

Ethan Vazquez

Prof. Cappos

Computer Security

2 November 2023

In the initial design of my reference monitor, certain crucial aspects of file write operations were overlooked. Specifically, the reference monitor failed to adequately keep track of the offset during write operations, leading to the potential for writing data past the End of File (EOF). To address this critical shortcoming, the reference monitor was updated to include an "eof" (end of file) field. The introduction of the "eof" field not only prevents data from being written past the EOF but also facilitates the proper management of pending write operations. Another notable improvement is the implementation of exception handling mechanisms. The reference monitor now raises exceptions to handle common errors that might occur during file write operations. The EOF Error exception is raised when an attempt is made to write data beyond the End of File. It serves as a safeguard against writing operations that would compromise the file's boundaries. Additionally, an exception is raised if a negative offset is provided for a write operation. This effectively prevents invalid operations and maintains data consistency. Lastly, when an attempt is made to write to a file that has already been closed, an exception is raised. This ensures that write operations are only allowed on open files, preventing potential data corruption. Notably, the current iteration of the reference monitor does not incorporate multithreading. This omission stems from a lack of understanding and familiarity with the intricacies of multithreaded programming. The reference monitor's primary focus has been on addressing file write operations and enhancing its behavior in that regard.