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What are the different RAID levels for Linux / UNIX and Windows Server?

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Q. What are the different RAID levels? Which one is recommended for file server and database server?

A. A Redundant Array of Independent Drives [2] (or Disks), also known as Redundant Array of Inexpensive Drives (or Disks) (RAID) is an term for data storage schemes that divide and/or replicate data among multiple hard drives. RAID can be designed to provide increased data reliability or increased I/O performance, though one goal may compromise the other.

[1]

There are total 10 types of RAID levels:

- RAID level 0
- RAID level RAID level 1
- RAID level 2
- RAID level 3
- RAID level 4
- RAID level 5
- RAID level 6
- RAID level 10
- RAID level 50
- RAID level 0+1

Commonly used RAID levels for UNIX / Linux and Windows server

Following are commonly used RAID levels :

RAID level	Minimum hard disks	Suggested application	Notes
RAID 0 - Striped Set without parity	2 Hard disks	1. Video Production and Editing 2. Image Editing 3. Any application requiring high bandwidth	Provides improved performance and additional storage but no fault tolerance from disk errors or disk failure. Any disk failure destroys the array, which becomes more likely with more disks in the array.
RAID 1 - **Mirrored** Set (2 disks minimum) without parity.	2 Hard disks	1. Office application 2. Financial application 3. Payroll application etc	Provides fault tolerance from disk errors and single disk failure. Increased read performance occurs when using a multi-threaded operating system that supports split seeks, very small performance reduction when writing. Array continues to operate so long as at least one drive is functioning
RAID 5	3 Hard disks	1. File and Application servers 2. Internet Web, E-mail servers 3. Intranet servers	Highest Read data transaction rate, Medium Write data transaction rate, Overall good (aggregate) transfer rate. drive failure requires replacement, but the array is not destroyed by a single drive failure. Upon drive failure, any subsequent reads can be calculated from the distributed parity such that the drive failure is masked from the end user. The array will have data loss in the event of a second drive failure and is vulnerable until the data that was on the failed drive is rebuilt onto a replacement drive

RAID 10 (nested RAID 1+0)	4 Hard disks	1. Database server (such as Oracle / MySQL / MS-SQL) which requiring high performance and fault tolerance	Provides fault tolerance and improved performance but increases complexity.

See also - [Understanding RAID and required number of minimum disk in graphical format](#) [3]

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[2] Redundant Array of Independent Drives: **http://en.wikipedia.org/wiki/RAID**
[3] Understanding RAID and required number of minimum disk in graphical format:
http://www.cyberciti.biz/tips/hardware-software-raid-tutorial.html