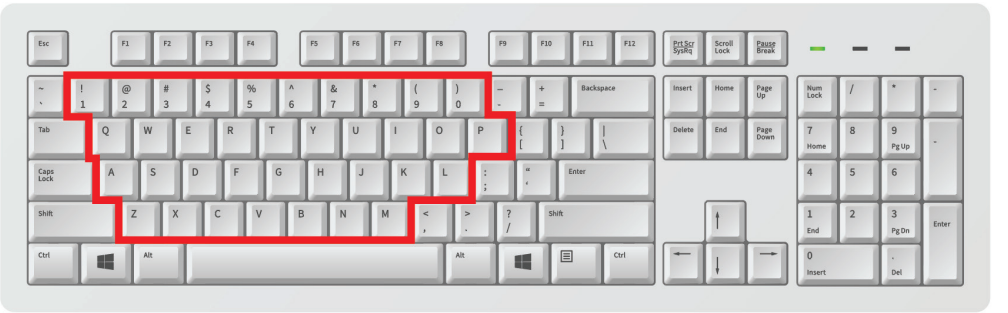
CHARACTER KEYS: ALPHANUMERIC

Each new line containing a number will type the corresponding character.



Alphanmeric Keys

The following alphanumeric keys are available:

```
0 1 2 3 4 5 6 7 8 9
a b c d e f g h i j k l m n o p q r s t u v w x y z
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
```

EXAMPLE

```
» REM Example Alphanumeric Keystroke Injection
» ATTACKMODE HID STORAGE
» DELAY 2000
» STRING abc123XYZ
```

RESULT

- The USB Rubber Ducky will be recognized by the target as a keyboard and mass storage.
- After a 2 second pause, the “keyboard” will type “abc123XYZ”.

All letter keys on a keyboard are lowercase. In the case of injecting the upper case letters in this example, the USB Rubber Ducky is automatically holding the SHIFT modifier for each character. More on modifier keys soon.

CHARACTER KEYS: PUNCTUATION

Similar to the alphanumeric keys, each new line containing a punctuation key will type the corresponding character.

Punctuation Keys

The following punctuation keys are available:

```
` ~ ! @ # $ % ^ & * ( ) - _ = + [ ] { }
; : ‘ “ , . < > / ?
```

EXAMPLE

```
» REM Example Numeric and Punctuation Keystroke
Injection
» ATTACKMODE HID STORAGE
» DELAY 2000
» STRING 1+1=2
```

RESULT

- The USB Rubber Ducky will be recognized by the target as a keyboard and mass storage.
- After a 2 second pause, the “keyboard” will type “1+1=2”.

STRING

The `STRING` command will automatically interpret uppercase letters by holding the `SHIFT` modifier key where necessary. It will also automatically press the `SPACE` cursor key, however trailing spaces will be omitted.

DEPRECATED EXAMPLE

While DuckyScript Classic supported injecting keystrokes without the use of the `STRING` command, each on their own line, this practice is now deprecated.

```
» H
» e
» l
» l
» o
» ,
» SPACE
» W
» o
» r
» l
» d
» !
```

BEST PRACTICE EXAMPLE

Even for single character injections, using `STRING` is recommended.

```
» STRING H
» STRING ello, World!
```

RESULT

- In both examples, the “Hello, World!” text is typed.

STRINGLN

The `STRING` command does not terminate with a carriage return. That means at the end of the `STRING` command, a new line is not created. As an example, imagine injecting commands into a terminal. If the two `STRING` commands "`STRING cd`" and "`STRING ls`" were run one after another, the result would be "`cdls`" on the same line.

```
» STRING cd
» STRING ls
```

```
┌──(kali㉿xps13kali)-[~/Desktop]
└─$ cdls
```

If you intended each command to run separately, the system key `ENTER` (covered shortly) would need to be run after each `STRING` command.

```
» STRING cd
» ENTER
» STRING ls
» ENTER
```

Alternatively, the `STRINGLN` command may be used. This command automatically terminates with a carriage return — meaning that `ENTER` is pressed after the sequence of keys. Using `STRINGLN` in the example above would result in both the cd (change directory) command and ls (list files and directories) being executed.

```
» STRINGLN cd
» STRINGLN ls
```

```
┌──(kali㉿xps13kali)-[~/Desktop]
└─$ cd

┌──(kali㉿xps13kali)-[~]
└─$ ls
Desktop  Documents  Downloads  ducky  Music  Pictures  Public  Templates  Videos

┌──(kali㉿xps13kali)-[~]
└─$
```

CURSOR KEYS

As opposed to character keys, which type a letter, number or punctuation, the cursor keys are used to navigate the cursor to a different position on the screen.

Generally, in the context of a text area, the arrow keys will move the cursor `UP`, `DOWN`, `LEFT` or `RIGHT` of the current position. The `HOME` and `END` keys move the cursor to the beginning or end of a line. The `PAGEUP` and `PAGEDOWN` keys scroll vertically up or down a single page.

The `DELETE` key will remove the character to the right of the cursor, while the `BACKSPACE` will remove the character to its left. The `INSERT` key is typically used to switch between typing mode.

The `TAB` key will advance the cursor to the next tab stop, or may be used to navigate to the next user interface element. The `SPACE` key will insert a space character, or may be used to select a user interface element.

Cursor Keys

The following cursor keys are available:

```
UPARROW DOWNARROW LEFTARROW RIGHTARROW
PAGEUP PAGEDOWN HOME END
INSERT DELETE BACKSPACE
TAB SPACE
```

The shorthand aliases `UP`, `DOWN`, `LEFT`, and `RIGHT` may be used in place of `UPARROW`, `DOWNARROW`, `LEFTARROW`, `RIGHTARROW` respectively.

EXAMPLE

```
» REM Example Keystroke Injection with Cursor Keys
» ATTACKMODE HID STORAGE
» DELAY 2000
» STRING 456
» BACKSPACE
» BACKSPACE
» BACKSPACE
» STRING 123
» HOME
» STRING abc
» END
» STRING UVW
» LEFTARROW
» LEFTARROW
» LEFTARROW
» DELETE
» DELETE
» DELETE
» STRING XYZ
```

RESULT

- The USB Rubber Ducky will be recognized by the target as a keyboard and mass storage.
- After a 2 second pause, the "keyboard" will type 456
- The `BACKSPACE` key will be pressed 3 times, removing 456
- The characters 123 will be typed
- The `HOME` key will move the cursor to the beginning of the line
- The characters abc will be typed
- The `END` key will move the cursor to the end of the line
- The characters UVW will be typed
- The `LEFTARROW` will be pressed 3 times, then the `DELETE` key will be pressed 3 times, removing UVW
- The characters XYZ will be typed
- The final result will be abc123XYZ

SYSTEM KEYS

These keys are primarily used by the operating system for special functions and may be used to interact with both text areas and navigating the user interface.

System Keys

The following system keys are available:

```
ENTER
ESCAPE
PAUSE BREAK
PRINTSCREEN
MENU APP
F1 F2 F3 F4 F5 F6 F7 F8 F9 F0 F11 F12
```

BASIC MODIFIER KEYS

Up until now only character, control and system keys have been discussed. These generally type a character, move the cursor, or perform a special action depending on the program or operating system of the target.

Modifier keys, on the other hand, are typically held in combination with another key to perform a special function. One simple example of this is holding the `SHIFT` key in combination with the letter a key. The result will be an uppercase letter `A`.

A slightly more complex example would be holding the `ALT` key along with the `F4` key, which typically closes a program on the Windows operating system. Common keyboard combinations for the PC include the familiar `CTRL c` for copy, `CTRL x` for cut, and `CTRL v` for paste. On macOS targets, these would be `COMMAND c`, `COMMAND x` and `COMMAND v` respectively.

Modifier Keys

The following basic modifier keys are available:

```
SHIFT
ALT
CONTROL CTRL
COMMAND
WINDOWS GUI
```

The shorthand aliases `CTRL` and `GUI` may be used in place of `CONTROL` and `WINDOWS` respectively.

EXAMPLE: WINDOWS

```
REM Example Modifier Key Combo Keystroke Injection for Windows
ATTACKMODE HID STORAGE
DELAY 2000
GUI r
DELAY 2000
BACKSPACE
STRING 123
DELAY 2000
CTRL a
CTRL c
CTRL v
CTRL v
DELAY 2000
ALT F4
```

RESULT

- This example targets Windows systems.
- The USB Rubber Ducky will be recognized by the target as a keyboard and mass storage.
- After a 2 second pause, the `GUI r` keyboard combination will be typed. This will open the Run dialog, a feature of Windows since 1995 that allows you to open a program, document or Internet resource by typing certain commands.
- After another 2 second pause, the `BACKSPACE` key will remove anything remaining in the text area from a previous session and the characters 123 will be typed.
- After yet another 2 second pause, the `CTRL a` keyboard combination will select all text in the text area.
- The keyboard shortcuts for copy and paste twice will be typed, resulting in 123123.
- After a final 2 second pause, the Windows keyboard combination `ALT F4` will be typed, closing the Run dialog.

EXAMPLE: MACOS

```
REM Example Modifier Key Combo Keystroke Injection for macOS
ATTACKMODE HID STORAGE VID_05AC PID_021E
DELAY 2000
COMMAND SPACE
DELAY 2000
STRING 123
DELAY 2000
COMMAND a
COMMAND c
COMMAND v
COMMAND v
DELAY 2000
ESCAPE
ESCAPE
```

RESULT

- This example targets macOS systems.
- The USB Rubber Ducky will be recognized by the target as a keyboard and mass storage. It is safe to ignore the advanced `VID` and `PID` parameters for `ATTACKMODE` now — they'll be covered later on.
- After a 2 second pause, and similarly to the Windows Run dialog example, the `COMMAND SPACE` keyboard combination will be typed. This will open Spotlight Search, a feature of macOS since OS X that allows you to open a program, document or Internet resource by typing certain commands.
- After another 2 second pause, the characters 123 will be typed.
- Similar to the previous example, after another 2 second pause the keyboard shortcuts for select all, copy, and paste twice will be typed — resulting in 123123.
- After a final 2 second pause, Spotlight Search is closed with two `ESCAPE` keys.

ADVANCED MODIFIER KEYS

In addition to the basic set of modifier keys, an advanced set exists for three or more key combinations.

The following advanced modifier keys are available:

```
CTRL-ALT
CTRL-SHIFT
ALT-SHIFT
COMMAND-CTRL
COMMAND-CTRL-SHIFT
COMMAND-OPTION
COMMAND-OPTION-SHIFT
```

EXAMPLE

```
» ATTACKMODE HID STORAGE
» DELAY 2000
» CTRL-ALT DELETE
```

RESULT

- The USB Rubber Ducky will be recognized by the target as a keyboard and mass storage.
- After a 2 second pause, the infamous "three finger salute" key combination will be pressed. This may be necessary for login on many Windows systems.

STANDALONE MODIFIER KEYS

Normally modifier keys are held in combination with another key. They may also be pressed by themselves. While in many circumstances this will have no substantial effect on the target, for instance simply pressing `SHIFT` by itself, some keys can sometimes prove quite useful.

Since 1995, the `WINDOWS` (or more formally `GUI`, an alias for the `WINDOWS` key) key has opened the Start menu on Windows systems. One could technically navigate this menu by using the arrow keys and `ENTER`. For instance, pressing `GUI`, then `UP`, then `ENTER` would open the Run dialog on a Windows 95 system. However, as seen in previous examples, the keyboard shortcut `GUI r` would be a much faster and more effective method of opening the Run dialog.

Since Windows 7 the Start menu behavior has changed. Pressing `WINDOWS` or `GUI` on its own will highlight a search textarea — from which commands, documents and Internet resources may be entered similar to the Run dialog.

Similar functionality can now be found on ChromeOS and many Linux window managers.

To press a standalone modifier key in Ducky Script, it must be prefixed with the `INJECT_MOD` command on the line before.

EXAMPLE

```
» REM Example Standalone Modifier Key Keystroke
Injection for Windows
» ATTACKMODE HID STORAGE
» DELAY 2000
» INJECT_MOD
» WINDOWS
» DELAY 2000
» STRING calc
» DELAY 2000
» ENTER
```

RESULT

- This example targets Windows systems.
- The USB Rubber Ducky will be recognized by the target as a keyboard and mass storage.
- After a 2 second pause, the `WINDOWS` (or `GUI`) key is pressed. Note the `INJECT_MOD` command on the line above.
- After another 2 second pause, the letters calc will be typed.
- The Windows target will most likely select the Calculator app as the best match.
- After a final 2 second pause, `ENTER` will be pressed and the Calculator will likely open.

LOCK KEYS

These keys specify a distinct mode of operation and are significant due to the bi-directional nature of the lock state. This nuance will come in handy for more advanced payloads — but for now suffice it to say that the three standard lock keys can be pressed just like any ordinary key.

Lock Keys

The following lock keys are available:

```
CAPSLOCK
NUMLOCK
SCROLLLOCK
```

EXAMPLE

```
» ATTACKMODE HID STORAGE
» DELAY 2000
» CAPSLOCK
» STRING abc123XYZ
```

RESULT

- The USB Rubber Ducky will be recognized by the target as a keyboard and mass storage.
- After a 2 second pause, the `CAPSLOCK` key will be pressed — thus toggling the capslock state.
- If caps lock were off before running this payload, the characters ABC123xyz will be typed.
- Notice how the capitalization of the keys typed are reversed when Caps lock is enabled.
- Keep in mind that uppercase letters, standalone or in a `STRING` statement, automatically hold `SHIFT`.

It is important to note that pressing the `CAPSLOCK` key in this example **toggles** the lock state. This is because the lock state is maintained by the operating system, not the keyboard. In most cases, when the key is pressed the operating system will report back to the keyboard information that indicates whether or not to light the caps lock LED on the keyboard itself.

How will the results of the above payload change if caps lock were enabled on the target before the USB Rubber Ducky payload were run?

The USB Rubber Ducky, in many cases, can determine the lock state of the target. As you will soon learn, using this information along with DuckyScript 3.0 logic, a more robust payload can be constructed which will only press the `CAPSLOCK` key if the lock state were not already enabled.