Chapter 12: How to send email with one attached file by Wincon-8xx7 or iPAC-8477 / 8877 or uPAC-7186EG ?

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Wincon-8437/8747 , Wincon-8037/8337/8737 , iPAC-8477 / 8877 and uPAC-7186EG can send email via its Ethernet port since its following ISaGRAF driver version .
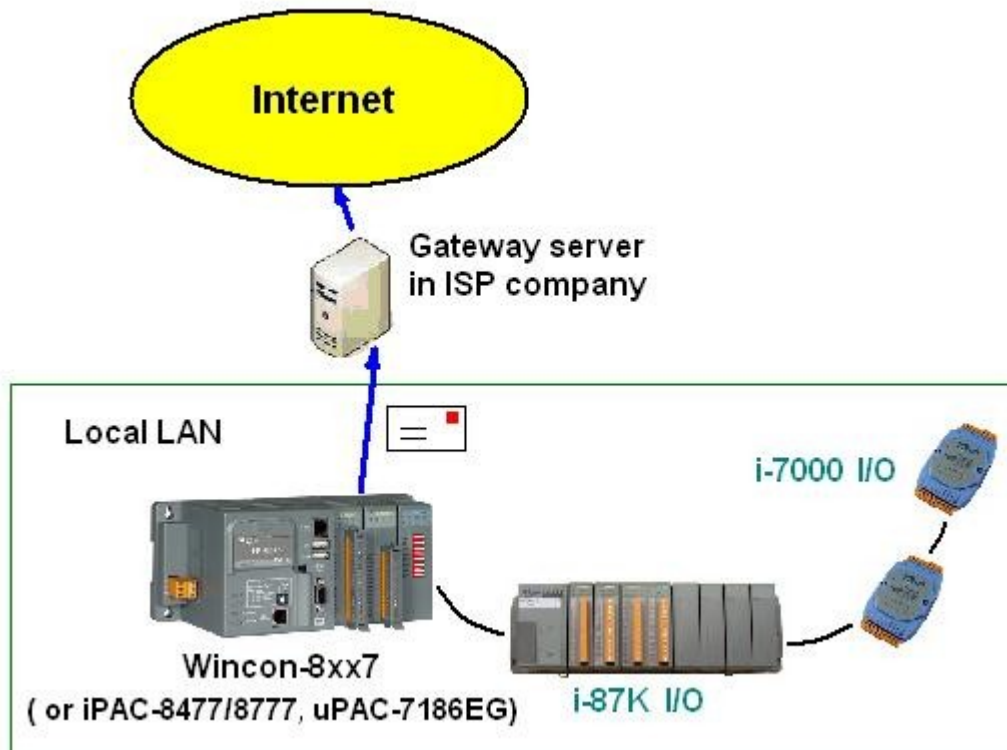
Wincon-8xx7 :	3.42
iPAC-8477 / 8877 :	since it is released (around Q1/Q2, 2008)
uPAC-7186EG:	since it is released (around Q1, 2008)

These controllers must reside at a local network which can connect to the Internet, or sending email is not possible.

New released ISaGRAF driver: http://www.icpdas.com/products/PAC/i-8000/isagraf-link.htm
Demo program: www.icpdas.com – FAQ – Software – ISaGRAF – 067 , 071, 072, 076 and 077 or
              Wdemo_62 , Wdemo_63 and Wdmo_63a

Controller can send email without or with one attach file

Features:

1. The sending Email can contain one attached file or without any attached file. The attached file format can be text or binary or any file format. The approximate max. file size is listed as the following.

        Wincon-8xx7:   2M Bytes.
        iPAC-8447 / 8877:   488K Bytes
        uPAC-7186EG + X607:   112K Bytes
        uPAC-7186EG + X608-RoHs: 488K Bytes

2. Email Title can be max. 128 bytes. Email content can be max. 510 bytes. Local language word can be used (English, Chinese, any language character which computer can use).

3. One email can send to 10 receivers at one sending.

4. Each email can be assigned as High , Low or Normal priority.

5. Please assign at least one Mail server IP in the ISaGRAF program. **Or for safety, assign two Mail servers IP. Then if one Mail server is out of service, the controller will send this email by the other Mail server**.

6. If controller model is Wincon-8347 / 8747 (dual LAN) and both LAN ports are enabled, Wincon-8347 / 8747 will automatically switch to the other Ethernet port to send email if one is broken or damaged.

7. If the sending email has one file attached, this file must be stored or copied to the correct file path before it is sent.

  Wincon-8xx7:
        in the path of '\Email_ETH\' , for ex, the '\Email_ETH\A1.txt'
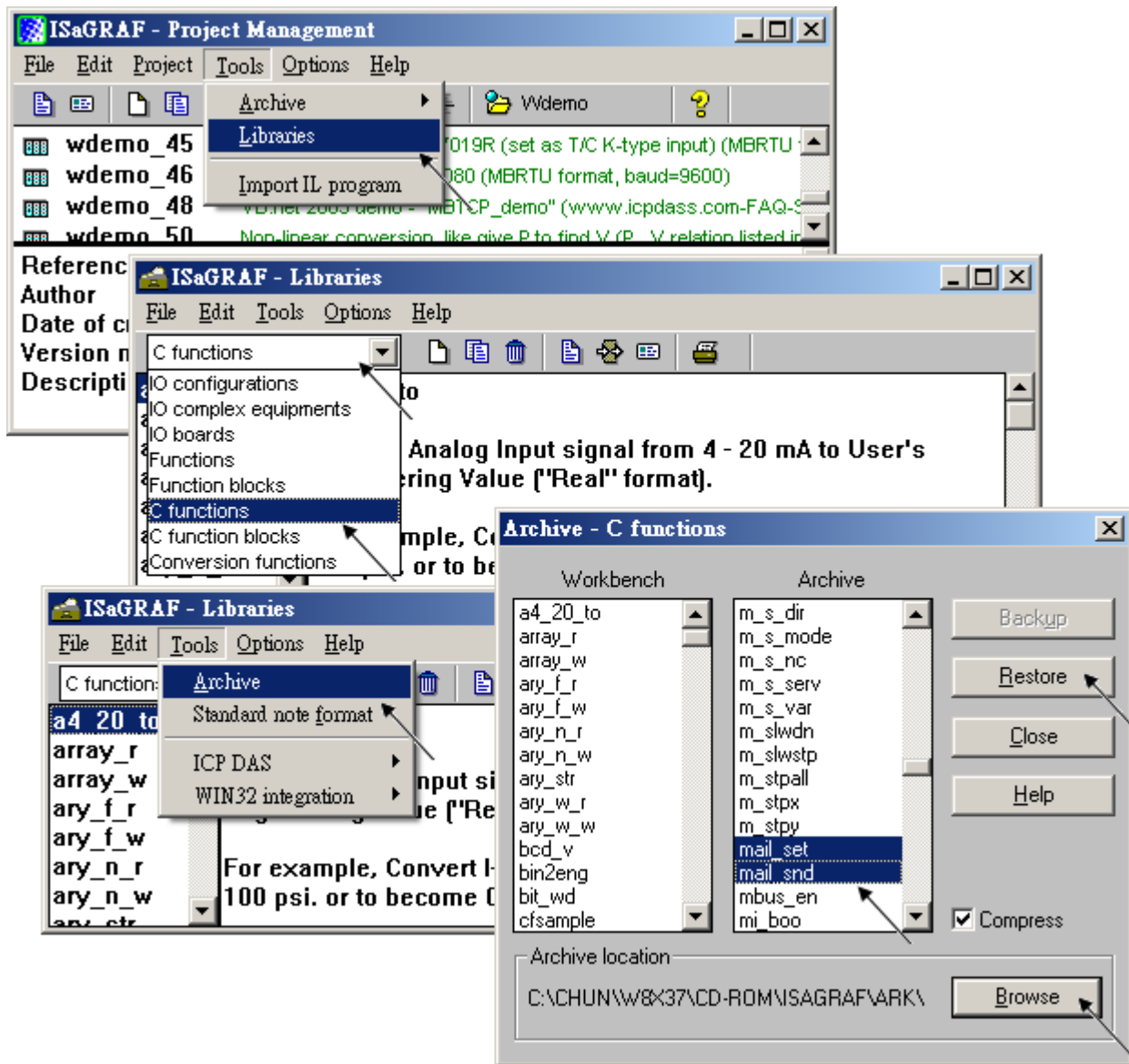
  iPAC-8477 / 8877 & uPAC-7186EG:
        file should be stored in the battery backup memory by the "S_xxx" functions, like the "s_fl_ini" , "s_fl_avl" , "s_m_r" , …
        (please refer to section 10.3 and appendix A.4 of the "User's Manual Of the ISaGRAF Embedded
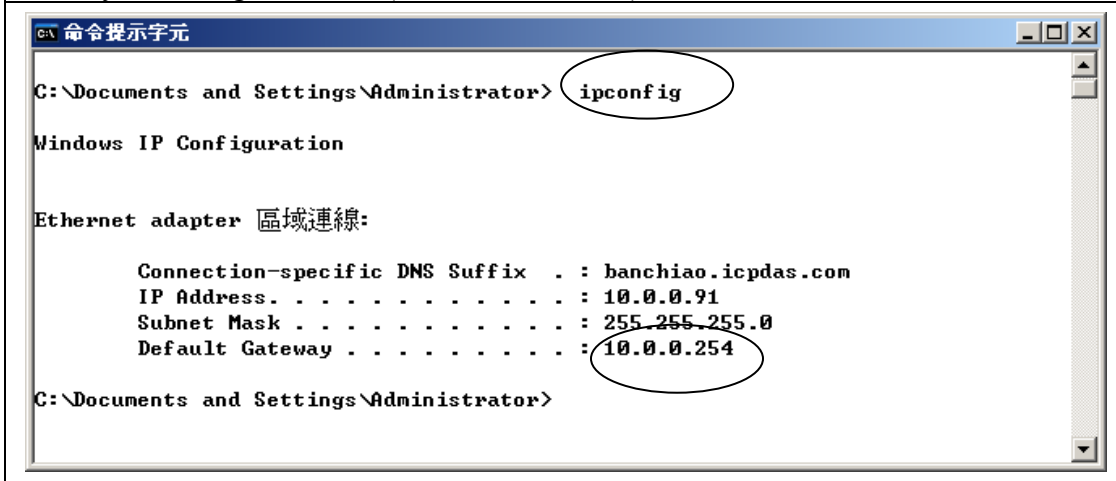   Controllers")

Please make sure if your ISaGRAF software in PC has installed the ISaGRAF c-function of "Mail_snd" , "Mail_set" and "R_mb_adr". If not installed, please visit www.icpdas.com – FAQ – Software – ISaGRAF – 067, 076 & 077 to download the Demo program. Then restore "Mail_snd.uia" , "Mail_set.uia" and "R_mb_adr.uia" to your ISaGRAF in PC by below steps.
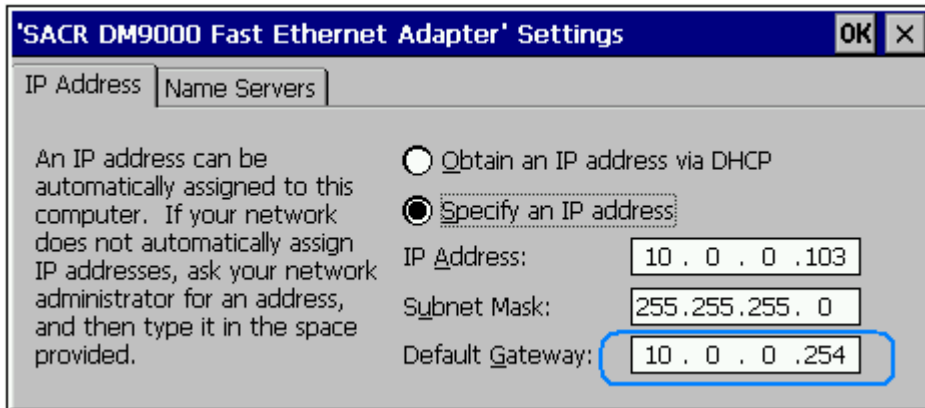
To send email correctly, please set proper Gateway IP in the controller's Ethernet port setting. Please type command "ipconfig" in a PC 's command prompt window at the same local network to get the Gateway IP setting as below. (Here is 10.0.0.254)
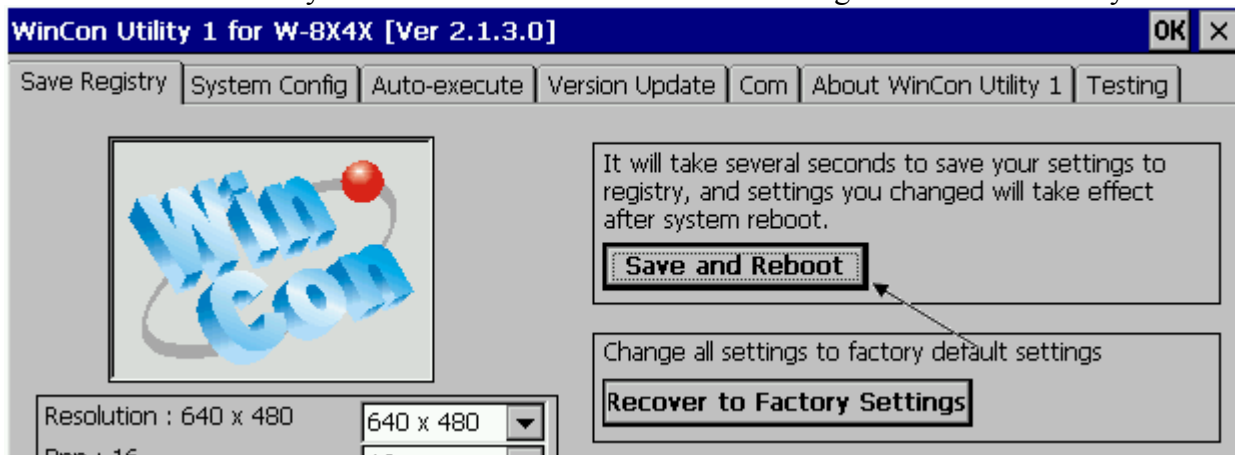

Then please fill-in this Gateway IP address to your controller's Ethernet port setting (If controller model is W-8347/8747, you can enable two Ethernet ports, then you need to fill-in both with the same Gateway IP)
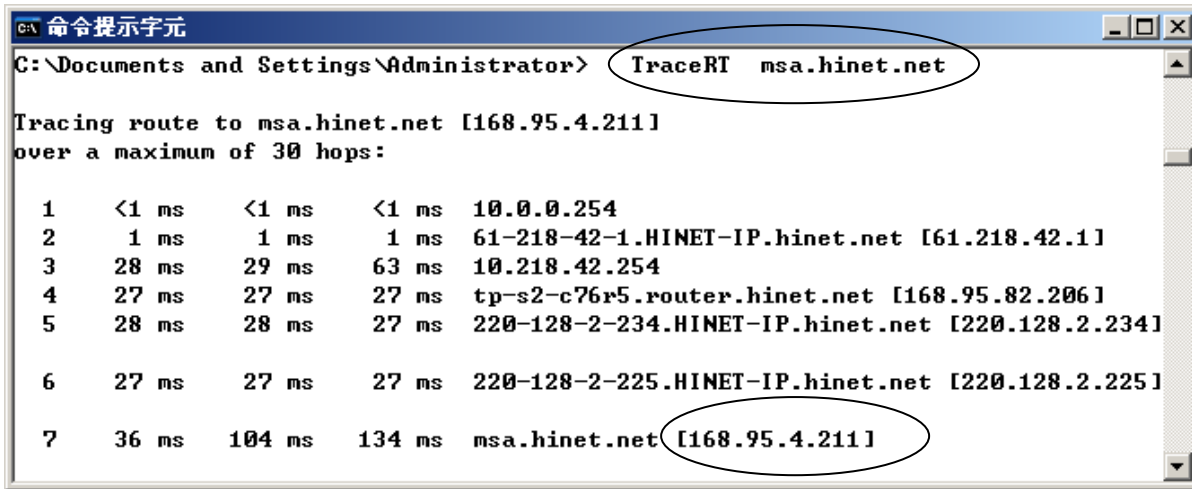
Wincon-8xx7:

Then run Wincon Utility – Save and Reboot to store the IP setting. It will automatically re-boot once.

iPAC-8477 / 8877 & uPAC-7186EG :

Please run "7188xw.exe" in the PC and give command for ex, "gateway 10.0.0.254" if the gateway IP is 10.0.0.254. (Please refer to appendix B)

The PC 's command prompt windows can also request the Mail server 's IP address (We need it in the ISaGRAF program). For example, to request IP of msa.hinet.net , please type command TraceRT msa.hinet.net as below (Here is 168.95.4.211)

```
命令提示字元                                                      _□×

C:\Documents and Settings\Administrator>  TraceRT   msa.hinet.net

Tracing route to msa.hinet.net [168.95.4.211]
over a maximum of 30 hops:

  1    <1 ms    <1 ms    <1 ms  10.0.0.254
  2     1 ms     1 ms     1 ms  61-218-42-1.HINET-IP.hinet.net [61.218.42.1]
  3    28 ms    29 ms    63 ms  10.218.42.254
  4    27 ms    27 ms    27 ms  tp-s2-c76r5.router.hinet.net [168.95.82.206]
  5    28 ms    28 ms    27 ms  220-128-2-234.HINET-IP.hinet.net [220.128.2.234]

  6    27 ms    27 ms    27 ms  220-128-2-225.HINET-IP.hinet.net [220.128.2.225]

  7    36 ms   104 ms   134 ms  msa.hinet.net [168.95.4.211]
```

Email demo download from FAQ – 067 , 076 and 077 has three example programs.

"Wdemo_62.pia" is the demo without attached file.
"Wdemo_63.pia" is the demo for Wincon-8xx7 with one attached file .
"Wdmo_63a.pia" is the demo for uPAC-7186EG and iPAC-8477 / 8877 with one attached file .

Please modify at least the below setting in the demo program to your own setting .

  TMP := MAIL_SET(1 , 'chun@icpdas.com') ;   (* Receiver 1. please modify it *)
  TMP := MAIL_SET(100 , 'go_mao@hotmail.com') ;   (* Sender. please modify it *)
  TMP := MAIL_SET(101 , '168.95.4.211') ;   (* Mail server 1 's IP, please modify it *)

Then re-compile it and then download it to the controller to run. The below windows will show up. Please set "to_send" as TRUE to trigger to send one email. Few seconds later, value of "Email_state" will be 21 or 22 if succeed. However value of "Email_state" will be less than 0 if failed. When "Email_progress" reach value of 100, it means the email data is 100% sent.

ISaGRAF - WDEMO_62:LIST1 - List of variables

Name	Value	Comment
msg1		Remember to assign the Gateway IP to controller
EMAIL_state	21	0:Sleep, 1:Busy ,21:server1 , 22:server2 succeed, <0 :Error
EMAIL_progress	100	progress: 0:No action, 1 - 10:connecting , 11 100 : percent
Year1	2007	
Month1	7	
Day1	4	
WeekDay1	3	
Hour1	13	
Minute1	20	
Second1	34	
mail_subject	Testing Email No. = 1	Email subject. Max. 128 character. (Can be local language)
mail_data1	2007/7/4 13:20:27$0D$0AThis message is	Email data1 Max. 255 character. (Can be local language)
mail_data2	(More message ...)	Email data2 Max. 255 character. (Can be local language)
TMP_v	1	return value of Mail_snd( ) . 1: Ok , <0 : error
to_send	FALSE	Set as TRUE to trigger to send an email
Email_Priority	3	1: High , 3: Normal , 5: Low
<end of list>		

Below is the description of the three ISaGRAF functions for sending email.

MAIL_Set(CMD_ , MSG_)

Parameters:

 CMD_   Integer   Can be the following value.

  1 :   Set receiver 1 , for ex, TMP := Mail_set(1 , 'chun_tsai@icpdas.com') ;
          Max. receiver length can not exceeds 48 characters.
  2 to 10 :   Set receiver 2 to 10 if they exist.
  100 : Set the sender , for ex, TMP := Mail_set(100 , 'sender1@icpdas.com') ;
          Max. sender length can not exceeds 48 characters.
  101 : Set the mail server 1 's IP address , for ex, TMP := Mail_set(101 , '168.95.4.211') ;
  102 : Set the mail server 2 's IP address if it exist.
  103 : a new TCP port No. for sending email. (Default is 25 "SMTP protocol")

 MSG_   Message   the related message setting according to the 1st parameter - CMD_

Return:

 Q_   Boolean True : Ok .
               False : the related setting is not correct or the "CMD_" value is not correct.

MAIL_snd(Start_ , Num_ , Subject_ , Prio_ , Data1_ , Data2_ , Attach_)

Parameters:

Start_   Integer   Starting receiver No. Can be 1 through 10.
Num_   Integer   Number of receivers. Can be 1 through 10.
Subject_   Message Subject of the email. Max. length is 128 characters.
                            For ex, 'Alarm of plant 1'
Prio_   Integer   Set Email Priority symbol.
                            Value can be 1 : High , 3 : Normal , 5 : Low .default setting is 3.
Data1_   Message The email data 1 (Max. 255 characters).
                            For ex, 'Pressure 1 is too high. Please check it soon ! ... '
Data2_   Message The email data 2 (Max. 255 characters).
                            More message behind the "Data1_". For ex, 'More message ...'
Attach_   Message The attached file name if it exists. Max. 64 charcters.
                            Please give '' (empty messge) if no attached file used.

  Wincon-8xx7 :   file must store in the '\Email_ETH\' folder . For ex, '\Email_ETH\A1.txt'

  uPAC-7186EG : file must store in the X-607, X-608 memory .
  iPAC-8477/8877 : file must store in the built-in battery SRAM in the backplane .
                      the valid value is '1' , '2' , … , '8' . the number is the file ID No. set
                      by the "S_FL_AVL" function. (refer to section 10.3 or appendix A.4)

  The max. attached file size are listed as following.
        Wincon-8xx7:   2M Bytes. ,   iPAC-8447 / 8877:   488K Bytes
        uPAC-7186EG + X607:   112K Bytes , uPAC-7186EG + X608:   488K Bytes

Return:
  Q_   Integer

  1   : Ok, then start sending email ...
  < 0 : error
  -1   : Busy . The earier email is still sending ...
  -2   : The first Receiver (No. = "Start_") is empty or error.
  -3   : Mail server 1 is empty or error.
  -4   : Sender is empty or error.
  -5   : "Start_" value less than 1 or larger than 10
  -6   : "Subject_" exceeds 128 characters.
  -7   : Email system is not active yet, Please use "mail_set( )" to set at leaset one receiver
               email box address, one mail server IP and the sender email box address
  -8   : "Num_" value less than 1 or larger than 10
  -9   : The given attached file name doesn't exist or file path name > 64 characters or
               its size exceeds the allowed file size.

R_MB_ADR(1 , 9995) is to get the email sending state sent by "Mail_snd( )" .

The return value of R_MB_ADR(1 , 9995) will remain until next calling "Mail_snd( )"

Return :
   0 : Sleep. No action
   1 : Busy. one email is still sending now
  21 : Email is successfully sent through Mail server 1
  22 : Email is successfully sent through Mail server 2

  < 0 : Error happens
  -1 : Can not connect to the Mail server
  -2 : Sender setting is rejected by the Mail server
  -3 : Time out
  -4 : Ethernet socket error
  -5 : receiver setting is reject by the Mail server

R_MB_ADR(1 , 9994) is to get the current email sending progress sent by "Mail_snd( )" .

Calling "R_MB_ADR(1 , 9994)" can not get the Error No. when error happens. Please use
     "R_MB_ADR(1 , 9995)" to get it .
If error happens while sending email, the return value will stay at its last value until next
     calling "Mail_snd( )"

Return :
   0 : No action
   1 : Connecting to Mail server 1
   2 : Mail server 1 connected . Sending "HELO "
   3 : Sending "MAIL FROM: ..." to Mail server 1
   4 : Sending "RCPT TO: ..." to Mail server 1
   5 : Sending "DATA" to Mail server 1
   6 : Connecting to Mail server 2
   7 : Mail server 2 connected . Sending "HELO ..."
   8 : Sending "MAIL FROM: ..." to Mail server 2
   9 : Sending "RCPT TO: ..." to Mail server 2
  10 : Sending "DATA" to Mail server 2

  11 ~ 100 : the current progress of sending email data.
    For ex,   25   means 25 / 100 = 25 %
               36   means 36 / 100 = 36 %
               95   means 95 / 100 = 95 %
              100   means 100 / 100 = 100 % (sent completely)