Paragon Universal File System Driver (UFSD™)

Data Sheet

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The present day IT environment is overwhelmed with different types of file systems. As you know, the file system is a crucial component of any operating system. It's responsible for storing, organizing and manipulating files and the data they contain in such a way that they can easily be found and accessed. Each system has its own advantages and disadvantages. It's often the case that when releasing a new operating system, its developer also introduces a new file system as well.

Let's just take as an example Microsoft Windows, where two quite different by nature file systems (FAT and NTFS) work together. But taking into consideration different system developers, we instantly face the problem of incompatibility at full. Just try to access an HFS+ partition under Windows and you'll see it for yourself.

It's not a big problem, if not a global tendency to use several operating systems on one computer. Besides a lot of embedded devices are now coming with a particular operating system (Linux mostly). So to be competitive and versatile, your device desperately needs a bridge between different file systems.

Paragon Software, as one of the crucial players in the storage management field, has recognized that need for several years already and come with an original technology that enables to establish read/write access to the so-called popular file systems (NTFS, FAT16/32, ExtFS, HFS+, etc.) under operating systems that cannot do it by default (e.g. NTFS for Linux, HFS+ for Linux, NTFS for Mac, ExtFS for Mac, HFS+ Browser for Windows, ExtFS Browser for Windows, etc.). It's based on the direct access to physical drives and buffered input/output access, that is why it makes it possible to process unsupported partitions (browse contents, read and modify files, copy and create new files and folders, etc.) while keeping an acceptable level of performance.

What You Can Get With Our Technology

Paragon technology of building a universal file system driver has already proved its market value by finding a wide application in various spheres of life.

> **Paragon Products Integration**

Most of the company products have been successfully using Paragon UFSD™ technology for years already (Related Products Link). Our customers give high praise to our technology and keep emphasizing advantages it offers over the competitors.

> **Network Storage Integration**

The desire for low-cost, highly integrated, easily managed network storage is the reason that network attached storage (NAS) servers as well as routers with storage features are the choice of more and more small and medium-sized companies.

With our technology you can obtain a cost effective and easy-to-manage network storage that will access various file systems, no matter what operating system it has.

> **Multimedia Device Integration**

Modern multimedia stations, based mostly on Windows and Linux platforms, provide the ability to process video data from a camcorder, DVD or a satellite device real-time and store it onto external media. Until recently, due to certain incompatibility issues, Linux

multimedia stations, for instance, could work only with FAT or Linux-native systems. To use an NTFS hard disk with a Linux PVR was out of question.

With our technology you can enjoy a multimedia device that will write data onto external media of any file system.

➢ **Anti-Virus (Malware) Integration**

The problem of computer viruses and the harm they can cause is well known especially for the Windows community. The present day viruses are not that simple as they used to be. They are now too sophisticated and really difficult to neutralize. As an example, let's just take the so called rootkit, a virus that conceals itself in the file system hidden entries. To detect it, an anti-virus program needs a facility of accessing file systems independently from the current operating system to compare the amount of data obtained directly and the amount of data reported by the file system, actually the only way to neutralize it.

With our technology you can equip your anti-virus software with a system independent file system driver to detect and neutralize any type of viruses as well as get full and secure access to any file system.

➢ **Ultra-Mobile PC Integration**

Ultra mobile computers are widely popular nowadays. They are really convenient to use (light-weighted), they are powerful enough to tackle most of the problems, and what is more important they are cheap. In the pursuit of minimizing the prime cost, manufactures prefer to use Linux as the default operating system. It's free and efficient, but it cannot grant access to NTFS-based storage devices.

With our technology you can expand the file system support of your Linux.

➢ **Digital Control System Integration**

In the 1980s we could see a global tendency of establishing digital control systems within various industry branches. That equipment was expected to function trouble-free for years. That's why system manufactures guaranteed a 10-year spare parts support and software update. But we all know pretty well, that software in particular keep evolving really fast, so what we got 10 years ago is completely outdated today. So platforms originally UNIX-embedded for instance are now based on Windows and Linux. But these operating systems cannot provide access to storages formatted to file systems of that time.

With our technology you don't need to worry about incompatibility of various file systems at all.
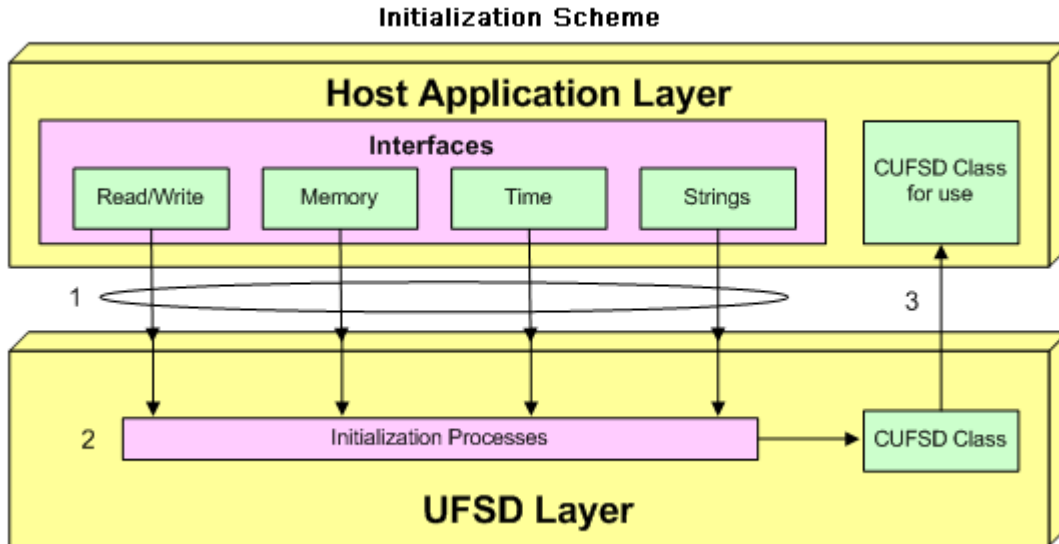
➢ **Multi-System Recovery CD Integration**

Nowadays lots of enterprises prefer to use several OSs to successfully accomplish specific tasks. Due to certain incompatibility issues, in case of a system malfunction, damage or infection, IT personnel is faced with the daunting challenge of having a bunch of bootable recovery CDs for each particular system to rescue valuable information or recover the system after a virus attack.

With our technology you can minimize manual labor and time costs and make a system administrator job more efficient.

> **Windows Explorer (Shell) Integration**

Our technology can be easily integrated with the Windows Name Space Shell Extension mechanism, thus providing the option to grant fast and transparent access to non-Windows native file systems with the minimal efforts possible.

Concept of Paragon UFSD

Initialization Scheme

Host Application Layer

Interfaces

| Read/Write | Memory | Time | Strings |

CUFSD Class for use

1

2   Initialization Processes   CUFSD Class

3

UFSD Layer

Paragon UFSD SDK

Developed and maintained by our in-house experts, Paragon UFSD SDK delivers:

➢ **High performance**

Direct access to partitions enables to achieve an unprecedented high level of performance (the same as for native systems and in some cases even better).

➢ **Rock-solid reliability**

After accomplishing a lot of testing with different configurations, our UFSD-based drivers have proved to be 100% reliable.

➢ **Low system requirements**

Thanks to a highly optimized source code, our UFSD-based drivers will in no way overload your system.

➢ **Flexible and easy-to-use API to minimize your development costs**

Paragon UFSD SDK is cross-platform, so it can be processed with various compilers, like Microsoft VC++, Borland, Watcom, GNU C, and Intel.

➢ **Proven and dependable support**

All Paragon SDK licenses provide a life developer support. Besides, you will get updates on a regular basis completely for free.