Using Windows NT 4.0 Driver

IBM's Windows NT 4.0 driver makes Memory Key the only USB-compliant storage device that can be used in a Windows NT environment. Windows NT completes the Windows operating system portfolio that supports Memory Key.

The NT 4.0 driver is compatible with both servers and workstations, and can be targeted for multiple markets to support both corporate and personal use.

Built-in, quick start procedures guide you through installation step by step. This text summarizes these procedures, and also includes some troubleshooting procedures.

1 ESSENTIAL GUIDELINES FOR USING YOUR MEMORY KEY WITH WINDOWS NT

The Universal Serial Bus (USB) is designed to make it easy to connect various devices to your computer. The USB is fully plug and play, which means you can plug USB devices into your computer while it is running. By default, Windows NT does not support the USB interface. Neither does Windows NT support the plug and play standard.

M-Systems' Memory Key NT driver enables Windows NT to support the USB interface. It also adds limited plug and play functionality for Memory Key by creating a virtual disk device during installation (similar to floppy disk or CD ROM behavior). This virtual drive is inaccessible until you insert your Memory Key, and it remains intact until the NT driver is uninstalled. You can insert up to two Memory Keys on the same machine that is running Windows NT.

However, because Windows NT does not automatically provide this support, it is critical that you follow the guidelines below when using your Memory Key in a Windows NT environment:

Do's

- CAUTION! To prevent data loss, always wait at least 5 seconds after the LED on the Memory Key stops flashing rapidly before removing it from your computer. The LED may stop flashing and then start flashing again a second or two later.

- Wait at least 5 seconds before reinserting your Memory Key into your computer.

- CAUTION! To prevent your system from hanging, remove all USB software from your computer before installing the Memory Key software. Some USB controllers or motherboards may not support all types of USB devices.

- To achieve maximum performance:
  - Access only one Memory Key at a time. (The performance of all USB devices decreases as additional USB devices are connected.)

- Connect your Memory Key directly to one of the USB connections on your computer instead of to a USB hub or the keyboard. USB hubs are not supported and may not work with the Memory Key software.

Don'ts

- CAUTION! Never use a USB extension cable with your Memory Key drive. Data loss may result.
- Do not connect more than two Memory Keys to a single computer.
- CAUTION! All Memory Key products are USB compliant. If you are using any USB devices (including controller chips, hubs, cables, cards, mice, joysticks, and peripherals) that do not comply with the USB specification, this may cause system lockup or data loss. If you are not sure if a USB device complies with the latest USB specification, contact the device manufacturer.

2 GETTING STARTED

2.1 System Requirements

- Windows NT 4.0 workstation and server with Service Pack 4-6A.
- USB connection

2.2 Pre-Installation Procedures

Before beginning to install the Windows NT 4.0 driver:

- Make sure to remove any other USB software from your computer before installing the Memory Key software.
- If Windows is already running, close all applications before proceeding.
- If an older version of Memory Key software is already installed, remove it using the 'Add/Remove Programs' in the Control Panel. Restart Windows before proceeding with installation.

3 INSTALLATION PROCEDURES

3.1 Installing the Driver

1. Double click the Installer icon. The 'Welcome' screen is displayed.
2. If you are installing the NT 4.0 driver from a CD and the software setup program does not start automatically, follow these steps:
   - Open 'My Computer' or 'Windows Explorer'.
   - Double click the CD icon or drive letter (usually D, E, or F).
   - Double click 'Setup'.
3. Click 'Next'. The 'License Agreement' screen is displayed.
4. Click 'Yes' to accept the terms of the license agreement. The 'Assign Drive Letters' screen is displayed (Figure 1).
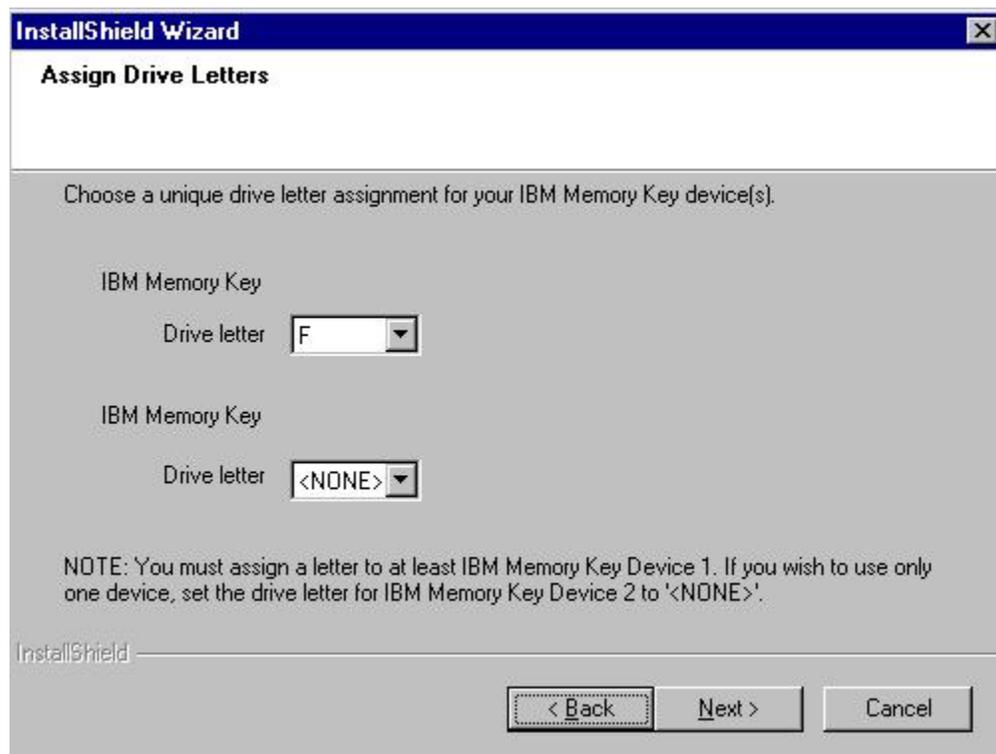
Figure 1: ASSIGN DRIVE LETTERS

3.2 Assigning Drive Letters

1. Choose a unique drive letter assignment for each of your Memory Key devices, and click 'Next' to review your settings before copying files (Figure 1).

   Note: You can reassign the drive letters you have selected by following the procedures in section 4. Make sure to use only available drive letters that are not assigned to any network connection.

2. Click 'Next' after reviewing your settings. InstallShield wizard prompts you to remove your Memory Key if it is inserted.

3. Click 'OK' after you have removed your Memory Key to restart your computer.

3.3   Connecting Your Memory Key

1. After restarting your computer, insert your Memory Key into your computer's USB port and begin using it. Look for 'USB' or the USB icon symbol (Figure 2), which usually identifies the USB connection.

FIGURE 2: USB ICON

2. For the best performance, connect your Memory Key to the USB port on the side or back of the computer. Refer to the guidelines in section 1 for additional information.

3. Double click the Removable Disk icon in 'My Computer' or 'Windows Explorer', (Figure 3) to access your Memory Key. If this icon is not displayed after you have installed the NT 4.0 driver, you must change your computer's BIOS settings.

4. To verify that the driver has been successfully installed, double click the Devices icon in your Control Panel and look for the following filenames: 'usbbulk' and 'usbdrv'. If these are not displayed, your Memory Key will not be recognized (Figure 4).
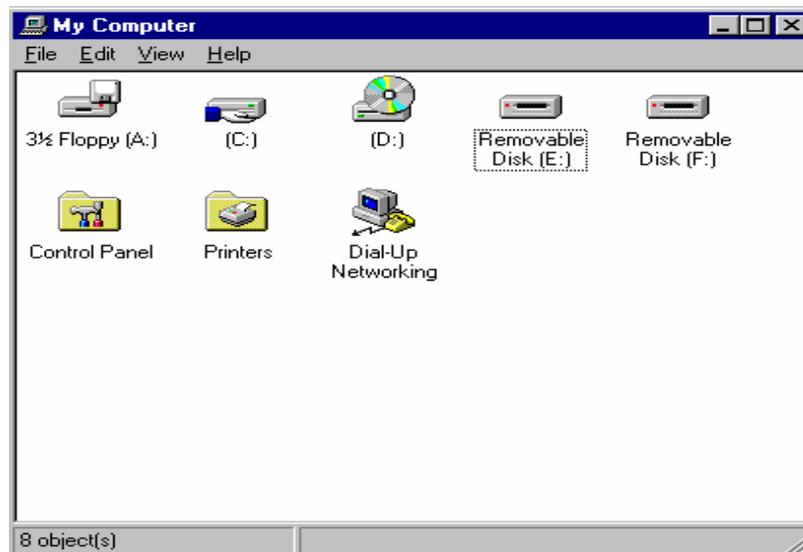
FIGURE 3: LOCATION OF REMOVABLE DISKS
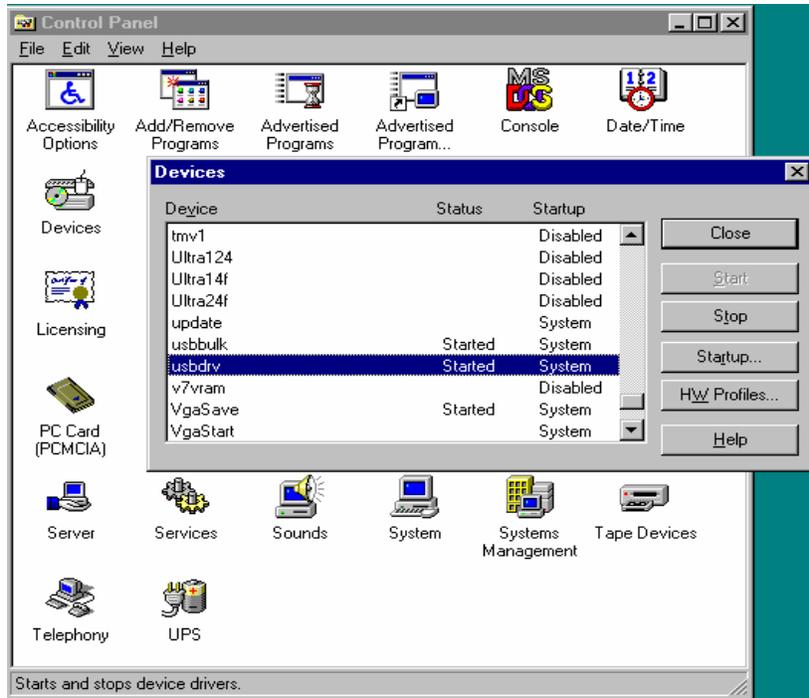
FIGURE 4:LOCATION OF INSTALLER FILES

3.4 Using Your Memory Key

After you install the Windows NT 4.0 driver, either one or two Removable Disk icons (with the drive letters that you have assigned) will be listed in your 'My Computer' or 'Windows Explorer' directory ([Figure 3](#)). These icons are permanent.

Note: Before you begin using your Memory Key, make sure it is connected properly. Otherwise, the error message 'The Device is not ready' will be displayed.

Since Windows NT is a specialized environment, bear in mind the following operating conventions that may affect Memory Key operation:

- Memory Keys formatted under Windows 98, ME , 2000 or XP may not be recognized by Windows NT, since Windows NT 4.0 does not recognize the FAT32 file system that these other environments use. Therefore, make sure that your Memory Key is formatted as FAT or NTFS ([Figure 5](#)).

FIGURE 5: FILE SYSTEM NOT RECOGNIZED

Note: If your Memory Key is formatted as FAT under Windows 2000 and XP and it is still not recognized under Windows NT, reformat it in a Windows NT environment.

- The first Memory Key that you plug into your computer is assigned the first drive letter that you assigned; the second Memory Key is assigned the second letter. This assignment remains unchanged as long as the device/s is/are plugged in, even though no indication of this assignment is displayed during device re-insertion or removal.

- With the exception of the copy disk function, which is not supported by the Windows NT driver, Memory Key functionality resembles removable hard drive functionality.

- When inserting and removing your Memory Key, always wait at least 5 seconds after its LED has stopped flashing rapidly. The LED flashes rapidly twice when you write or copy files to Memory Key, delete files from it or format it.

4   REASSIGNING OR ADDING A DRIVE LETTER

1. Click the NT 4.0 Installer icon to display the 'Maintenance Setup' screen (Figure 6).
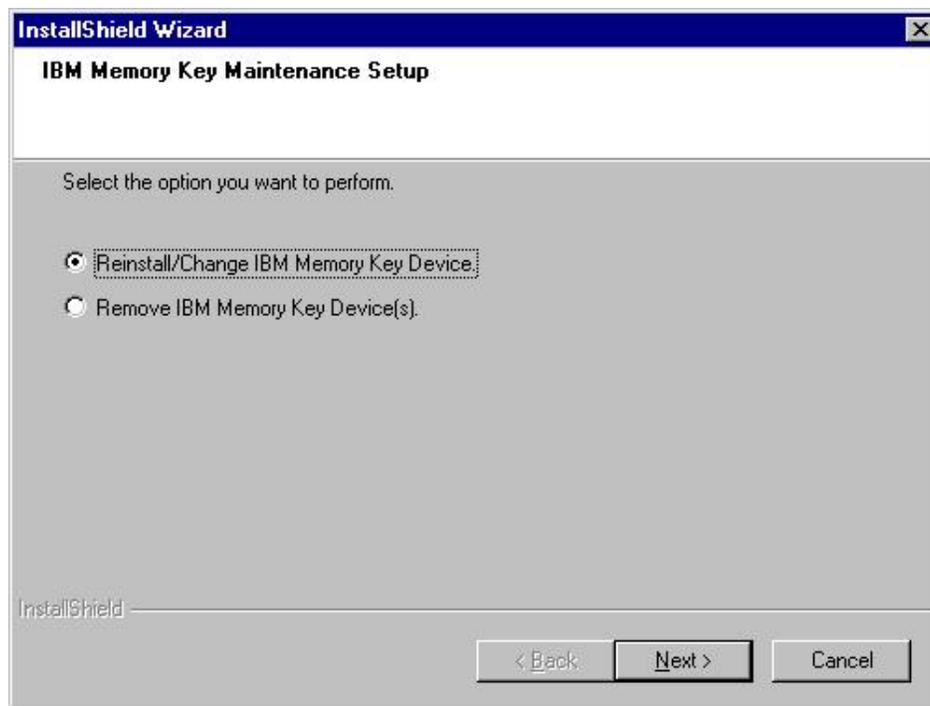
FIGURE 6: MAINTENANCE OPTIONS

2. Choose 'Reinstall/Change Memory Key(s)' and click 'Next'. The 'Assign Drive Letters' screen is displayed (Figure 1).
3. Follow the instructions in section 3.2 to either reassign a different drive letter to your Memory Key or to assign a new drive letter to a second Memory Key.

5 REMOVING THE NT 4.0 DRIVER

1. Click the NT 4.0 Installer icon to display the 'Maintenance Setup' screen (Figure 6).

2. Choose 'Remove Memory Key(s)' and click 'Next' to remove the NT 4.0 application and all of its components. To confirm, click 'OK'.

3. Remove your Memory Key.

4. After you see a window notifying you that the process is complete, choose either to restart your computer now or later, and then click 'OK' to confirm your choice (Figure 7). After your computer automatically reboots, the driver will be uninstalled.
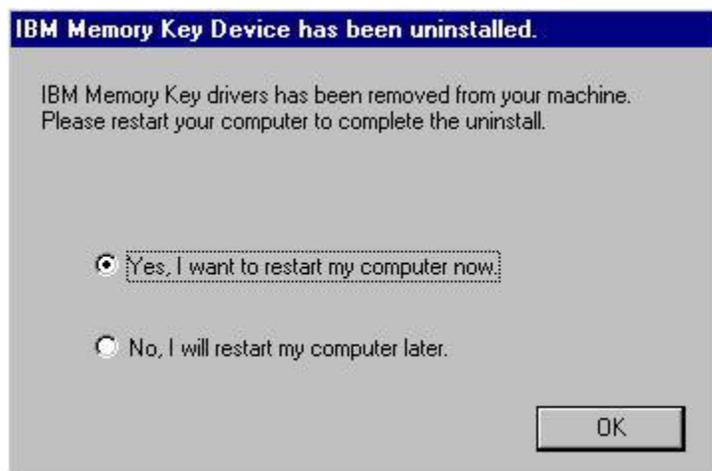
FIGURE 7: RESTART YOUR COMPUTER

6 TROUBLESHOOTING

This section lists a number of typical errors/error messages and provides fixes.

6.1 No Memory Key Icon Display

If the Memory Key icon is not displayed after you install the Memory Key software, make sure that the USB controller is enabled in your computer's BIOS. Refer to the manufacturer's documentation on how to change the BIOS settings.

6.2 Device not Ready

If the error message "The Device is not ready" is displayed, try any of these fixes:

- Make sure the Memory Key device is fully plugged in.
- Remove the device and use another USB port on your computer. Not all USB ports provide the correct support.
- If your Memory Key is plugged into a hub, connect it directly to the computer.

6.3 Drive not Accessible

If the error message "K:\ is not accessible. The volume does not contain a recognized file system…" **r**eformat the Memory Key under Windows NT.

6.4 Write Failure

If the error message "Lost Delayed-Write Data" is displayed, the operating system failed to write data to your Memory Key. Try any of these fixes:

- Repeat the save operation and make sure you wait 5 seconds after the LED stops flashing before you remove your Memory Key.
- Check to see if your Memory Key is functional by right clicking the Removable Disk icon. Select 'Properties', 'Tools' and 'chkdsk' to identify any files that are corrupt. Delete the corrupted files and save them again on your Memory Key.

6.5 Local Device Name Already in Use

If you are not connected to the network and attempt to assign an available network drive letter to your Memory Key, the network drive fails to restore a connection after the next Windows logon.

To avoid this problem, assign the drive when your computer is connected to the network.

To fix this problem, reinstall the drive using a different, free drive letter (Figure 8).

FIGURE 8:RESTORING NETWORK CONNECTIONS