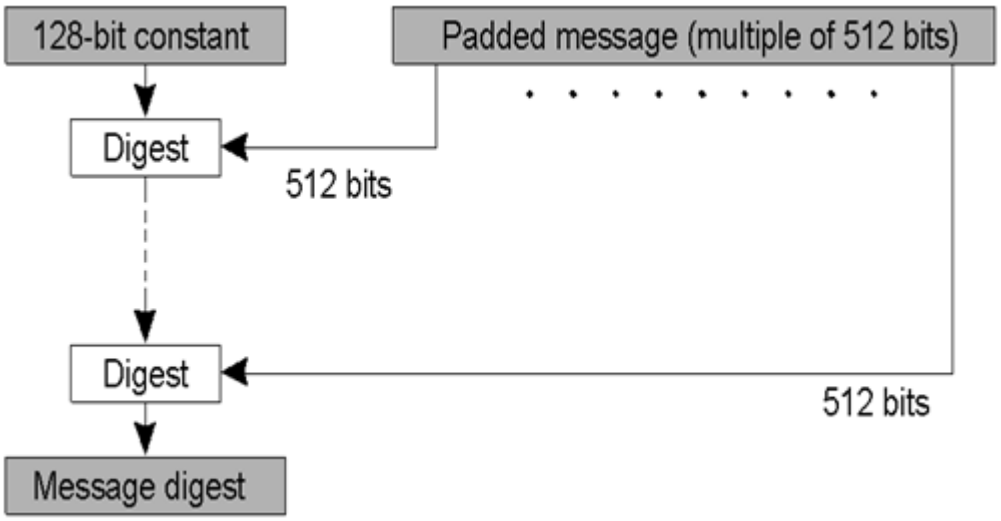
MD5 algorithm was developed by Professor Ronald L. Rivest in 1991. According to RFC 1321, “MD5 message-digest algorithm takes as input a message of arbitrary length and produces as output a 128-bit “fingerprint” or “message digest” of the input.

The MD5 algorithm is intended for digital signature applications, where a large file must be “compressed” in a secure manner before being encrypted with a private (secret) key under a public-key cryptosystem such as RSA.”



MD5 algorithm structure

General steps:

1. Input message must be < 264 bits
2. Not really a problem.
3. Message is processed in 512-bit blocks sequentially
4. Message digest is 160 bits

MD5 Algorithms steps:

Step1: Padding

Step2: Appending length as 64 bit unsigned

Step3: Initialize MD buffer 5 32-bit words

Store in big endian format, most significant bit in low address

A|B|C|D|E

A = 67452301

B = efcdab89

C = 98badcfe

D = 10325476

E = c3d2e1f0

Step 4: the 80-step processing of 512-bit blocks – 4 rounds, 20 steps each.

Each step t (0 <= t <= 79):

Input:

Wt. – a 32-bit word from the message

Kt – a constant.

ABCDE: current MD.

Output:

ABCDE: new MD.

Only 4 per-round distinctive additive constants

0 <=t<= 19 Kt = 5A827999

20<=t<=39 Kt = 6ED9EBA1

40<=t<=59 Kt = 8F1BBCDC

60<=t<=79 Kt = CA62C1D6

Related Posts:

1. Types of Attack
2. Security threats
3. Computer and cyber security
4. Introduction to network security
5. Intrusion detection tool
6. Categories of security assessments
7. Security terminologies and principals
8. Intoduction to intrusion
9. Intrusion detection tool

10. Categories of security assessments
11. Intrusion terminology
12. Cryptography attacks
13. Cryptography
14. SSH
15. Message digest functions
16. Digital signature
17. Authentication Functions
18. One way hash function
19. Hash function in network web security
20. Digital signature standard
21. SSL Secure socket layer