

Ampliació Tema 2

# CORREO ELECTRÓNICO: MIME, ESMTP



- **MIME: extensiones para correo multimedia (RFC 2045, 2046)**
- **Líneas adicionales en la cabecera para declarar el tipo MIME del contenido**

|                               |  |
|-------------------------------|--|
|                               | <code>From: alice@crepes.fr</code>             |
|                               | <code>To: bob@hamburger.edu</code>             |
|                               | <code>Subject: Picture of yummy crepe.</code>  |
| Versión MIME —————>           | <code>MIME-Version: 1.0</code>                 |
| Método de codificación—————>  | <code>Content-Transfer-Encoding: base64</code> |
| Tipo y subtipo de datos—————> | <code>Content-Type: image/jpeg</code>          |
| Datos codificados {           | <code>base64 encoded data .....</code>         |
|                               | <code>.....</code>                             |
|                               | <code>.....base64 encoded data</code>          |



## ■ Content-type: tipo/subtipo; parámetros

- Text: Plain, html
- Image: jpeg, gif
- Audio: basic (8-bit mu-law encoded), 32kadpcm (32 kbps coding)
- Video: mpeg, quicktime
- Application: msword, octet-stream
- Multipart
  - Mensajes con varios objetos
  - Mixed/alternative

```
C:\Windows\system32\cmd.exe

220 smtp.upv.es ESMTP Sendmail 8.13.6/8.13.6; Mon, 22 Oct 2012 12:15:47 +0200
helo upv.es
250 smtp.upv.es Hello pchopin.disca.upv.es [158.42.52.32], pleased to meet you
mail from: jcampelo@disca.upv.es
250 2.1.0 jcampelo@disca.upv.es... Sender ok
rcpt to: jcampelo@disca.upv.es
250 2.1.5 jcampelo@disca.upv.es... Recipient ok
data
354 Enter mail, end with "." on a line by itself
From: jcampelo@disca.upv.es
To: jcampelo@disca.upv.es
Subject: Prueba adjunto
MIME-Version:1.0
Content-Type: multipart/mixed; boundary="XXX"

--XXX
Content-Type: text/plain

Este es el texto del correo. Saludos

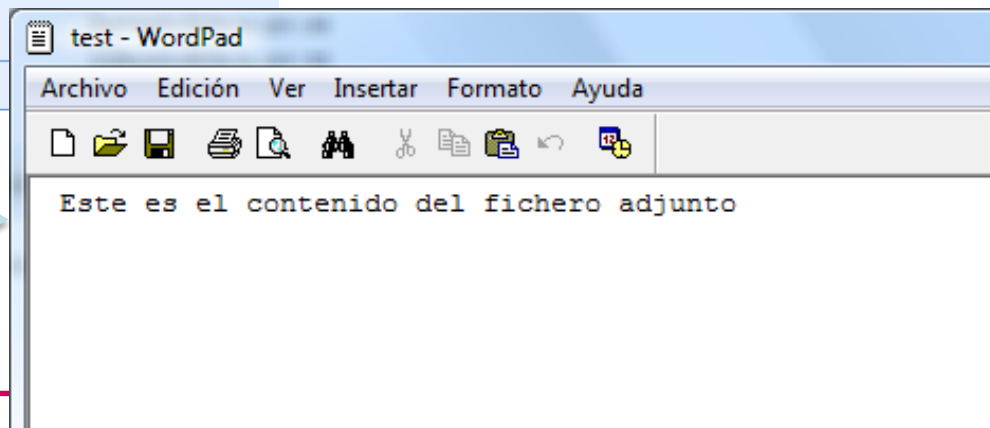
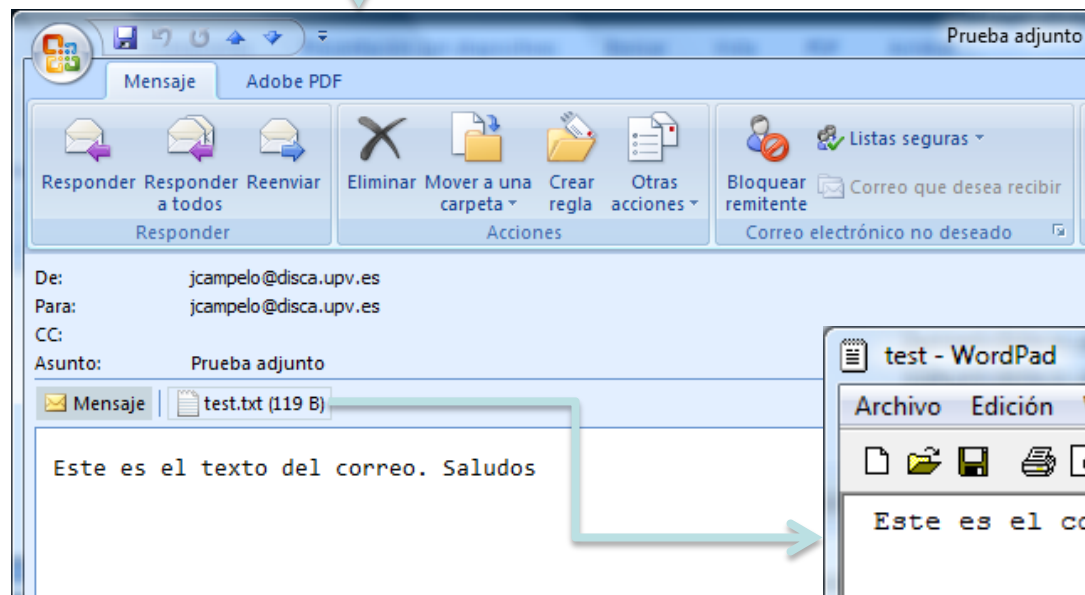
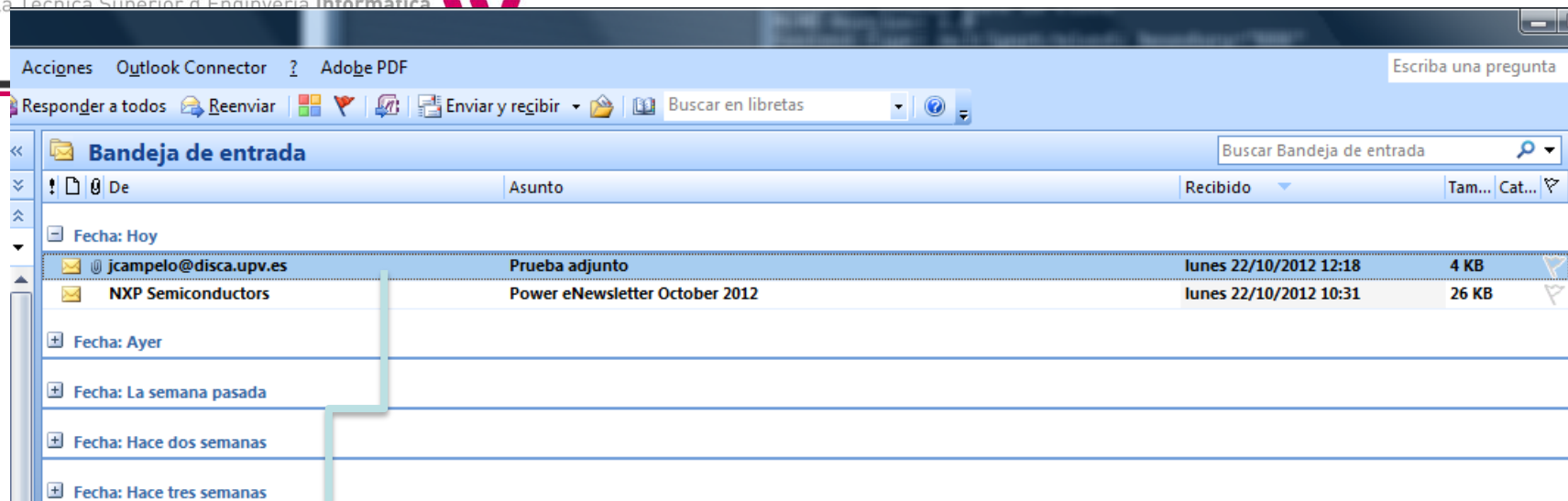
--XXX
Content-Type: text/plain;
Content-Disposition: attachment; filename="test.txt"

Este es el contenido del fichero adjunto

.
250 2.0.0 q9MAF1RP013626 Message accepted for delivery
quit
221 2.0.0 smtp.upv.es closing connection

Se ha perdido la conexión con el host.

C:\Users\jcampelo>
```



.....  
Subject: Prueba 8 bit Date: Mon, 22 Oct 2012  
12:52:46 +0200  
MIME-Version: 1.0 Content-Type:  
multipart/mixed; boundary="----  
=\_NextPart\_000\_0127\_01CDB054.229A9570"  
X-Mailer: Microsoft Office Outlook 12.0  
Content-Language: es

This is a multi-part message in MIME format. -  
-----

=\_NextPart\_000\_0127\_01CDB054.229A9570  
Content-Type: text/plain; charset="iso-8859-1"  
Content-Transfer-Encoding: quoted-printable  
Esta es la nueva versi=F3n del correo  
Nos vemos ma=F1ana  
Saludos =20  
.....

Character sets: ISO-8859-1 (Western Europe)

|    | 00          | 01          | 02          | 03          | 04          | 05          | 06          | 07          | 08          | 09         | 0A          | 0B          | 0C         | 0D         | 0E         | 0F          |
|----|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|-------------|-------------|------------|------------|------------|-------------|
| 00 | NUL<br>0000 | STX<br>0001 | SOT<br>0002 | ETX<br>0003 | EOT<br>0004 | ENQ<br>0005 | ACK<br>0006 | BEL<br>0007 | BS<br>0008  | HT<br>0009 | LF<br>000A  | VT<br>000B  | FF<br>000C | CR<br>000D | SO<br>000E | SI<br>000F  |
| 10 | DLE<br>0010 | DC1<br>0011 | DC2<br>0012 | DC3<br>0013 | DC4<br>0014 | NAK<br>0015 | SYN<br>0016 | ETB<br>0017 | CAN<br>0018 | EM<br>0019 | SUB<br>001A | ESC<br>001B | FS<br>001C | GS<br>001D | RS<br>001E | US<br>001F  |
| 20 | SP<br>0020  | !<br>0021   | "<br>0022   | #<br>0023   | \$<br>0024  | %<br>0025   | &<br>0026   | '<br>0027   | (<br>0028   | )<br>0029  | *<br>002A   | +<br>002B   | ,<br>002C  | -<br>002D  | .<br>002E  | /<br>002F   |
| 30 | 0<br>0030   | 1<br>0031   | 2<br>0032   | 3<br>0033   | 4<br>0034   | 5<br>0035   | 6<br>0036   | 7<br>0037   | 8<br>0038   | 9<br>0039  | :<br>003A   | ;<br>003B   | <<br>003C  | =<br>003D  | ><br>003E  | ?<br>003F   |
| 40 | @<br>0040   | A<br>0041   | B<br>0042   | C<br>0043   | D<br>0044   | E<br>0045   | F<br>0046   | G<br>0047   | H<br>0048   | I<br>0049  | J<br>004A   | K<br>004B   | L<br>004C  | M<br>004D  | N<br>004E  | O<br>004F   |
| 50 | P<br>0050   | Q<br>0051   | R<br>0052   | S<br>0053   | T<br>0054   | U<br>0055   | V<br>0056   | W<br>0057   | X<br>0058   | Y<br>0059  | Z<br>005A   | [<br>005B   | \<br>005C  | ]<br>005D  | ^<br>005E  | _<br>005F   |
| 60 | `<br>0060   | a<br>0061   | b<br>0062   | c<br>0063   | d<br>0064   | e<br>0065   | f<br>0066   | g<br>0067   | h<br>0068   | i<br>0069  | j<br>006A   | k<br>006B   | l<br>006C  | m<br>006D  | n<br>006E  | o<br>006F   |
| 70 | p<br>0070   | q<br>0071   | r<br>0072   | s<br>0073   | t<br>0074   | u<br>0075   | v<br>0076   | w<br>0077   | x<br>0078   | y<br>0079  | z<br>007A   | {<br>007B   | <br>007C   | }<br>007D  | ~<br>007E  | DEL<br>007F |
| 80 |             |             |             |             |             |             |             |             |             |            |             |             |            |            |            |             |
| 90 |             |             |             |             |             |             |             |             |             |            |             |             |            |            |            |             |
| A0 | NSP<br>00A0 | ı<br>00A1   | ç<br>00A2   | £<br>00A3   | ¤<br>00A4   | ¥<br>00A5   | İ<br>00A6   | Š<br>00A7   | Ž<br>00A8   | ©<br>00A9  | ª<br>00AA   | «<br>00AB   | ¬<br>00AC  | –<br>00AD  | ®<br>00AE  | —<br>00AF   |
| B0 | °<br>00B0   | ±<br>00B1   | ²<br>00B2   | ³<br>00B3   | ´<br>00B4   | µ<br>00B5   | ¶<br>00B6   | ·<br>00B7   | ¸<br>00B8   | ¹<br>00B9  | º<br>00BA   | »<br>00BB   | ¼<br>00BC  | ½<br>00BD  | ¾<br>00BE  | ¿<br>00BF   |
| C0 | À<br>00C0   | Á<br>00C1   | Â<br>00C2   | Ã<br>00C3   | Ä<br>00C4   | Å<br>00C5   | Æ<br>00C6   | Ç<br>00C7   | È<br>00C8   | É<br>00C9  | Ê<br>00CA   | Ë<br>00CB   | Ì<br>00CC  | Í<br>00CD  | Î<br>00CE  | Ï<br>00CF   |
| D0 | Ð<br>00D0   | Ñ<br>00D1   | Ò<br>00D2   | Ó<br>00D3   | Ô<br>00D4   | Õ<br>00D5   | Ö<br>00D6   | ×<br>00D7   | Ø<br>00D8   | Ù<br>00D9  | Ú<br>00DA   | Û<br>00DB   | Ü<br>00DC  | Ý<br>00DD  | Þ<br>00DE  | ß<br>00DF   |
| E0 | à<br>00E0   | á<br>00E1   | â<br>00E2   | ã<br>00E3   | ä<br>00E4   | å<br>00E5   | æ<br>00E6   | ç<br>00E7   | è<br>00E8   | é<br>00E9  | ê<br>00EA   | ë<br>00EB   | ì<br>00EC  | í<br>00ED  | î<br>00EE  | ï<br>00EF   |
| F0 | ð<br>00F0   | ñ<br>00F1   | ò<br>00F2   | ó<br>00F3   | ô<br>00F4   | õ<br>00F5   | ö<br>00F6   | ÷<br>00F7   | ø<br>00F8   | ù<br>00F9  | ú<br>00FA   | û<br>00FB   | ü<br>00FC  | ý<br>00FD  | þ<br>00FE  | ÿ<br>00FF   |



## ■ Ejemplo codificación base 64

**24 bits** se codifican como **4**  
**caracteres de 6 bits**  
según la tabla

00010000 10010100 01110010



000100 001001 010001 110010

                                     
**E** **J** **R** **Y**



**EJRy**

|      |      |      |      |
|------|------|------|------|
| 0 A  | 17 R | 34 i | 51 z |
| 1 B  | 18 S | 35 j | 52 0 |
| 2 C  | 19 T | 36 k | 53 1 |
| 3 D  | 20 U | 37 l | 54 2 |
| 4 E  | 21 V | 38 m | 55 3 |
| 5 F  | 22 W | 39 n | 56 4 |
| 6 G  | 23 X | 40 o | 57 5 |
| 7 H  | 24 Y | 41 p | 58 6 |
| 8 I  | 25 Z | 42 q | 59 7 |
| 9 J  | 26 a | 43 r | 60 8 |
| 10 K | 27 b | 44 s | 61 9 |
| 11 L | 28 c | 45 t | 62 + |
| 12 M | 29 d | 46 u | 63 / |
| 13 N | 30 e | 47 v |      |
| 14 O | 31 f | 48 w |      |
| 15 P | 32 g | 49 x |      |
| 16 Q | 33 h | 50 y |      |





--Message-Boundary-15761

Adjunto os remitimos los datos en el fichero enero.pdf  
Un saludo, Roser

--Message-Boundary-15761

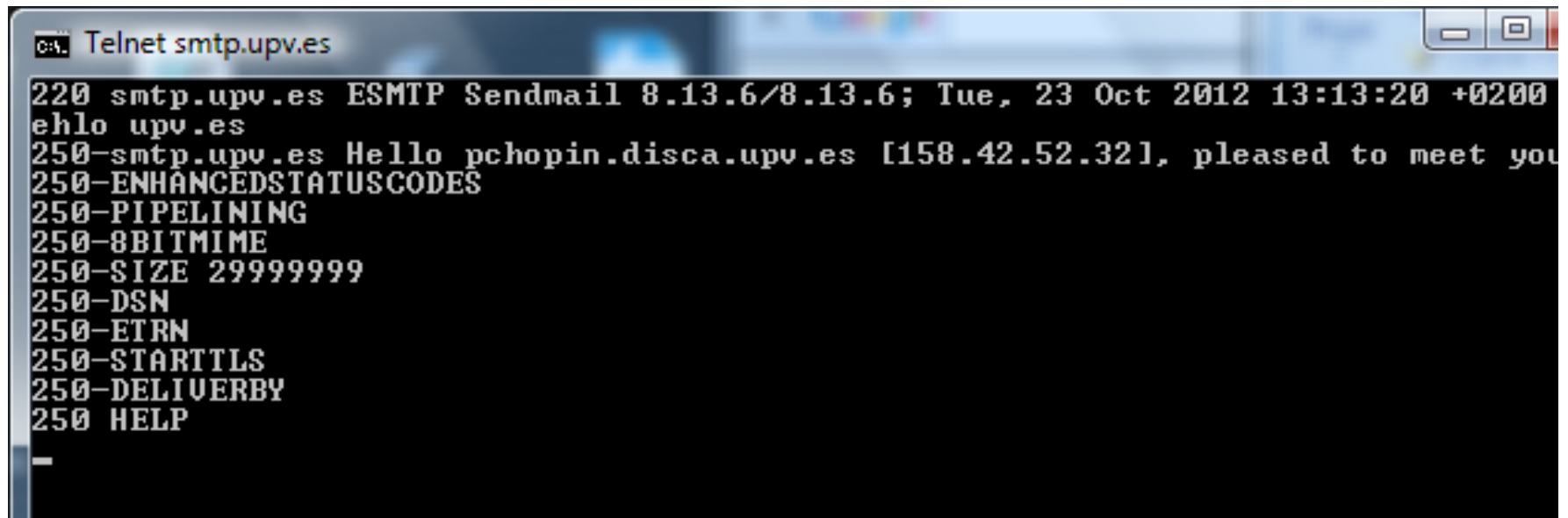
```
Content-type: Application/Octet-stream; name=enero.pdf; type=Unknown
Content-transfer-encoding: BASE64
```

JVBERi0xLjIgdQol4uPP0w0KIA0KOCawIG9iag0KPDwNCi9MZW5ndGggOSAwIFINCi9GaWx0ZXIgL0ZsYXRlRGVjb2RlIA0KPj4NCnN0cmVhbQ0KSInMl19vpDgWxT9BfQdLq5F6pYTBfzDm0QWuChkKaEPVtFr9tpddaR9G6n7Zr7/XYBuooqKVriStlqJWI

-- Message-Boundary-15761 --



- ESMTP = Extended SMTP
- Añade nuevas características a SMTP
- El cliente inicia la sesión con **EHLO** (en vez de HELO)
- Si el servidor es ESMTP, responde con código 250 y la lista de extensiones ESMTP que soporta:



```
C:\> Telnet smtp.upv.es

220 smtp.upv.es ESMTP Sendmail 8.13.6/8.13.6; Tue, 23 Oct 2012 13:13:20 +0200
ehlo upv.es
250-smtp.upv.es Hello pchopin.disca.upv.es [158.42.52.32], pleased to meet you
250-ENHANCEDSTATUSCODES
250-PIPELINING
250-8BITMIME
250-SIZE 29999999
250-DSN
250-ETRN
250-STARTTLS
250-DELIVERBY
250 HELP
-
```