

Clarification to the Skipjack Algorithm Specification

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The document titled "SKIPJACK and KEA Algorithm Specifications Version 2.0" and dated 29 May 1998 provides the specification for the Skipjack algorithm. The specification is incomplete in that the order of bytes is not made clear.

Input to that algorithm can be thought of as a set of 8 bytes. If these bytes are numbered from 7 to 0, the input sequence is $B_7 B_6 B_5 B_4 B_3 B_2 B_1 B_0$. These values are then placed in the w_i word array. The byte sequence is placed in to the word array in the following way:

$$w_1 \leftarrow B_0 B_1$$

$$w_2 \leftarrow B_2 B_3$$

$$w_3 \leftarrow B_4 B_5$$

$$w_4 \leftarrow B_6 B_7$$

Output from the algorithm works in a similar fashion:

$$w_1 \Rightarrow B_0 B_1$$

$$w_2 \Rightarrow B_2 B_3$$

$$w_3 \Rightarrow B_4 B_5$$

$$w_4 \Rightarrow B_6 B_7$$

Additionally, the cryptovvariable is a sequence of 10 bytes. These bytes should be labeled as follows:

$$CV_9 CV_8 CV_7 CV_6 CV_5 CV_4 CV_3 CV_2 CV_1 CV_0$$

Using the sample found in Annex III.A, step 0 has the data loaded into the w_i word array. In order to get w_i loaded correctly - and to be consistent with the notation above - the data supplied to the algorithm should actually read as follows:

Plaintext input: aabbccdd00112233

Cryptovvariable: 11223344556677889900

And results in the following:

Ciphertext output: 00d3127ae2ca8725