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Enhanced Retransmission Steganography Algorithm with Its Stegoanalysis Methods

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Network steganography, often referred to as a network covert channel, represents a discreet method of communication that leverages the redundancies within network protocols to clandestinely transmit confidential data. The retransmission steganography (RSTEG) technique involves concealing classified information within the payload segment of retransmission packets, which are intentionally generated by the communicators. Nevertheless, this particular approach disregards the checksum fields present in the original packets, leading to disparities between the retransmission packets and compromising its level of discreetness. Addressing this limitation, a refined version of the RSTEG algorithm, denoted as Enhanced RSTEG (ERSTEG), is introduced in this paper. The proposed enhancement ensures synchronization between the checksum fields of both the original and retransmission packets, consequently elevating the inconspicuous nature of ERSTEG beyond that of RSTEG. The subsequent sections elaborate comprehensively on the experimentation involving ERSTEG, along with an in-depth exploration of its corresponding detection algorithm.

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