Core Dump Encyclopedia Article

Core Dump

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Contents

Core Dump Encyclopedia Article.....1

Contents.....2

Core Dump.....3

Core Dump

A **data** dump is the copying of raw data from one place to another with little or no formatting for the readability of the data. A type of data dump is called a core dump. A core dump is the printing or the copying of the contents of the **random access memory** (RAM) to a more permanent location, such as the hard disk.

RAM is the place in a computer where the operating system, application programs, and data in use are kept. A core dump can be thought of as a full-length picture of RAM at a moment in time. This is useful for attempting to determine the cause of a failure, and is also commonly referred to as **debugging**. After a program fails, the data from the core dump can be studied to analyze the contents of **memory** at the time of failure. A dump typically contains information in a binary form (consisting of 0's and 1's), octal form (a base-8 system, consisting of 0-7), or hexadecimal form (a base-16 system, consisting of 16 unique alphanumeric symbols). Such information is often difficult to decipher, and the dump is helpful at diagnosing a problem only if the target is known.

For some operating systems, core dump is more a remnant of past technologies than a present day operational concern. Few problems require a core dump nowadays, with the advent of interactive debugging and more refined languages. In this context, the word core refers to the ferrite cores of the earlier memory technology. In some earlier operating systems, certain system errors would automatically trigger a core dump. The report, which resulted from a core dump, would present the RAM contents as a formatted series of lines. These lines would indicate the locations and contents of memory at each location. Furthermore, the instruction that was executing at the time of the failure could be reported.

In the **Linux** operating system, core dump still serves an important function, although the traditional core dump has been replaced by the use of the system memory to save information at the time of a crash. On a subsequent reboot of the system, the crash information can be recovered.