

New 1 Reading Exam English File Workbook

new 1 reading exam english file is an essential resource for students preparing for their English language assessments. Whether you're a high school student aiming to excel in your exams or an adult learner seeking to improve your reading skills, this exam guide provides a comprehensive overview of the exam format, effective preparation strategies, and practice materials to help you succeed. In this article, we will explore everything you need to know about the new 1 reading exam English file, including its structure, key tips for success, and recommended resources.

Understanding the New 1 Reading Exam English File

Overview of the Exam Structure

The new 1 reading exam English file is designed to assess a variety of reading skills, including comprehension, vocabulary, inference, and understanding of different text types. Typically, the exam consists of several sections, each targeting specific skills.

Common sections include:

- Multiple-choice questions: Testing understanding of main ideas and details.
- Matching exercises: Connecting statements to parts of the text.
- Gaps-fill tasks: Completing sentences or summaries based on the reading.
- True/False or Yes/No questions: Assessing comprehension and ability to discern facts.
- Short answer questions: Requiring concise responses to questions about the text.

The overall duration of the exam is usually around 60 minutes, and it covers various types of texts such as articles, advertisements, emails, narratives, and informational texts.

Key Features of the New 1 Reading Exam English File

- Variety of Texts: The exam includes diverse reading materials to evaluate adaptability and understanding across different genres.
- Focus on Vocabulary: Emphasis is placed on context clues and understanding new words within the text.
- Inference and Critical Thinking: Questions often require students to read between the lines and infer meaning.
- Time Management: The exam design encourages efficient reading and answering strategies.

Effective Preparation Strategies for the New 1 Reading Exam

Preparing effectively for the exam involves understanding the format, practicing reading skills, and developing test-taking strategies.

1. Familiarize Yourself with the Exam Format

- Review past papers and sample questions to understand the types of texts and questions.
- Practice under timed conditions to simulate real exam scenarios.
- Annotate questions to identify what is being asked quickly.

2. Enhance Your Reading Skills

- Read Regularly: Engage with a variety of texts such as newspapers, magazines, online articles, and literature.
- Expand Vocabulary: Keep a vocabulary journal and learn new words in context.
- Practice Skimming and Scanning: Develop skills to quickly find main ideas and specific information.
- Improve Inference Skills: Practice reading between the lines and understanding implied meanings.

3. Develop Effective Exam Strategies

- Read Instructions Carefully: Ensure you understand what each question requires.
- Manage Your Time: Allocate specific time blocks for each section.
- Answer Easy Questions First: Build confidence by starting with questions you're sure about.
- Review Your Answers: Leave time to double-check responses and correct errors.

4. Use Quality Practice Materials

- The "English File" series offers tailored practice exercises aligned with the latest exam formats.
- Utilize online resources, mock tests, and apps designed for exam preparation.
- Join study groups or classes for guided practice and feedback.

Recommended Resources for the New 1 Reading Exam English File

1. Official English File Practice Books

- These books provide authentic practice tests, answer keys, and listening components.
- Include practice exercises that mirror the exam structure and difficulty.

2. Online Practice Platforms

- Websites like Cambridge English, Exam English, and Flo-Joe offer free and paid practice tests.
- Interactive exercises help improve vocabulary and comprehension skills.

3. Mobile Apps and Flashcards

- Apps like Quizlet and Anki can help with vocabulary retention.
- Short daily practice sessions enhance reading speed and understanding.

4. Supplementary Reading Materials

- Engage with a wide range of texts, including:
 - News articles (BBC, CNN)
 - Short stories and novels
 - Educational blogs and informational websites

Tips for Test Day Success

- Get a Good Night's Sleep: Rest improves concentration and reading efficiency.
- Eat a Healthy Meal: Proper nutrition fuels your brain for optimal performance.
- Arrive Early: Familiarize yourself with the exam venue and settle in comfortably.
- Bring Necessary Materials: Pens, pencils, erasers, and any permitted stationery.
- Stay Calm and Focused: Use breathing techniques if you feel anxious.

Conclusion

The **new 1 reading exam English file** is a comprehensive resource designed to help learners master the skills necessary for success. By understanding the exam's structure, practicing regularly with authentic materials, and adopting effective strategies, students can boost their confidence and performance. Remember, consistent effort and strategic preparation are key to excelling in the reading component of your English exam. With dedication and the right resources, you'll be well-equipped to achieve your desired results and advance your English proficiency.

Start your preparation today by exploring the latest editions of the English File series, practicing with mock tests, and enhancing your reading skills through diverse texts. Your success in the new 1 reading exam is within reach!

New 1 Reading Exam English File: An In-Depth Review and Analysis

In the realm of English language assessment, the New 1 Reading Exam English File has emerged as a notable contender, promising a comprehensive approach to evaluating students' reading skills. As educators and students alike seek reliable and effective tools to prepare for examinations, understanding the nuances, strengths, and potential limitations of this resource becomes paramount. This article embarks on an investigative journey into the New 1 Reading Exam English File, aiming to provide an in-depth review rooted in pedagogical principles, exam standards, and practical application.

Introduction to the New 1 Reading Exam English File

The New 1 Reading Exam English File is part of the latest series designed to align with current examination formats for English language assessments, particularly those modeled after international standards such as Cambridge English examinations. Positioned as a preparatory resource for first-year students, it aims to develop core reading competencies, including comprehension, vocabulary, and critical analysis.

Developed by Oxford University Press, the series boasts a reputation for integrating authentic texts, engaging exercises, and exam-focused strategies. The latest edition claims to incorporate updated content, reflective of contemporary language use and exam trends, making it a relevant and current resource for learners.

Structural Overview and Content Breakdown

Format and Organization

The New 1 Reading Exam English File is structured around a series of units, each focusing on different themes, genres, and reading skills. Typically, the book includes:

- Multiple reading passages per unit
- Varied question types (multiple choice, true/false, matching headings, gap-filling, open-ended questions)
- Vocabulary and language focus sections
- Practice exams mirroring real test conditions

This structure aims to progressively build students' confidence and competence, from basic comprehension to more complex analysis.

Types of Reading Passages

The textbook features a diverse array of texts, including:

- Narrative stories
- Informative articles
- Advertisements and signs
- Emails and letters
- Short reports

Each passage is selected to reflect authentic language use and to challenge students across different registers and styles.

Exercise Types and Skills Development

The exercises are designed to target specific reading skills:

- Understanding main ideas and details: Identifying key points within texts
- Inference and deducing meaning: Reading between the lines
- Vocabulary in context: Recognizing and interpreting new words
- Recognizing text structure: Understanding how texts are organized
- Time management: Practicing under exam-like conditions

Alignment with Exam Standards and Pedagogical Effectiveness

Exam-Oriented Approach

The New 1 Reading Exam English File is explicitly aligned with the format and expectations of international exams like Cambridge's Key (KET) and other similar assessments. It emphasizes familiarity with question types, time management, and strategic reading techniques.

This alignment ensures students are not only practicing language skills but also developing familiarity with exam-specific tasks, which can significantly boost confidence and performance.

Pedagogical Strengths

- Authentic Texts: Exposure to real-world language enhances comprehension and engagement.
- Progressive Difficulty: Gradual escalation in task complexity helps learners build skills systematically.
- Integrated Skills Practice: Combining reading with vocabulary and grammar sections promotes holistic language development.
- Exam Strategy Tips: Embedded advice and tips prepare students for success in timed conditions.

Critical Analysis: Strengths and Limitations

Strengths

- Authenticity and Relevance: The selection of texts mirrors real-life language use, making practice more meaningful.
- Variety of Question Types: Diverse exercises cater to different learning styles and prepare students for various exam tasks.
- Clear Progression: The sequential difficulty supports scaffolded learning.
- Supplementary Resources: Often accompanied by audio files and online exercises, enhancing multimodal learning.

Limitations

- Limited Focus on Critical Thinking: While comprehension is well-covered, higher-order analytical skills may require supplementary materials.
- Potential Repetition: Similar question formats across units could lead to predictability, reducing challenge over time.
- Cultural Bias: Some texts may lean towards Western contexts, which might not resonate with all learners.
- Accessibility Concerns: For learners with reading difficulties, the density of texts and question complexity could pose challenges.

Practical Application and Classroom Integration

Teacher's Perspective

Teachers find the New 1 Reading Exam English File useful as a structured resource that simplifies lesson planning. Its exam-oriented approach allows for targeted practice and self-assessment. Incorporating the exercises into classroom activities encourages active reading strategies, peer discussions, and timed practice sessions.

Student's Perspective

Students benefit from the clear layout, engaging texts, and realistic practice questions. The inclusion of exam tips demystifies the test process, reducing anxiety and fostering autonomous learning.

Recommended Strategies for Effective Use

- Regular Practice: Consistent use helps build stamina and familiarity.
- Active Reading Techniques: Highlighting, note-taking, and summarizing enhance comprehension.
- Mock Exams: Simulating test conditions boosts confidence.
- Vocabulary Building: Using the vocabulary sections to expand lexical resources.
- Peer Review: Collaborative exercises encourage discussion and deeper understanding.

Comparison with Other Resources

While the New 1 Reading Exam English File stands out for its authenticity and exam focus, it's worth comparing it with other popular resources:

- Cambridge Practice Tests: Offers a broader range of practice exams but may lack the pedagogical scaffolding of the English File series.
- Official Exam Materials: Provide the most authentic experience but can be costly and less user-friendly for classroom integration.
- Online Platforms (e.g., BBC Learning, Quizlet): Offer interactive exercises but may lack the structured progression of the English File series.

The choice ultimately depends on the learner's needs, context, and preferred learning style.

Conclusion: Final Assessment and Recommendations

The New 1 Reading Exam English File is a robust, well-structured resource aligned with current exam standards. Its authentic texts, varied question types, and pedagogical features make it suitable for learners aiming to develop reading skills and succeed in formal assessments.

However, to maximize its effectiveness, educators should supplement it with activities that foster critical thinking, cultural awareness, and vocabulary expansion. Learners should also balance practice with active reading strategies and authentic exposure to diverse texts.

In sum, the New 1 Reading Exam English File is a valuable addition to the toolkit of both teachers

and students preparing for English language exams, offering a comprehensive, engaging, and exam-relevant approach to reading development.

Final Verdict: Highly recommended as part of a balanced exam preparation program, especially for learners seeking authentic practice aligned with international standards.

Note: Ongoing feedback from classroom experience and learner performance will continue to shape and refine the utility of the New 1 Reading Exam English File, making it a dynamic resource adaptable to evolving educational needs.

QuestionAnswer What are the main topics covered in the new 1 Reading Exam English File? The new 1 Reading Exam English File covers various topics including daily life, travel, social issues, environment, and technology to assess students' comprehension skills across diverse contexts. How has the format of the new 1 Reading Exam changed from previous editions? The new exam features more integrated reading tasks, including multiple-choice questions, matching exercises, and short-answer questions to better evaluate different reading strategies and understanding. What are some effective strategies to prepare for the new 1 Reading Exam English File? Effective strategies include practicing past papers, expanding vocabulary, skimming and scanning techniques, and engaging with a variety of reading materials to improve speed and comprehension. Are there any specific tips for managing time during the new 1 Reading Exam? Yes, it's recommended to allocate time to each section, prioritize questions based on difficulty, and avoid spending too long on a single question to ensure completion within the allotted time. Does the new 1 Reading Exam include reading passages from authentic sources? Yes, the exam now includes passages from authentic sources such as newspapers, magazines, and online articles to better reflect real-world reading situations. Is there an official practice material available for the new 1 Reading Exam English File? Yes, official practice tests and sample questions are available through the exam board and in the latest edition of the English File student book, helping students familiarize themselves with the exam format. How can teachers best support students preparing for the new 1 Reading Exam? Teachers can support students by providing practice materials, teaching effective reading strategies, conducting mock exams, and offering feedback on reading comprehension skills. What are common challenges students face in the new 1 Reading Exam, and how can they overcome them? Common challenges include time management and understanding complex texts. Students can overcome these by practicing under timed conditions and developing comprehension skills through diverse reading practice.

Related keywords: English reading exam, English file exam, new 1st reading test, English exam practice, English reading comprehension, exam preparation materials, English language exam, test prep for English file, reading skills practice, English exam resources

Windows Nt File System Internals En Anglais

windows nt file system internals en anglais

Understanding the internal architecture of the Windows NT file system is essential for IT professionals, cybersecurity experts, and developers working with Windows-based environments. The Windows NT operating system, introduced in the early 1990s, revolutionized Windows architecture by providing a robust, secure, and scalable platform. Its file system internals are complex but crucial for ensuring data integrity, security, and performance. This article provides a comprehensive overview of Windows NT file system internals, exploring key components, data structures, and operational mechanisms.

Overview of Windows NT File System Architecture

The Windows NT file system architecture is designed to abstract hardware details and provide a consistent interface for applications and users. It comprises several layers, including hardware abstraction, the I/O manager, file system drivers, and the user-mode interface.

Key Components of the File System

- NTFS (New Technology File System): The primary file system used in Windows NT and later versions, known for its advanced features like journaling, security descriptors, and support for large files.
- File System Drivers: Kernel mode drivers responsible for managing specific file systems such as NTFS, FAT32, or exFAT.
- Object Manager: Manages kernel objects, including files, directories, and symbolic links.
- Cache Manager: Handles caching of data to improve performance.
- I/O Manager: Coordinates all input/output operations between user applications and hardware devices.

Core Data Structures in NTFS

The effectiveness of the NTFS file system relies heavily on several core data structures that organize and manage data on disk.

Master File Table (MFT)

- Central to NTFS, the MFT contains a record for every file and directory.

- Each record is a fixed-size data structure (typically 1 KB).
- Stores metadata such as filename, timestamps, permissions, and pointers to data extents.
- Enables quick file access and efficient management of files.

File Record

- Represents individual files or directories.
- Contains attributes like standard information, filename, security descriptors, data runs, and more.
- Uses a structured format with attribute headers and data.

Attributes

- Basic units of information stored about files.
- Types include Standard Information, File Name, Data, Security Descriptor, and others.
- Can be resident (stored within the MFT record) or non-resident (pointing to external clusters).

Data Runs

- Describe how file data is laid out on disk.
- Use a run-length encoding scheme to specify sequences of clusters.
- Enable efficient mapping of logical file offsets to physical disk locations.

NTFS File System Internals and Operations

Understanding how NTFS reads, writes, and manages files is key to grasping its internal mechanisms.

File Creation and Opening

- When a file is created or opened, the system searches the MFT for a matching record.
- If creating a new file, a new record is allocated, initialized, and linked into directory structures.
- Opening a file involves locating its record and establishing a handle.

Reading and Writing Data

- Data is accessed through data runs in the file's attributes.
- For resident data, the data resides within the MFT record.
- For non-resident data, the data runs provide a mapping to disk clusters.
- The Cache Manager optimizes repeated access by caching data in memory.

File Deletion and Truncation

- Mark the file as deleted by updating its MFT record.
- The actual data remains on disk until overwritten or the space is reclaimed through defragmentation.

Security and Permissions in NTFS

Security is integral to NTFS, with features enabling fine-grained access control.

Security Descriptors

- Store permissions, ownership, and audit settings.
- Associated with files and directories via attributes.
- Use Access Control Lists (ACLs) to specify permissions for users and groups.

Access Control Lists (ACLs)

- Contain Access Control Entries (ACEs) that define permissions.
- Enable complex security policies.
- Are checked during file access operations to enforce security.

Journaling and Data Integrity

NTFS employs journaling to maintain data integrity, especially in case of system crashes or power failures.

Log File and Transactional Operations

- NTFS maintains a log (USN journal) recording changes.
- Uses transactions to ensure consistency; either all changes are committed or none.
- Reduces the risk of file system corruption.

Recovery Mechanisms

- On startup, NTFS replay logs to recover incomplete transactions.
- Ensures filesystem integrity and consistent state.

Advanced Features of Windows NT File System

NTFS supports numerous advanced features that enhance performance, security, and usability.

File Compression

- Allows compression of files and directories to save space.
- Transparent to users and applications.

Encryption

- Supports Encrypting File System (EFS) for data security.
- Uses public-key cryptography to encrypt file contents.

Disk Quotas

- Enable administrators to limit disk space usage per user.
- Helps manage storage resources effectively.

Sparse Files and Reparse Points

- Sparse files optimize storage by not allocating space for empty regions.
- Reparse points facilitate symbolic links, mount points, and volume management.

Performance Optimization and Caching

Windows NT optimizes disk and memory usage through caching and scheduling.

Cache Manager

- Caches frequently accessed data in RAM.
- Reduces disk I/O latency.

Prefetching and Read-Ahead

- Anticipates data needs based on access patterns.
- Improves performance during sequential reads.

I/O Scheduling

- Manages disk access requests to optimize throughput and reduce latency.
- Uses algorithms like FIFO, C-SCAN, and others.

Conclusion

The Windows NT file system internals are a sophisticated amalgamation of data structures, mechanisms, and features designed to provide efficient, secure, and reliable data management. From the core Master File Table to advanced security features and journaling, every component plays a vital role in ensuring the robustness of Windows operating systems. A thorough understanding of these internals is invaluable for system administrators, developers, and cybersecurity professionals aiming to optimize, troubleshoot, or secure Windows environments.

Keywords for SEO optimization: Windows NT file system internals, NTFS architecture, Master File Table, Data runs, Security descriptors, Journaling, File system security, Windows NT file management, NTFS features, Windows file system structure.

Windows NT File System Internals: An In-Depth Examination

The Windows NT file system internals form a complex yet highly optimized architecture that underpins one of the most widely used operating systems globally. As the backbone of Windows NT-based platforms—including Windows 10, Windows Server, and even earlier versions—understanding how the file system operates at a low level is essential for system administrators, security professionals, developers, and researchers alike. This article aims to explore the detailed internal mechanisms of the Windows NT file system, including its architecture, data structures, and operational procedures, providing a comprehensive understanding of how Windows manages files, directories, and storage.

Introduction to Windows NT File System Architecture

The Windows NT architecture introduced a robust, modular, and scalable approach to file management, contrasting sharply with older DOS-based systems. At its core, the Windows NT file system is designed to abstract hardware details, provide security, and ensure data integrity across various storage devices. The architecture can be broadly divided into several components:

- File System Drivers (FSDs): Responsible for interfacing with specific storage media (e.g., NTFS, FAT).
- Object Manager: Manages kernel objects, including files and directories.
- Cache Manager: Implements caching strategies to optimize I/O operations.
- Memory Management: Handles buffers, caches, and buffer pools associated with file I/O.

Among the various file systems supported, NTFS (New Technology File System) is the most prevalent and sophisticated, offering features like journaling, encryption, compression, and security descriptors.

NTFS: The Heart of Windows NT File System Internals

NTFS has been the primary file system for Windows NT since its inception, designed with a focus on reliability, scalability, and advanced features.

Key Features of NTFS

- Journaling: Maintains a transaction log to recover from crashes.
- Security: Implements Access Control Lists (ACLs) and security descriptors.
- Metadata: Uses Master File Table (MFT) to track all files and directories.
- Sparse Files & Compression: Supports efficient storage.
- Encryption: Integrates with Encrypting File System (EFS).
- Disk Quotas & Sparse Files: Manage storage allocations effectively.

Master File Table (MFT): The Core Data Structure

At the heart of NTFS lies the Master File Table (MFT), a relational database that contains a record for every file and directory. Each MFT record is a fixed-size 1 KB structure, which includes:

- File Record Header: Identifies the record and its status.
- File Attributes: Metadata such as timestamps, security, and data content.
- Resident and Non-Resident Data: Data stored directly within the MFT (resident) or elsewhere on disk (non-resident).

The MFT allows for rapid access to file metadata and supports features like defragmentation, security, and recovery.

Deep Dive into NTFS Data Structures

Understanding NTFS internals necessitates a detailed look at its core data structures.

1. FILE_RECORD_HEADER

Every record in the MFT begins with this header, which contains:

- File reference number
- Sequence number
- Flags indicating the record's status (e.g., in use, deleted)
- Pointers to attribute lists

2. ATTRIBUTES

Attributes describe various aspects of files and directories, such as:

- Standard Information: Timestamps, link counts
- File Name: Unicode name, parent directory reference
- Data: Actual file contents or pointers to data
- Security Descriptor: Security information
- Object IDs: Unique identifiers for tracking

Attributes can be resident or non-resident:

- Resident: Data stored directly within the MFT record.
- Non-resident: Data stored elsewhere; the attribute contains extents pointing to data clusters.

3. Attribute List

For large files or files with multiple attributes, an attribute list attribute references additional attributes spread across the disk.

4. Indexing Structures

Directories are implemented as B+ trees, enabling efficient lookups:

- Index Root: Contains the initial part of the directory index.
- Index Allocation: Stores additional index blocks when directories grow large.
- Index Headers: Manage the structure and integrity of index nodes.

File and Directory Operations Internally

The internal operations of Windows NT's file system involve complex sequences of steps, often optimized for performance and reliability.

File Creation and Opening

- The system locates the directory's index structure.
- Searches the B+ tree for the filename.
- If not found, creates a new MFT record, allocates disk space, and updates the directory index.
- Returns a handle for further operations.

Reading and Writing Files

- The system examines the file's data attributes.
- For resident data, reads/writes are direct.
- For non-resident data, the system interprets extents and performs sequential or random disk I/O via the cache manager.

Security and Permissions Handling

- Each file/directory has a security descriptor stored as an attribute.
- Access requests are checked against ACLs.
- Security auditing and inheritance are managed through these descriptors.

Advanced Features and Internal Mechanisms

The internal workings extend beyond basic file management to include features that improve robustness and security.

1. Journaling and Crash Recovery

NTFS uses a transaction log (the journal) to record metadata changes before they are committed to disk. This ensures:

- Consistency after crashes
- Atomic updates
- Faster recovery times

2. File Compression and Encryption

- Compression alters how data extents are stored.
- EFS encrypts file data using cryptographic keys, stored securely within the security descriptors.

3. Disk Quotas and Sparse Files

- Quotas limit user storage consumption.
- Sparse files optimize storage by only allocating space for data that is actually written.

Security and Integrity at the File System Level

Security is deeply integrated into Windows NT file system internals:

- Security Descriptors: Store ACLs, owner, and group information.
- Access Tokens & Impersonation: Enforce permissions during I/O operations.
- Integrity Checks: Use checksum and journaling to verify data integrity.

While NTFS remains highly sophisticated, it faces challenges such as:

- Fragmentation affecting performance
- Security vulnerabilities at the driver level
- Compatibility issues with newer storage technologies (e.g., SSDs)

Recent developments focus on:

- Enhancing support for large disks and files
- Integrating with cloud storage solutions

- Improving resilience and recovery mechanisms

Conclusion

The Windows NT file system internals reveal a layered, resilient, and feature-rich architecture designed for high performance, security, and reliability. From its foundational data structures like the MFT and B+ trees to its advanced features such as journaling, encryption, and quotas, NTFS exemplifies a modern file system engineered for robust enterprise and consumer use. As storage technologies evolve, understanding these internals becomes vital for developers, security analysts, and system architects aiming to optimize or secure Windows-based environments.

By dissecting these internal mechanisms, professionals can better diagnose issues, develop low-level tools, and contribute to future advancements in Windows file system technology.

QuestionAnswer What are the main components of the Windows NT file system architecture? The main components include the NTFS driver, the Master File Table (MFT), the File Record, the Log File, the Bitmap, and the Directory Indexing structures, all working together to manage file storage, retrieval, and integrity. How does the NTFS handle file permissions and security? NTFS uses Access Control Lists (ACLs) embedded within file metadata to define permissions for users and groups, supporting detailed security settings, including discretionary access controls and system-level security features. What is the Master File Table (MFT) and how does it function in NTFS? The MFT is a central database that stores metadata about every file and directory on the volume, including attributes, security information, and data location, enabling efficient file management and access. How does NTFS ensure data integrity and recoverability? NTFS uses a transaction-based logging system via the USN Journal and the Log File (transaction log), which helps recover from crashes by replaying logs and maintaining consistency of the file system. What are the differences between the NTFS Master File Table and FAT file systems? Unlike FAT, which uses a simple File Allocation Table to track clusters, NTFS stores extensive metadata in the MFT, supports larger file sizes, improved security, journaling, and better fault tolerance. How does NTFS handle large files and disk space management? NTFS employs features like extents and a dynamic bitmap to efficiently manage large files and disk space, reducing fragmentation and improving performance for large data sets. What is the role of the Master File Table Record and how is it structured? Each MFT record contains attributes such as file name, data, security descriptors, and timestamps; it is structured with a fixed-size record that allows quick access and updates to file metadata. How do NTFS directory structures optimize file searching and access? NTFS uses B+ trees for directory indexing, which enable fast lookup, insertion, and deletion of files within directories, greatly improving search performance especially in directories with many files.

Related keywords: Windows NT, file system, internals, NTFS, kernel mode, file management, disk management, registry, I/O subsystem, file allocation table

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