

## What is email?

Email is the electronic equivalent of sending a letter. Email consists of two parts, 1) the header, which contains information about where the message will be sent, and 2) the body, or message. First, the author goes to the head of the email message and types in:

- the email addresses of the person(s) to receive it, i.e. the **To**:
- the sender's email addresses, i.e. the **From**:
  - the sender may want the email reply sent elsewhere, i.e. **Reply to**:
- the email addresses of the person(s) to receive the **Cc**: and **Bcc**: copies (normally this is used to create file and information copies),
- the **Subject**: which tells the receiver of the email what the message is about. It is a breach of netiquette not to fill in the subject field. The user uses the Compose function of the particular email system included in the account and types in a text message, as one would use a word processor to create a document.

Email should be spell checked, if it is not done so automatically, and proof read for grammar and content before sending, unless:

- it is a trivial message, such as --" Its Lunch. Lets Eat",
- it is in the context of a non-judgmental, casual, social relationship,
- it will not become the basis for evaluating the sender's business communication skills.

Once it is finished to the author's satisfaction, the message may sent. In some email systems, the author can track the email to see when it was received and when or if it was read by all recipients. This feature is becoming more common as businesses increasingly use it to document and track employee work habits.

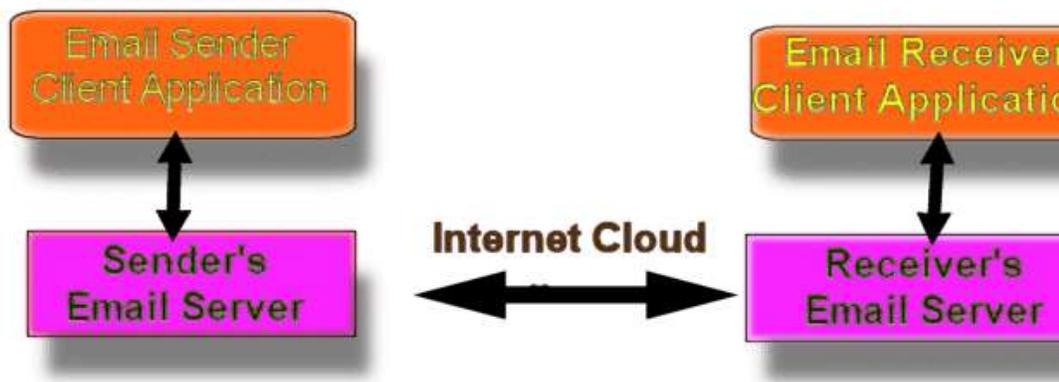
Some systems allow for a priority to be set to insure that the reader gives it the author's desired level of attention. Note: in business and in hierarchical organizations good manners and common sense dictate that the designation "priority" not be used unless the message is truly important.

Email can be an extremely cheap way to keep in touch with old chums, or coordinate business groups and social organizations. Like other communication tools, it can also be overused and become intrusive. Do not Cc: or Bcc: people simply because it is easy to do. Always write crisply and succinctly. If your grammar and spelling are weak, have someone review it before sending

it to a professional group. Sloppy grammar and slang will mark the writer as careless, or worse yet, uneducated and unprofessional.

***How does email work?***

### ***Email Via the Internet***



### **Email Client Applications:**

The email client application is any program on the user's computer that is capable of writing email and of retrieving email from the user's email server. Thus the email client has two basic personalities or functions.

### **The email sender or creation functions:**

The email creation functions are:

- Creating the address book of email addresses of the user's family, friends, and business associates. The address book may contain the full information about the individuals including phone numbers (business, home, fax, cell, beeper, etc.), mailing addresses, business information, and notes. The address book also allows the grouping of the individuals into email lists for sending news letters, reports, team schedules, etc. These lists can make office and personal communications productive and efficient. If they are misused, they create an overload to the email system and a waste of valuable time.

- The composition and editing of the email content. The sub tasks include the filling the header information: the To, CC, Bcc, and subject fields the creating and editing the content, body, the adding of attachments (files such as images, audio, multi media, and office documents), the adding of signature files that contain addition information about the sender, and finally adding any special handling instructions like reporting the receipt and/or the time and date of the email being read.
- The adding of a digital signature (a recently approved law that allows the adding of a digital signature that makes the email into a legal document or contract) and the encryption of the email so that it can only be read by the intended reader.
- Finally the sending of the email. In actual fact, this is the transmission of the email to the creator's email server. This email server is the electronic post office. Thus the send function is similar to the act of dropping the letter into the mail box.

#### **The email Receiver Client functions:**

The email functions on the receiving end are:

- The handling of multiple mail boxes (the user may multiple accounts on several different email servers). The tasks include contacting the various servers and fetching the email. Depending on the type of server, the email file may be kept on the server or send to the client that the user is using.
- Lists the new and/or unread mail that has been received and to sort it by date or arrival, or sender, or priority. The listing may also present the subject or the first part or the message.
- Provide a means of display for the email message and the attachment(s).
- Provide a means of response via a reply to the sender, or the sender and all or some of the recipients, or forwarding it to entirely new individuals or groups (lists).
- Provides a means of disposal either by:
  1. storage in a directory,
  2. placing in a disposal directory for deletion at the end of the session, or
  3. immediate deletion
- Provide a means of filtering the email that is creating a set of rules about what to do with email if one or more facts are true.

## **Email Servers:**

We see from the above diagram, ***Email Via the Internet***, that the email server has to communicate between:

- the server's client applications and
- other email server's that it is sending email to via the Internet
- other email server's that it is receiving email from via the Internet.

The email server is an electronic version of a normal post office. We shall describe the email server functions in two parts, the functions that are used to process the sender and those of the recipient. There two types of the email servers,

1. the POP3 server that transfers the email to the client and,
2. the IMAP that saves the email on the server.

The email post office is responsible for providing its clients with individual postal boxes (directories) that hold the incoming email for the user and a postal drop box to pick up the client's outgoing missives. The email server makes the transmission of the email transparent to the user, i.e. the user sees only the initial send and the final receipt. This again is similar the regular mail service. We do not want to know how it happens just that it does so in a cost efficient and timely manner. The server allows the user to set up directories to organize the email in a file system. The email server mail may automatically save the various emails in a Sent\_Mail directory if not the writer may want to use the Bcc: to send a copy for a file copy.

In the process we also want to feel that the postal person is not reading our post cards. Unlike the postal serve the email server can have functions that monitor our email. The postal worker can with, **court order only**, record who is sending and receiving your letters, i.e. the information on the outside of the envelop -- a cover check. Opening letters is another more serious matter and is almost always requires a court order based on a risk to national security. In general we can safely assume that mail is not read by our government or our employers. The email server and the Internet are not similarly prohibited at this time from any of these procedures. More and more companies are screening email.

## **The Email Server Sender functions:**

- Receive email from the email client that created it
- Verify that the user has privileges of sending and receiving email through this post office. (Some ISPs allow what are called promiscuous users, those without an account to

send email.) Email found to be sent promiscuously via through an ISP is greatly frowned upon as it is a major source of junk email called spam. ISPs that allow such practices are now told by members of the Internet community that their email will not be forwarded or allowed to be received unless this practice is stopped. The threat normally effects the desired result.

- The letter is then prepared for transmission over the Internet -- translate the email address into an IP address and a routing.
- The email is sent via Simple Mail Transfer Protocol (SMTP) to the email server of the recipient.
- If the email address is not valid or the destination server is not up, then it makes several attempts and finally reports a delivery error back to the sender.

#### **The Email Server Recipient functions:**

- The server is responsible for receiving the client's rules for filtering the mail, for storing these rules for the individual, and upon receiving email acting on the rules. For instance, if the user does not want email from another user, the rule can be if sender is XX then delete.
- Receive email from other servers and place it in the correct mailbox (directory). If there is no such mailbox, then generate an error message back to the sender.
- Optional -- send a recipient to the client that the message arrived and or was read.
- The server delivers the email to the client when requested then:
  - follows the filter rules,
  - sorts the mail via criteria such as by date, sender, subject, etc., and
  - deletes and otherwise manages the storage issue.

#### **The Internet Cloud:**

We use the term Internet cloud to describe the networks and local area networks that transmit the email. Email is transmitted via (SMTP). The Internet Cloud is the term that carries the vision of how vaguely the network is viewed by most users. How the email is sent over this complex network is normally of little importance. That email is delivered reliably and in a timely fashion is sufficient for most users.

#### **For more Details on Email Mechanics:**

## ***Frequently Asked Questions (FAQ) -- How does email work?***

### **Email Threads**

The concept of a thread is based on a simple idea. If one person writes an email and sends it to a group, and then individuals within the group reply, and then respond to the replies, then we say that these messages are threaded (all based on the starting message with the thread keeping track of the messages' sequence). Hence, if after reading the original message you are not interested in the topic, you might delete all further messages that are related to the original, i.e. delete the thread from your Inbox.

### ***What is my email address?***

An email address is made up of two parts: the user ID, i.e. your account name, and the domain name, i.e. the Internet name of the computer where your mail is sent. The two parts are separated by a @. For example, the instructor's email address is: pkrolak@cs.uml.edu.

### ***What can I do with email?***

- Send messages to classmates and friends, family, etc.
- Reply to messages.
- Forward messages.
- Save messages.

In short, almost anything you can do with regular mail delivered by the Post Office (called ***snail mail*** by email addicts). Email has some shortcomings. For instance, Mom's care packages of cookies and Dad's check or cash cannot, as yet, can be sent by email. However, as you will learn in this lab, you can do some very exciting things. You can send a video clip, a recording of your latest musical creation, or an enhanced picture or graphic to your friends and family. With the newer email systems you can also send attachments such as complete documents (MS Word or Acrobat), spreadsheets in Excel, and presentations for class or work (such as Power Point files) that allow you to work collaboratively with students and colleagues all over the world.

### **Thoughts on managing email that is saved:**

In the modern office environment it is possible to get dozens of emails a day. Besides developing the discipline to delete as much as possible and to respond to the rest in a timely manner, there is still one more onerous task -- What to save and file? The decision is sometimes made for us by corporate policy or government edict. The what and the how maybe spelled out in detail and all that is left is to carry it out. Assuming that there is no formal policy, good

practice would be to set up a filing system that is well organized and the email is accurately labeled. This discipline becomes necessary to avoid overwhelming the computer with clutter. Material that is seldom referred to may be stored on removable disk.

Finally, ***any material of any value should always be backed up***, i.e. copied to a removable disk or tape and stored in a separate area to protect it from accident, fire, or vandalism.

### **Spam (electronic junk mail) and how to avoid it!**

Spam is unwanted electronic junk mail and it is getting to be a major headache. Many of the larger Internet Service Providers (ISP), AOL, MSN, etc. seem to attract Spam. These ISP have attempted to limit or control it, but it is still a major problem. Avoid giving out personal information such as social security number, address, phone number, and email address when it is asked for on the Web. Do not allow cookies to be set in your browser (discussed later in term). Always ask to be removed from email lists unless you really want the latest and greatest advertisements! Spam can use up precious storage, bandwidth, and take up everyone's time.

Spam is a breach of good netiquette. It can sometimes cause rational users to do some very ugly things. There are those who hunt down Spammers and destroy their Web sites and do other nasty things. **These Anti-Spammers are also violating good netiquette.**

### **Filters -- Setting up automated rules for processing your email**

The real work in maintaining any mailbox, the real one and the email one, is the sorting everything out:

- pitching the junk,
- putting off till later the nice to read, and
- identifying the needs and responding in a timely fashion to those individual customers, groups, bosses at work and/or family.

Modern email systems have automated devices called filters that can be used to read the header information and to make such decisions. For instance, suppose you have found yourself on the mailing list from hell. It sends you volumes of unwanted product information. The subject field of every new email starts with: Jerks\_R\_Us Proudly Offers ... For such a keyword, Jerks\_R\_Us, a filter can be created to take any email with that keyword in the subject field and move it to the trash. Similarly, threads of long winded messages entitled: " how marketing carried the day" can also can be similarly assigned to the bit bucket (computer slang for deleted). Bcc: memos (sent to yourself for filing of subject trip report) can be assigned to

folders. Important letters from family, and/or certain managers could be sent to an Open\_First\_Email Folder. All the above filters can be set up with a few keystrokes. Some professor's email systems use the Subject: field to route the emailed online exams to a grading program that then sends it on to be recorded in course database.

### **Signature Files**

Signature files let the email author expand his or her personal information within the email message. Items like business, mobile, and fax phone numbers, business address and billing address, etc. are frequently added. A witty remark or a wise saying are also sometimes added, but these may get old after receiving them the second or third time.

### **Personal Cards**

Netscape has popularized "Personal Cards" or "vcards" that act like a business card. Users fill in their personal business data, i.e. business, mobile, and fax phone, etc. in the preferences section and then send it with email messages. When a recipient wants to add the sender's information to his or her address book he or she just clicks on it and it is added to the address book. No muss, no fuss.

### **Netiquette -- Good manners that your mother taught you work in email**

Typing as a means of communication can lead to misunderstandings, so email, newsgroups, chat and other forms of 'Net-based' social discourse have developed:

- Emoticons -- Smiley icons and other clever icons made up of typed characters, e.g.
  - :) for happy or :( for sad.
- Emoticons are sometimes added to clarify the user's emotion, tone of voice, or intent. There exist huge libraries of such icons.

<b>A Few Common Emoticons</b>	
<b>Emoticon</b>	<b>Meaning</b>

<b>: )</b>	<b>Happy or Similey</b>
<b>; )</b>	<b>Wink</b>
<b>: O</b>	<b>Surprise</b>
<b>: o)X</b>	<b>Happy Geek</b>
<b>: ' )</b>	<b>Laughed till I cried!</b>
<b>: " (</b>	<b>Very Sad or Crying</b>
<b>: (</b>	<b>Sad</b>