Linux文件系统性能对比

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## General information

| **FS** | **Max filename len** | **Allowable chars in directory entrys** | **Maximum pathname len** | **Max file size** | **Maximum volume size** |
| --- | --- | --- | --- | --- | --- |
| [ext3](http://en.wikipedia.org/wiki/Ext3) | 255 bytes | Any byte except NUL and / | No limit defined | 2 TB | 32 TB |
| [ext4](http://en.wikipedia.org/wiki/Ext4) | 255 bytes | Any byte except NUL and / | No limit defined | 16 TB | 1 EB |
| [Btrfs](http://en.wikipedia.org/wiki/Btrfs) | 255 bytes | Any byte except NUL | Unknown | 16 EB | 16 EB |
| [JFS](http://en.wikipedia.org/wiki/JFS_file_system) | 255 bytes | Any [Unicode](http://en.wikipedia.org/wiki/Unicode) except NUL | No limit defined | 4 PB | 32 PB |
| [XFS](http://en.wikipedia.org/wiki/XFS) | 255 bytes | Any byte except NUL | No limit defined | 8 EB | 8 EB |

## Limits

| **FS** | **Maximum**[**filename**](http://en.wikipedia.org/wiki/Filename)**length** | **Allowable characters in directory entries** | **Maximum pathname length** | **Maximum file size** | **Maximum volume size** |
| --- | --- | --- | --- | --- | --- |
| [ext3](http://en.wikipedia.org/wiki/Ext3) | 255 bytes | Any byte except NUL and / | No limit defined | 2 TB | 32 TB |
| [ext4](http://en.wikipedia.org/wiki/Ext4) | 255 bytes | Any byte except NUL and / | No limit defined | 16 TB | 1 EB |
| [Btrfs](http://en.wikipedia.org/wiki/Btrfs) | 255 bytes | Any byte except NUL | Unknown | 16 EB | 16 EB |
| [JFS](http://en.wikipedia.org/wiki/JFS_file_system) | 255 bytes | Any [Unicode](http://en.wikipedia.org/wiki/Unicode) except NUL | No limit defined | 4 PB | 32 PB |
| [XFS](http://en.wikipedia.org/wiki/XFS) | 255 bytes[[61]](http://en.wikipedia.org/wiki/Comparison_of_file_systems#cite_note-61) | Any byte except NUL | No limit defined | 8 EB | 8 EB |

## Metadata

| **FS** | **Creation timestamps** | **Last access/ read timestamps** | **Last content modification timestamps** | [**Access control lists**](http://en.wikipedia.org/wiki/Access_control_list) | [**Extended attributes**](http://en.wikipedia.org/wiki/Extended_attribute)**/**[**Alternate data streams/ forks**](http://en.wikipedia.org/wiki/Fork_(filesystem)) | **Checksum/**[**ECC**](http://en.wikipedia.org/wiki/Error-correcting_code) | **Max Timestamp Resolution** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| [ext3](http://en.wikipedia.org/wiki/Ext3) | No | Yes | Yes | Yes | Yes | No | 1 second |
| [ext4](http://en.wikipedia.org/wiki/Ext4) | Yes | Yes | Yes | Yes | Yes | Partial | 1 nanosecond |
| [Btrfs](http://en.wikipedia.org/wiki/Btrfs) | Yes | Yes | Yes | Yes | Yes | Yes | 1 nanosecond |
| [JFS](http://en.wikipedia.org/wiki/JFS_file_system) | Yes | Yes | Yes | Yes | Yes | No | 1 second |
| [XFS](http://en.wikipedia.org/wiki/XFS) | No | Yes | Yes | Yes | Yes | Partial | 1 nanosecond |

| **Fs** | [**Block journaling**](http://en.wikipedia.org/wiki/Journaling_file_system) | [**Metadata-only journaling**](http://en.wikipedia.org/wiki/Journaling_file_system) | [**File Change Log**](http://en.wikipedia.org/wiki/File_Change_Log) | [**Snapshot**](http://en.wikipedia.org/wiki/Snapshot_(computer_storage)) | [**XIP**](http://en.wikipedia.org/wiki/Execute_in_place) | [**Encryption**](http://en.wikipedia.org/wiki/Filesystem-level_encryption) | [**COW**](http://en.wikipedia.org/wiki/Copy-on-write) | [**Integrated LVM**](http://en.wikipedia.org/wiki/Logical_volume_manager) | [**Data deduplication**](http://en.wikipedia.org/wiki/Data_deduplication) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [ext3](http://en.wikipedia.org/wiki/Ext3) | Yes | Yes | No | No | Yes | Yes | No | No | No |
| [ext4](http://en.wikipedia.org/wiki/Ext4) | Yes | Yes | No | No | Yes | Yes | No | No | No |
| [Btrfs](http://en.wikipedia.org/wiki/Btrfs) | No | No | Yes | Yes | No | Planned | Yes | Yes | Yes |
| [JFS](http://en.wikipedia.org/wiki/JFS_file_system) | No | Yes | No | Yes | No | No | No | Unknown | Unknown |
| [XFS](http://en.wikipedia.org/wiki/XFS) | Yes | Yes | No | No | No | No | No | No | No |

## Features