



### Electronic Mail (SMTP, POP3, IMAP, MIME)

E-mail Protocols are set of rules that help the client to properly transmit the information to or from the mail server. Here in this tutorial, we will discuss various protocols such as **SMTP, POP, and IMAP.**

#### SMTP

**SMTP** stands for **Simple Mail Transfer Protocol**. It was first proposed in 1982. It is a standard protocol used for sending e-mail efficiently and reliably over the internet.

#### Key Points:

- SMTP is application-level protocol.
- SMTP is connection-oriented protocol.
- SMTP is text-based protocol.
- It handles exchange of messages between e-mail servers over TCP/IP network.
- Apart from transferring e-mail, SMTP also provides notification regarding incoming mail.
- When you send e-mail, your e-mail client sends it to your e-mail server which further contacts the recipient mail server using SMTP client.
- These SMTP commands specify the sender's and receiver's e-mail address, along with the message to be send.
- The exchange of commands between servers is carried out without intervention of any user.
- In case, message cannot be delivered, an error report is sent to the sender which makes SMTP a reliable protocol.

#### SMTP Commands

The following table describes some of the SMTP commands:

S.N.	Command Description
1	<b>HELLO</b> This command initiates the SMTP conversation.
2	<b>EHELLO</b> This is an alternative command to initiate the conversation. ESMTP indicates that the sender server wants to use extended SMTP protocol.
3	<b>MAIL FROM</b> This indicates the sender's address.
4	<b>RCPT TO</b> It identifies the recipient of the mail. In order to deliver similar message to multiple users this command can be repeated multiple times.
5	<b>SIZE</b> This command let the server know the size of attached message in bytes.
6	<b>DATA</b> The <b>DATA</b> command signifies that a stream of data will follow. Here stream of data refers to the body of the message.



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7	<b>QUIT</b> This command is used to <b>terminate the SMTP connection.</b>
8	<b>VERFY</b> This command is used by the receiving server in order to verify whether the <b>given username is valid or not.</b>
9	<b>EXPN</b> It is same as VRFY, except it will list all the users name when it used with a distribution list.

### IMAP

**IMAP** stands for **Internet Message Access Protocol**. It was first proposed in 1986. There exist five versions of IMAP as follows:

1. Original IMAP
2. IMAP2
3. IMAP3
4. IMAP2bis
5. IMAP4

### Key Points:

- IMAP allows the client program to **manipulate the e-mail message on the server without downloading them on the local computer.**
- The e-mail is hold and maintained by the **remote server.**
- It enables us to take any action such as downloading, delete the mail without reading the mail.It enables us to create, manipulate and delete remote message folders called mail boxes.
- IMAP enables the users to search the e-mails.
- It allows concurrent access to **multiple mailboxes on multiple mail servers.**

### IMAP Commands

The following table describes some of the IMAP commands:

#### S.N. Command Description

- 1 **IMAP\_LOGIN**  
This command opens the connection.
- 2 **CAPABILITY**  
This command requests for listing the capabilities that the server supports.
- 3 **NOOP**  
This command is used as a **periodic poll** for new messages or message status updates during a period of inactivity.
- 4 **SELECT**  
This command helps to select a mailbox to access the messages.
- 5 **EXAMINE**  
It is same as SELECT command except no change to the mailbox is permitted.
- 6 **CREATE**



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It is used to create mailbox with a specified name.

7 **DELETE**

It is used to permanently delete a mailbox with a given name.

8 **RENAME**

It is used to change the name of a mailbox.

**LOGOUT**

9 This command informs the server that client is done with the session. The server must send BYE untagged response before the OK response and then close the network connection.

### **POP**

POP stands for Post Office Protocol. It is generally used to support a single client. There are several versions of POP but the POP 3 is the current standard.

### **Key Points**

- POP is an application layer internet standard protocol.
- Since POP supports offline access to the messages, thus requires less internet usage time.
- POP **does not allow search facility.**
- In order to access the messages, it is necessary to download them.
- It allows only one mailbox to be created on server.
- It is not **suitable for accessing non mail data.**
- POP commands are generally abbreviated into codes of three or four letters. Eg. STAT.

### POP Commands

The following table describes some of the POP commands:

### **S.N. Command Description**

1 **LOGIN**

This command opens the connection.

2 **STAT**

It is used to **display number of messages currently in the mailbox.**

3 **LIST**

It is used to get the **summary of messages** where each message summary is shown.

4 **RETR**

This command helps to **select a mailbox to access the messages.**

5 **DELE**

It is used to delete a message.

6 **RSET**

It is used to reset the session to its initial state.

7 **QUIT**

It is used to log off the session.



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*Comparison between POP and IMAP*

S.N.	POP	IMAP
1	Generally used to support single client.	Designed to handle multiple clients.
2	Messages are accessed offline.	Messages are accessed online although it also supports offline mode.
3	POP does not allow search facility.	It offers ability to search emails.
4	All the messages have to be downloaded.	It allows selective transfer of messages to the client.
5	Only one mailbox can be created on the server.	Multiple mailboxes can be created on the server.
6	Not suitable for accessing non-mail data.	Suitable for accessing non-mail data i.e. attachment.
7	POP commands are generally abbreviated into codes of three or four letters. Eg. STAT.	IMAP commands are not abbreviated, they are full. Eg. STATUS.
8	It requires minimum use of server resources.	Clients are totally dependent on server.
9	Mails once downloaded cannot be accessed from some other location.	Allows mails to be accessed from multiple locations.
10	The e-mails are not downloaded automatically.	Users can view the headings and sender of e-mails and then decide to download.
10	POP requires less internet usage time.	IMAP requires more internet usage time.