3Dmigoto常见问题：没有小键盘怎么办

因为默认的hunting按键几乎都在小键盘上，所以如果你用的是笔记本电脑，缺少小键盘，有两种解决方案：
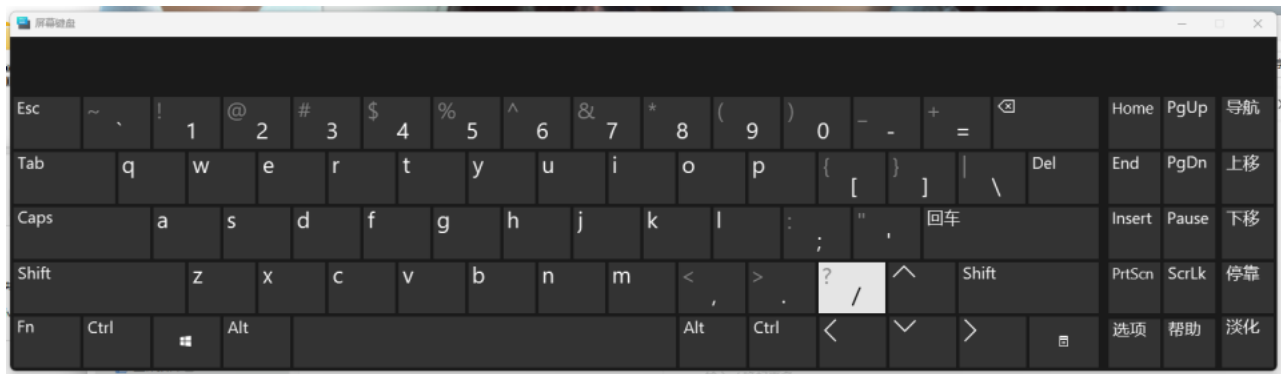
1.直接随便拼多多买个10元键盘用着

2.使用虚拟键盘

3.修改快捷键设置

随便买个键盘

虚拟键盘

按下win + ctrl + o召唤虚拟键盘：

出来之后他会悬浮在界面上，就可以方便的使用了。

修改快捷键设置

打开d3dx.ini，找到[Hunting]

```
245      └ ;----------------------------------------------------------------------------
246      ⊟[Hunting]
247
248      ; 0: Release mode is with shader hunting disabled, optimized for speed.
249      ; 1: Hunting mode enabled
250      ; 2: Hunting mode "soft disabled" - can be turned on via the toggle_hunting key
251      hunting=2
252
253      ; Highlight mode of currently selected shader / rendertarget.
254      ; "skip" = skip shader. don't render anything using the currently selected shader.
255      ; "original" = fall back to original shader if the currently selected shader was patched.
256      ; "pink" = make the output hot pink to make it standout.
257      ; "mono" = disable stereo for the selected shader / rendertarget.
258      marking_mode=skip
259
260      ; Cycle through available marking modes. VK_DECIMAL VK_NUMPAD0
261      ; means hold the dot on the number pad while pressing numpad 0:
262      next_marking_mode = no_modifiers VK_DECIMAL VK_NUMPAD0
263
264      ; What action(s) to take when marking a selected shader/buffer
265      ; "hlsl" = decompile shader to HLSL and copy to ShaderFixes
266      ; "asm" = disassemble shader and copy to ShaderFixes (if hlsl is disabled or failed)
267      ; "regex" = output ShaderRegex patched shader if applicable (NOTE: Will lose associated command l
268      ; "clipboard" = copy shader/buffer hash to clipboard
269      ; "mono_snapshot" = take mono screenshot (previously called mark_snapshot=1)
270      ; "stereo_snapshot" = take stereo screenshot (previously called mark_snapshot=2)
271      ; "snapshot_if_pink" = limit mono/stereo_snapshot to when marking_mode=pink
```

往下滑你会发现：

```
275    ; character. For everything else (including mouse buttons), use the virtual key
276    ; name (with or without the VK_ prefix) or hex code from this article:
277    ; http://msdn.microsoft.com/en-us/library/windows/desktop/dd375731(v=vs.85).aspx
278    ;
279    ; XBox controllers are supported using the same bindings as the [Key] sections
280    ; (see above). If the game already uses the first controller you might try
281    ; using the second controller for hunting with e.g. XB2_LEFT_SHOULDER
282
283    ; rotate through all VISIBLE pixel shaders at the current scene.
284    previous_pixelshader = no_modifiers NO_VK_DECIMAL VK_NUMPAD1
285    next_pixelshader = no_modifiers NO_VK_DECIMAL VK_NUMPAD2
286    mark_pixelshader = no_modifiers NO_VK_DECIMAL VK_NUMPAD3
287
288    ; rotate through all VISIBLE vertex shaders at the current scene.
289    previous_vertexshader = no_modifiers NO_VK_DECIMAL VK_NUMPAD4
290    next_vertexshader = no_modifiers NO_VK_DECIMAL VK_NUMPAD5
291    mark_vertexshader = no_modifiers NO_VK_DECIMAL VK_NUMPAD6
292
293    ; rotate through all USED index buffers at the current scene.
294    previous_indexbuffer = no_modifiers NO_VK_DECIMAL VK_NUMPAD7
295    next_indexbuffer = no_modifiers NO_VK_DECIMAL VK_NUMPAD8
296    mark_indexbuffer = no_modifiers NO_VK_DECIMAL VK_NUMPAD9
297
298    ; rotate through all USED vertex buffers at the current scene.
299    previous_vertexbuffer = no_modifiers NO_VK_DECIMAL VK_DIVIDE
300    next_vertexbuffer = no_modifiers NO_VK_DECIMAL VK_MULTIPLY
301    mark_vertexbuffer = no_modifiers NO_VK_DECIMAL VK_SUBTRACT
```

出现了一堆快捷键绑定，你可以根据注释和命名的规律来发现，这就是小键盘上的快捷键绑定设置。

在基础笔记中，有给出过一个快捷键的列表

按键	英文	用途
1	Numpad 1	上一个PS(pixel shader)
2	Numpad 2	下一个PS(pixel shader)
3	Numpad 3	标记PS(复制当前PS的hash地址)
4	Numpad 4	上一个VS(vertex shader)
5	Numpad 5	下一个VS(vertex shader)
6	Numpad 6	标记VS(复制当前VS的hash地址)
7	Numpad 7	上一个IB(index buffer)
8	Numpad 8	下一个IB(index buffer)
9	Numpad 9	标记IB(复制当前IB的hash地址)
/	Divide	上一个VB(vertex buffer)
*	Multiply	下一个VB(vertex buffer)
–	Subtract	标记VB(复制当前VB的hash地址)
Insert	Insert	上一个RT(render target)

Home	Home	下一个RT(render target)
Page	Page	标记RT(复制当前RT的hash地址)
. + 1	Decimal + Numpad 1	上一个CS(compute shader)
. + 2	Decimal + Numpad 2	下一个CS(compute shader)
. + 3	Decimal + Numpad 3	标记CS(复制当前CS的hash地址)
. + 4	Decimal + Numpad 4	上一个GS(geometry shader)
. + 5	Decimal + Numpad 5	下一个GS(geometry shader)
. + 6	Decimal + Numpad 6	标记GS(复制当前GS的hash地址)
. + 7	Decimal + Numpad 7	上一个HS(hull shader)
. + 8	Decimal + Numpad 8	下一个HS(hull shader)
. + 9	Decimal + Numpad 9	标记HS(复制当前HS的hash地址)
+	Add	结束Hunting，重置Hunting
0	Numpad 0	开启或关闭Hunting

再结合它的内容：

```
82
83    ; rotate through all VISIBLE pixel shaders at the current scene.
84    previous_pixelshader = no_modifiers NO_VK_DECIMAL VK_NUMPAD1
85    next_pixelshader = no_modifiers NO_VK_DECIMAL VK_NUMPAD2
86    mark_pixelshader = no_modifiers NO_VK_DECIMAL VK_NUMPAD3
87
88    ; rotate through all VISIBLE vertex shaders at the current scene.
89    previous_vertexshader = no_modifiers NO_VK_DECIMAL VK_NUMPAD4
90    next_vertexshader = no_modifiers NO_VK_DECIMAL VK_NUMPAD5
91    mark_vertexshader = no_modifiers NO_VK_DECIMAL VK_NUMPAD6
92
93    ; rotate through all USED index buffers at the current scene.
94    previous_indexbuffer = no_modifiers NO_VK_DECIMAL VK_NUMPAD7
95    next_indexbuffer = no_modifiers NO_VK_DECIMAL VK_NUMPAD8
96    mark_indexbuffer = no_modifiers NO_VK_DECIMAL VK_NUMPAD9
97
98    ; rotate through all USED vertex buffers at the current scene.
99    previous_vertexbuffer = no_modifiers NO_VK_DECIMAL VK_DIVIDE
00    next_vertexbuffer = no_modifiers NO_VK_DECIMAL VK_MULTIPLY
01    mark_vertexbuffer = no_modifiers NO_VK_DECIMAL VK_SUBTRACT
02
```

可以观察到：

NO_VK_DECIMAL指的是不按住小键盘的DECIMAL键，即.键

VK_DECIMAL指的是按住小键盘的DECIMAL键，即.键

VK_NUMPADn（这里的n指代数字）指的是小键盘上对应的n键

再结合它里面的注释内容，我们可以很容易猜到，它的命名规律就是VK_开头

```
27
28    ; Re-enable shaders once done with hunting:
29    done_hunting = NO_MODIFIERS NO_VK_DECIMAL VK_ADD
30
31    ; Screenshot as pns
32    take_screenshot = no_modifiers VK_SNAPSHOT
33
34    ; reload all fixes from ShaderFixes folder
35    reload_fixes = no_modifiers VK_F10
36
37    ; Key to turn hunting itself on/off.  This will also show/hide overl
38    ; Hunting must be set to either 1 or 2 to enable this toggle.
39    toggle_hunting = no_modifiers NO_VK_DECIMAL VK_NUMPAD0
40
41    ; Key to reload the settings from the d3dx.ini without restarting. 
42    ; be the same key as reload_fixes for convenience, or a different k
43    ; used to avoid resetting the ini parameters every time the shaders
44    ; reloaded. Note that not all settings can be reloaded, so if sometl
45    ; work as expected you may still have to restart the game:
46    reload_config = no_modifiers VK_F10
47
48    ; Deletes the d3dx_user.ini file and reloads settings to get a "clea
49    wipe_user_config = ctrl alt no_shift VK_F10
```

```
; Shows the CPU utilisation and performance impact of every a
monitor_performance = ctrl no_shift no_alt F9

; Freeze the current performance monitor display and log to t
freeze_performance_monitor = no_ctrl shift no_alt F9

; Sets how often the performance monitor updates
monitor_performance_interval = 2.0

; Auto-repeat key rate in events per second.
repeat_rate=6
```

也有一些不用vk开头的，经过仔细观察，你就可以把按键改为其它按键了，比如ctrl no_shift F1就是按住ctrl + F1触发对应命令。

按照这个思路，你只需要把原来108键键盘绑定在小键盘上的按键，移植到88键的键盘按键上就可以正常使用Hunting了。

当然，工欲善其事，必先利其器，最方便的方法还是买个新键盘。