

Jordan University of Science and Technology

A Dynamic and Secure Arabic Text Compression Technique Using Bitwise Lempel-Ziv Algorithm

Authors: A. Musa, A. Al-Dmour, F. Fraij, O. Al-Khaleel and M. Irshid

Abstract: This study presented a new Arabic text compression technique in which an input file is preprocessed to produce a new binary file. The preprocessing maps a codeword to each character based on its OCCWTences in the input file. The binary file is then compressed using a bit-wise Lempel-Ziv algorithm. The new technique has been implemented and examined using different files. The results showed that the new technique, using extension-order of 8 or 4, achieves a compression ratio with the range of 4.25 to 4.7 bits/character, respectively. The improvement in compression efficiency is due to the significant reduction in the number of symbols in the generated binary file. It is noteworthy that embedded security on the compressed file is naturally acquired due to the automatic generation of the private key via mapping.