Mechanism For Imposing E-Mail Header Security: Expectation And Solution

Dr. Richa Purohit

Assistant Professor, MIT Arts,
Commerce and Science College, Alandi, Pune

Abstract: Today e-mails have become an important tool for message transfer over internet. Since beginning message security is being considered as a basic requirement in this field. But various headers like To, From, Subject, Date etc. are also equally important and should be sent and received in secured manner. This paper discusses various e-mail security tools and also suggests a simple mechanism to achieve security for e-mail headers. This paper discusses existing popular e-mail security technique S/MIME in brief and also suggests a simple mechanism to achieve security for e-mail headers. This technique uses encryption, digital signature and hashing for providing security to e-mail headers.

Keywords: e-mail, e-mail header, security, message digest, digital signature, encryption.

I. INTRODUCTION

With increased demand of fast and efficient communication, e-mails got popularity, as they are written documents and can be used for official purpose also. Ever since the inception of Computer and Computer Networks, security is the biggest area of concern for researchers. While sending crucial data through mail, the issue of security becomes even more crucial. We cannot trust a received mail, if we know that the process of creating, sending and receiving e-mail is not safe enough. Thus, with an increase of e-mails in current scenario, increased security is also required to build trust on the mechanism.

II. COMPOSITION OF E-MAIL HEADER

E-mail header is the beginning part of the e-mail [1], which contains little basic information about sender, receiver and the settings at the time e-mail was sent. In SMTP (Simple Mail Transfer Protocol), the typical mail header comprise of following parts:
- ✓ *FROM:* This part displays the sender's e-mail address so that recipient can know where is the message coming from.
- ✓ *TO:* This part shows the recipient's email address to which the e-mail is to be delivered.
- ✓ *SUBJECT:* If the sender wishes, then he/she can give the title or topic of the e-mail.
- ✓ *RETURN-PATH:* This part is useful for "Reply-to" when the recipient also wishes to send acknowledgement or some another message to the sender, as contains the e-mail address of the sender.
- ✓ *DATE:* The date and time when the e-mail was composed and sent to the recipient.
- ✓ *DELIVERY DATE:* This part shows the date and time when e-mail was received by the receiver on his computer.\
- ✓ *BCC:* A Blind Carbon Copy part contains the (list of) address(es) of recipients which will remain invisible to other recipients.
- ✓ *CC:* A list of multiple visible recipients to whom the mail will be sent, apart from main recipient.
- ✓ *MESSAGE ID:* This is an auto generated field for each mail, whose purpose is to prevent more than one delivery of the same message to the same receiver again and again.