON	01	Left mouse button
VK_RBUTTON	02	Right mouse button
VK_CANCEL	03	Control-break processing
VK_MBUTTON	04	Middle mouse button on a three-button mouse
VK_BACK	08	BACKSPACE key
VK_TAB	09	TAB key
VK_CLEAR	0C	CLEAR key
VK_RETURN	0D	ENTER key
VK_SHIFT	10	SHIFT key
VK_CONTROL	11	CTRL key
VK_MENU	12	ALT key
VK_PAUSE	13	PAUSE key
VK_CAPITAL	14	CAPS LOCK key
VK_ESCAPE	1B	ESC key
VK_SPACE	20	SPACEBAR
VK_PRIOR	21	PAGE UP key
VK_NEXT	22	PAGE DOWN key
VK_END	23	END key
VK_HOME	24	HOME key
VK_LEFT	25	LEFT ARROW key
VK_UP	26	UP ARROW key
VK_RIGHT	27	RIGHT ARROW key
VK_DOWN	28	DOWN ARROW key
VK_SELECT	29	SELECT key
VK_EXECUTE	2B	EXECUTE key
VK_SNAPSHOT	2C	PRINT SCREEN key
VK_INSERT	2D	INS key
VK_DELETE	2E	DEL key
VK_HELP	2F	HELP key
VK_LWIN	5B	Left Windows key on a Microsoft Natural Keyboard
VK_RWIN	5C	Right Windows key on a Microsoft Natural Keyboard

VK_APPS	5D	Applications key on a Microsoft Natural Keyboard
VK_NUMPAD0	60	Numeric keypad 0 key
VK_NUMPAD1	61	Numeric keypad 1 key
VK_NUMPAD2	62	Numeric keypad 2 key
VK_NUMPAD3	63	Numeric keypad 3 key
VK_NUMPAD4	64	Numeric keypad 4 key
VK_NUMPAD5	65	Numeric keypad 5 key
VK_NUMPAD6	66	Numeric keypad 6 key
VK_NUMPAD7	67	Numeric keypad 7 key
VK_NUMPAD8	68	Numeric keypad 8 key
VK_NUMPAD9	69	Numeric keypad 9 key
VK_MULTIPLY	6A	Multiply key
VK_ADD	6B	Add key
VK_SEPARATOR	6C	Separator key
VK_SUBTRACT	6D	Subtract key
VK_DECIMAL	6E	Decimal key
VK_DIVIDE	6F	Divide key
VK_F1	70	F1 key
VK_F2	71	F2 key
VK_F3	72	F3 key
VK_F4	73	F4 key
VK_F5	74	F5 key
VK_F6	75	F6 key
VK_F7	76	F7 key
VK_F8	77	F8 key
VK_F9	78	F9 key
VK_F10	79	F10 key
VK_F11	7A	F11 key
VK_F12	7B	F12 key
VK_F13	7C	F13 key
VK_F14	7D	F14 key
VK_F15	7E	F15 key
VK_F16	7F	F16 key
VK_F17	80H	F17 key
VK_F18	81H	F18 key
VK_F19	82H	F19 key
VK_F20	83H	F20 key
VK_F21	84H	F21 key
VK_F22	85H	F22 key
VK_F23	86H	F23 key
VK_F24	87H	F24 key
VK_NUMLOCK	90	NUM LOCK key



VK_SCROLL	91	SCROLL LOCK key
VK_LSHIFT	0xA0	Left SHIFT
VK_RSHIFT	0xA1	Right SHIFT
VK_LCONTROL	0xA2	Left CTRL
VK_RCONTROL	0xA3	Right CTRL
VK_LMENU	0xA4	Left ALT
VK_RMENU	0xA5	Right ALT
VK_ATTN	F6	ATTN key
VK_CRSEL	F7	CRSEL key
VK_EXSEL	F8	EXSEL key
VK_EREOF	F9	Erase EOF key
VK_PLAY	FA	PLAY key
VK_ZOOM	FB	ZOOM key
VK_PA1	FD	PA1 key
VK_OEM_CLEAR	FE	CLEAR key

Remarks: Some devices support an enhanced character set. Examples: To specify 0x083A, you can combine VF\_SHIFT (0x0800) and 0x3A. To specify 0x103A, you can combine VF\_CONTROL (0x1000) and 0x3A. For further details please refer to the table in the System Library Manual.

### Modifiers

VF_PAGE	0x00000100
VF_NO_FIX_PAGE	0x00000200
VF_SHIFT	0x00000800
VF_CONTROL	0x00001000
VF_MENU	0x00002000
VF_NO_KEY_UP	0x00004000
VF_NOP	0x00008000
KEYBD_DEVICE_SILENT	0x01000000
KEYBD_DEVICE_SILENT_REPEAT	0x02000000

### Trigger Key Codes

#### DT-X7

Left Trigger	VK_F24 (0x0087)
Middle Trigger	VK_F20 (0x0083)
Right Trigger	VK_F21 (0x0084)

#### DT-X8

Left Trigger	VK_F24 (0x0087)
Middle Trigger	VK_F20 (0x0083)
Right Trigger	VK_F21 (0x0084)

#### DT-X30CE

Left Trigger	VK_F24 (0x87)
Middle Trigger	VK_F20 (0x83)
Right Trigger	VK_F21 (0x84)
Grip Trigger	VK_F19 (0x82)

### **DT-X30R-50C**

Left Trigger	0x8B
Middle Trigger	0x8A
Right Trigger	0x8E
Grip Trigger	0x89

### **DT-X30WM**

Left Trigger	0xEA
Middle Trigger	0xE6
Right Trigger	0xE9
Grip Trigger	0xEB

### **IT-300**

Middle Trigger	0xE6
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### **IT-800**

Left Trigger	0xEA
Middle Trigger	0xE6
Right Trigger	0xE9

### **IT-3100**

Left Trigger	VK_F24 (0x0087)
Right Trigger	VK_F21 (0x0084)

### **IT-9000CE**

Left Trigger	VK_F24 (0x87)
Right Trigger	VK_F21 (0x84)

### **IT-9000WM**

Left Trigger	0xEA
Right Trigger	0xE9

For more information on this or other articles, contact us at: <http://www.casio-b2b.com/mis/de/contact/>

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