

[Figures are not included in this sample chapter]

# Windows NT Registry

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### Settings for Mice and Keyboards

- **The Mouse key** The Registry key that holds the majority of mouse-related settings is discussed.
- **The Mouse applet** The Registry settings for the Mouse applet found in the Control Panel are discussed, covering all tabs and options available from the applet.
- **Other Mouse Registry** Other mouse-related settings are discussed here, including the `ClassGUID` and `INF` file location.
- **The Keyboard applet** The Registry settings for the Keyboard applet found in the Control Panel are discussed in this chapter.

## The Mouse Key

The settings for the mouse are listed under the `[HKEY_CURRENT_USER\Control Panel\ Mouse]` key. Because most of the settings in this chapter are listed under this key, I will refer to this key as the *Mouse key*. The other subkeys under the `[HKEY_CURRENT_USER\Control Panel]` key hold the settings and options, as viewed with the various applets in the Control Panel. These applets are discussed throughout this book.

## The Mouse Applet

The mouse applet in the Control Panel is the first place to look when issues concerning the mouse arise. This applet makes changes that are stored in the Registry. The mouse settings can also be directly manipulated with the Registry editors. If you open the Mouse applet, you see the dialog box shown in Figure 3.1.

**FIGURE 3.1** *The Mouse Properties dialog box.*

## The Buttons Tab

In the Button configuration area on the Buttons tab are two radial buttons. One is labeled Right-handed; the other is Left-handed. These buttons determine the following `SwapMouseButtons` value:

1. `[HKEY_CURRENT_USER\Control Panel\Mouse]`
2. `"SwapMouseButtons"="0"`

If the Right-handed radial button is selected, this value is 0; if Left-handed is chosen, the value is 1.

In the Double-click speed area, you see a slide bar that allows the double-click speed of the mouse to be set to Slow or Fast. The slide bar sets the following value under the Mouse key:

```
"DoubleClickSpeed"="100"
```

This value can be set from 100 to 900 (100 is fastest).

### The Pointers Tab

Click the Pointers tab to see the Scheme drop-down list box. This list box, as seen in Figure 3.2, contains all entries under the [HKEY\_CURRENT\_USER\Control Panel\Cursors\Schemes] key. These entries have the following form:

```
01. "Dinosaur"="
02. C:\\WIN\\Cursors\\3dgarro.cur ,
03. ,
04. C:\\WIN\\Cursors\\dinosaur.ani ,
05. C:\\WIN\\Cursors\\dinosau2.ani ,
06. C:\\WIN\\Cursors\\cross.cur ,
07. ,
08. ,
09. C:\\WIN\\Cursors\\banana.ani ,
10. C:\\WIN\\Cursors\\3dsns.cur ,
11. C:\\WIN\\Cursors\\3dgwe.cur ,
12. C:\\WIN\\Cursors\\3dsnwse.cur ,
13. C:\\WIN\\Cursors\\3dgnsw.cur ,
14. C:\\WIN\\Cursors\\3dsmove.cur ,
15. "
```

**FIGURE 3.2** *The Pointers tab.*

Notice that I have separated the values so that there is one value on each line. If you write this setting into an .REG file, however, write it all on one line. Notice that there are 13 values listed under the Dinosaur setting, which correspond to the 13 values shown in the large scroll box that lists the way the mouse appears. This scroll box can be seen in Figure 3.2, with a starting entry of Normal Select. The settings follow:

- Normal Select
- Help Select
- Working in Background
- Busy
- Precision Select
- Text Select
- Handwriting
- Unavailable
- Vertical Resize
- Horizontal Resize
- Diagonal Resize 1
- Diagonal Resize 2
- Move
- Alternate Select

Each setting under this key maps a .CUR or .ANI file to the appropriate setting.

If you now look at the [HKEY\_CURRENT\_USER\Control Panel\Cursors] key, you see that this key is defined as @="Dinosaur" in my Registry. Therefore, the settings that show up in the large scroll box are retrieved from the key:

1. [HKEY\_CURRENT\_USER\Control Panel\Cursors\Schemes]
2. "Dinosaur"="

### The Motion Tab

Moving onto the Motion tab, as seen in Figure 3.3, you see another slide bar in the Pointer speed area.

#### FIGURE 3.3 *The Motion tab.*

This slide bar sets the following values under the Mouse key:

1. MouseThreshold1                      0, 1 or 2                      REG\_SZ
2. MouseThreshold2                      0, 1, 2, 3 or 4                      REG\_SZ
3. MouseSpeed 0 to 6 REG\_SZ

The other setting on this tab is the Snap to default check box, which sets the following Boolean value under the Mouse key:

SnapToDefaultButton                      0 or 1 REG\_SZ

If the check box is not checked, this value is set to 0; if checked, the value is set to 1.

### The General Tab

The last tab on the Mouse applet screen is the General tab (see Figure 3.4). There is only one item on this page--the Name drop-down list box, which contains one or two entries. These entries are listed under the following key as \1\_0\_21\_0\_31\_0 and \1\_1\_21\_0\_31\_0:

1. [HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Enum\Root\\*PNP0F03]

#### FIGURE 3.4 *The Serial Mouse Registry key.*

This Plug-and-Play key indicates that Windows NT has found this hardware at bootup. Only two entries are found under this key (Microsoft PS/2 Port Mouse and Microsoft Serial Mouse), and these entries match the ones in the Name list box, as seen in Figure 3.4:

1. [HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Enum\Root\\*PNP0F03
2. "DeviceDesc"="Microsoft Serial Mouse"
- 3.
4. [HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Enum\Root\\*PNP0F03
5. "DeviceDesc"="Microsoft PS/2 Port Mouse"

Now, if you look at the values under these two subkeys, you see this:



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**Author Note**

The other services where mice may be found are under the [HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\] key: Sermouse (refer to Figure 3.5) and Busmouse.

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**Tip**

If you use a Microsoft IntelliMouse, the wheel may stop functioning after some types of software are installed. Try deleting the following keys:

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```
[HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\VxD\VRCHSYS]
[HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\VxD\VRCHDOS]
[HKEY_CURRENT_USER\Software\Microsoft\Windows\Current Version\ Explorer\Cabinet Sta
```

Most PCs give a keyboard 101 error if a keyboard is not detected.

One feature of the keyboard that is set by the Registry at bootup is the NumLock key. The value that determines whether NumLock is on or off is found under the [HKEY\_CURRENT\_USER\Control Panel\Keyboard] key:

```
InitialKeyboardIndicators      0 or 2
```

If you want to change the status of NumLock when Windows NT boots so that NumLock is on, change the value of this setting from 0 to 2. If you turn NumLock off and shut the computer down, however, this value is reset from 2 to 1.

**The Keyboard Applet**

If you open the Control Panel and launch the Keyboard applet, you see the Keyboard Properties dialog box, shown in Figure 3.8.

**FIGURE 3.8** *The Keyboard Properties dialog box.*

**The Speed Tab**

There are two slide bars on the Speed tab: Repeat delay and Repeat rate. The settings for these slide bars are held in the following values under this Registry key:

```
KeyboardDelay      0 to 3 REG_SZ
KeyboardSpeed      0 to 31
```

A setting of 31 yields the fastest speed.

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**Troubleshooting**

If you have a serial mouse on COM1 or COM2 that occasionally fails to be detected by NTDETECT at startup, you can fiddle with the connector without rebooting by adding the following value to the

```
[HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\Sermouse\Parameters]
key:
```

```
OverrideHardwareBitstring    0 or 1
REG_DWORD
```

A data value of 1 indicates that the mouse is installed on COM1; a data value of 2 specifies COM2.

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The other slide bar on this tab controls the Cursor blink rate. Its value is stored in this key:  
[HKEY\_CURRENT\_USER\Control Panel\Desktop]

```
CursorBlinkRate             200--1200 REG_SZ
```

A setting of 200 is the fastest.

### The Input Locales Tab

The next tab in the Keyboard applet is the Input locales tab (see Figure 3.9). The first item on this tab is the Installed input locales and layouts area, which lists all of the country keyboard layouts that are loaded into memory by Windows NT at bootup.

#### FIGURE 3.9 *The Input Locales tab.*

The information in this area is stored in several Registry keys. First, the listings in this box correspond to the values under this key:

1. [HKEY\_CURRENT\_USER\Keyboard Layout\Preload]
2. "1"="00000409"
3. "2"="00000436"
4. "3"="00000423"

My Registry lists three entries, and as Figure 3.9 shows, there are three entries in the Input locales area.

If you search the Registry for the value 00000409, you find that this is the code page for the U.S.:

1. [HKEY\_LOCAL\_MACHINE\SYSTEM\ControlSet001\Control\Keyboard Layout\ DosKeybCodes]
2. "00000409"="us"

Listed under this key are values for all of the keyboards you see when you press the Addbutton. But you also find this next key, which gives you the keyboard driver for the 00000409, or U.S., keyboard layout:

1. [HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Control\ Keyboard 1. 1. 1. 2. Layout
2. "Layout Text"="US"
3. "Layout File"="KBDUS.DLL"

The driver is given in the Layout File setting; for this keyboard it is the KBDUS.DLL file. All of the keyboard layouts available in Windows NT have similar entries under this key.

This tab also has three radial buttons in the Switch locales area that control this key:

1. [HKEY\_CURRENT\_USER\Keyboard Layout\Substitutes]

2. "00000436"="00040409"

The two numeral values here are keyboard layouts; in this case, they show that the Belarus and U.S. keyboard layouts will switch in and out if Ctrl+Shift is pressed.

The last entry on this screen is the Enable indicator on taskbar check box. When this box is checked, a "Hotkey" value is added to this key:

```
[HKEY_CURRENT_USER\Keyboard Layout\Toggle]
Hotkey          1 or 2 REGSZ
```

This setting's value is set to either 1 or 2. 1 indicates that the Left Alt+Shift b

## The General Tab

The last tab on the Keyboard applet is the General tab, as seen in Figure 3.10.

### FIGURE 3.10 *The General tab.*

There is only one item on this page: a drop-down list box that displays the current keyboard. Most computers will list the PC/AT Enhanced Keyboard (101/102-Key). If you search the Registry for this keyboard, you find this:

```
1. [HKEY_LOCAL_MACHINE\SYSTEM\ControlSet001\Control\Class\
2. {4D36E96B-E325-11CE-BFC1-08002BE10318}\0000]
3. "InfPath"="keyboard.inf"
4. "InfSection"="STANDARD_Inst"
5. "ProviderName"="Microsoft"
6. "DriverDesc"="PC/AT Enhanced Keyboard (101/102-Key)"
```

The values give you the .INF file and section from which this keyboard is set up. If you open this .INF file and look at the [STANDARD\_Inst] section--note that this keyboard is the default Windows NT Keyboard--you see this:

```
%*PNP030b.DeviceDesc% = STANDARD_Inst,*PNP030b ;Default keyboard
```

This gives you the Plug-and-Play value that Windows NT uses for this device. Searching the Registry for this value gives these results:

```
01. [HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Enum\Root\
02. *PNP030b\1_0_22_0_32_0]
03. "HardwareID"=hex(7):2a,50,4e,50,30,33,30,62,00
04. "BaseDevicePath"="HTREE\ROOT\0"
05. "FoundAtEnum"=dword:00000001
06. "Service"="i8042prt"
07. "ClassGUID"="{4D36E96B-E325-11CE-BFC1-08002BE10318}"
08. "Class"="Keyboard"
09. "Driver"="{4D36E96B-E325-11CE-BFC1-08002BE10318}\0001"
10. "Mfg"="(Standard keyboards)"
11. "DeviceDesc"="PC/AT Enhanced Keyboard (101/102-Key)"
12. "ConfigFlags"=dword:00000000
13. "Problem"=dword:00000000
14. "StatusFlags"=dword:00000008
```

This key holds the values that Windows NT has read from the firmware for this device.