

TCP/IP for VSE/ESA Potpourri

**2002 z/VM, VSE and Linux
on IBM zSeries Technical Conference
Miami Beach, FL
October 7 - 10, 2002
E28**



**4025 Woodland Park Blvd.
Arlington, TX 76013**

817-277-0800 or 1-800-4-VSEESA

Email: jlawson@intelliware.com

<http://www.intelliware.com>

© Copyright 2002 IntelliWare Systems, Inc.

*This material may not be reproduced without the expressed prior written consent of IntelliWare Systems, Inc.
All trademarks referenced herein are trademarks of their respective companies.*

Trademarks



The following are registered trademarks of International Business Machines Corporation

**CICS
IBM**

The following are trademarks of International Business Machines Corporation

**CICS/VSE
PL/I VSE
ESA/390
VTAM
MVS/ESA
S/390**

**COBOL/VSE
VSE/ESA
POWER
C/VSE
VM/ESA**

All other trademarks are trademarks of their respective companies.

Topics



- New functions with enhancements in 1.4.0 and later
 - TN3270E
 - Email client
 - Additional clients and daemons
 - Other Enhancements
- Recommendations

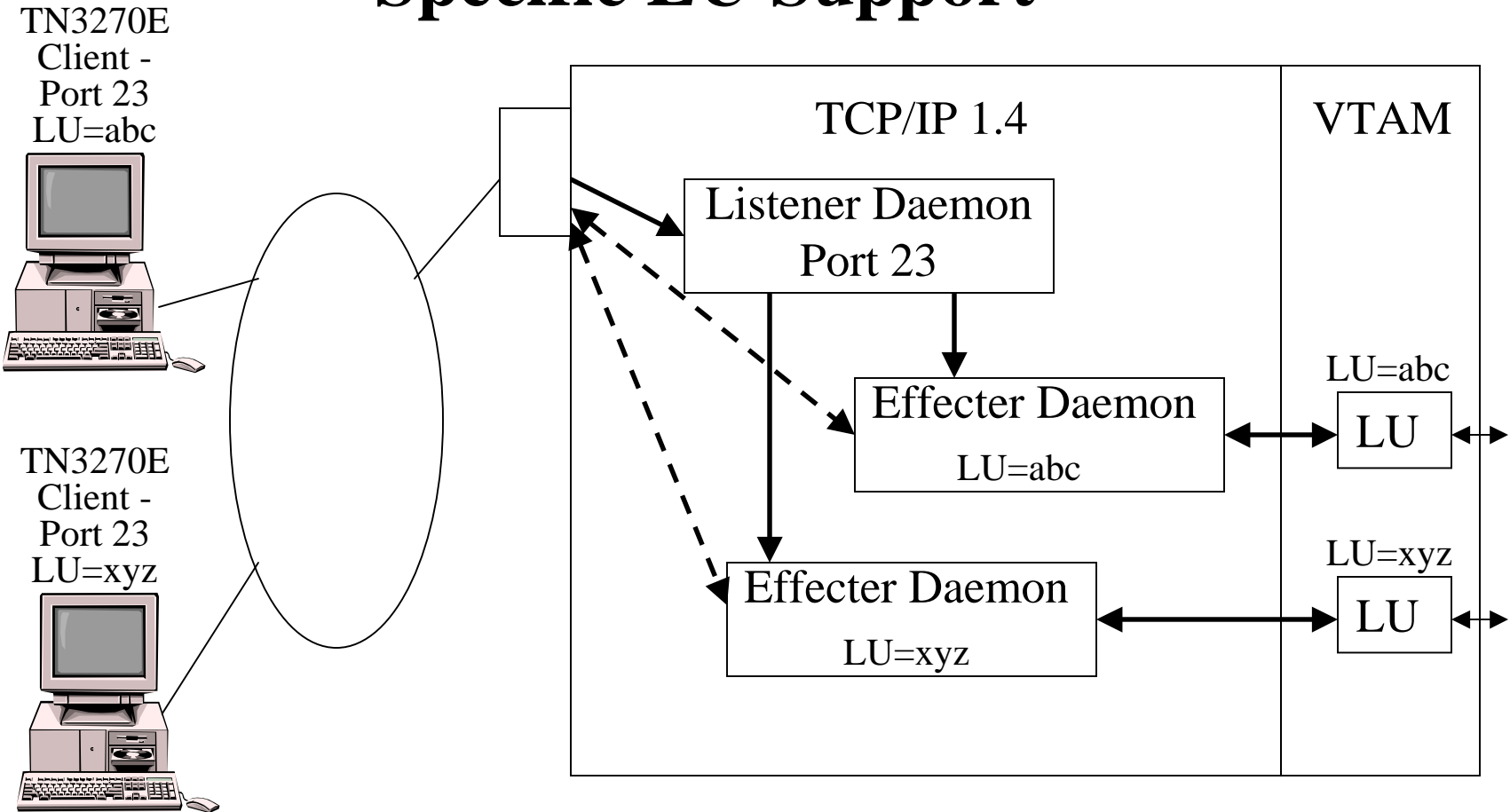
TN 3270E Support



- Provides Specific LU support only
 - No printer support
- Definitions
 - "Listener" Daemon
 - One per port
 - "Effector" Daemons
 - One per LU

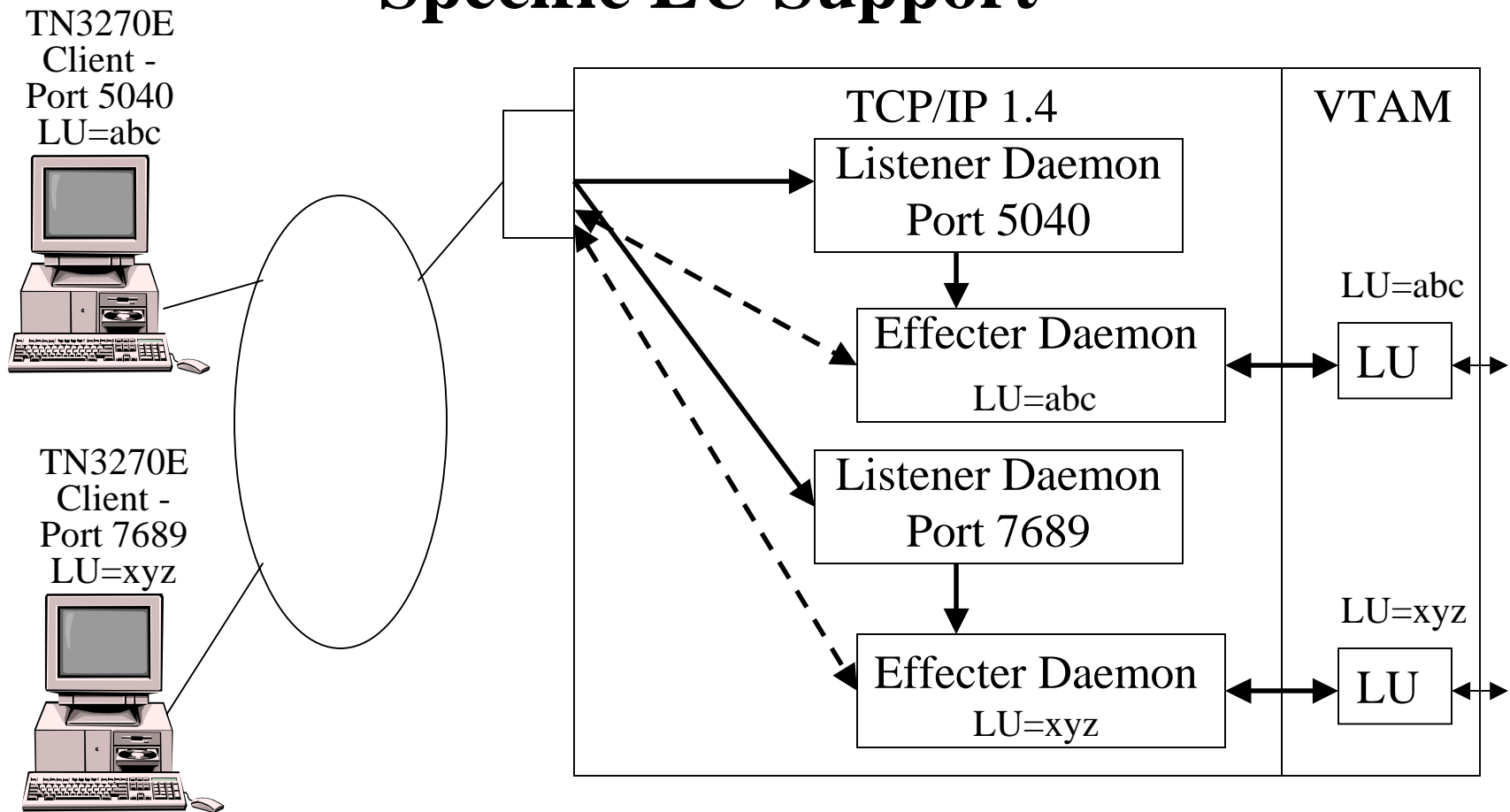
TN 3270E Support...

Specific LU Support



TN 3270E Support...

Specific LU Support



TN 3270E Support...

Telnet Definitions

```
DEFINE TELNETD, ID=LISTEN_L, TN3270E=L, PORT=23, GROUP=CJM

DEFINE TELNETD, ID=WPTEL025, TN3270E=E, TERMNAME=WPTEL025, -
    TARGET=DBDCCICS, MENU=VTAM1, GROUP=CJM
DEFINE TELNETD, ID=WPTEL026, TN3270E=E, TERMNAME=WPTEL026, -
    TARGET=DBDCCICS, GROUP=CJM
```

VTAM Definitions

```
CATALOG TCPAPPL.B                                REPLACE=YES
TCPAPPL  VBUILD TYPE=APPL
TCPDIAG  APPL  AUTH=(ACQ)
TCPIP    APPL  AUTH=(ACQ)
TELNGRP1 GROUP EAS=1
.
.
WPTEL025 APPL  AUTH=(ACQ)
WPTEL026 APPL  AUTH=(ACQ)
```

TN 3270E Support...

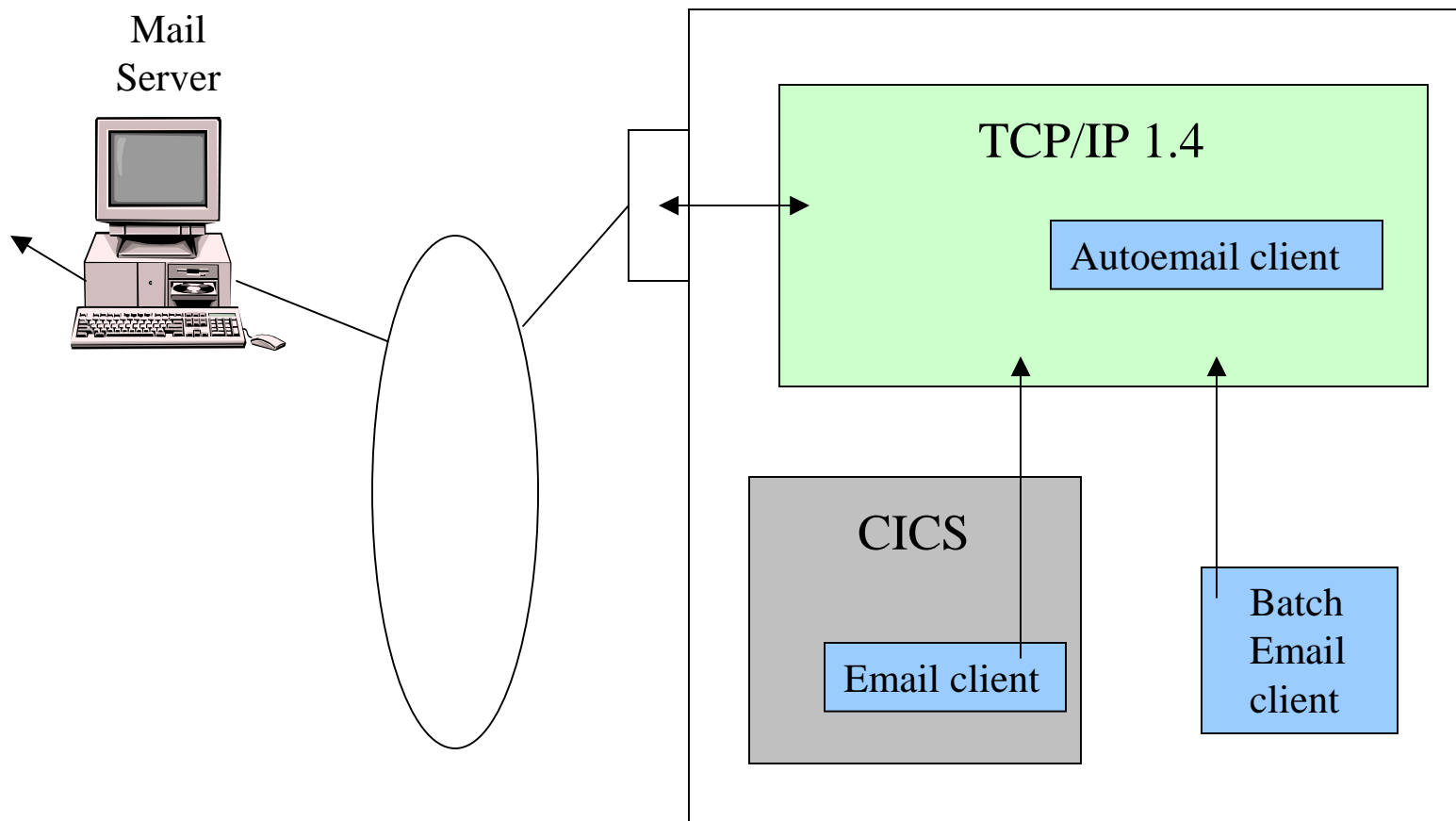


■ TN3270E Client

- Must specifically configure for TN3270E
 - | Specify LUNAME
- Be sure client really supports TN3270E
 - | Level of TN3270+ we had said in the Help that it did, but it didn't!

Email

TCP/IP 1.4 Email Client Support

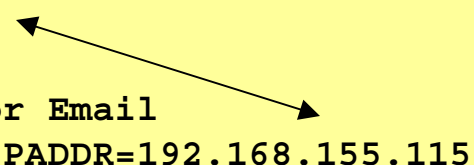


Email...

Definitions

IPINITnn.L

```
SET IPADDR    = 192.168.155.115
* Name of VSE TCPIP System for Email
DEFINE NAME, NAME=VSESYSTEM, IPADDR=192.168.155.115
* SMTP Mail Server name
DEFINE NAME, NAME=MAILSERV, IPADDR=192.168.155.98
```



CICS PCT (CICS Email Client)

```
// EXEC DFHCSDUP,SIZE=DFHCSDUP,PARM='CSD(READWRITE) '
DEFINE TRANSACTION(EMAI)    GROUP(TCPIP)    PROGRAM(CLIENT01)
        PROFILE(DFHCICST)
/*
```

Email...

Batch Email Client

```
* $$ JOB JNM=EMAIL3,DISP=D,CLASS=0
// JOB EMAIL3
// EXEC CLIENT,SIZE=CLIENT,PARM='APPL=EMAIL'
SET HOST=MAILSERV
SET FROM=Class240
SET TO=jlawson@intelliware.com
SET SUBJECT=Attached is a printout from VSE/POWER
TEXT
Please use the attached listing to find YOUR problem.
/+
SEND POWER.LST.A.DFHDMPA.139 ←
/*
/&
* $$ EOJ
```

Email...

CICS Email Client

EMAIL

```
TCP200I Client -- Startup --
TCP207I Copyright (c) 1995-1999 Connectivity Systems Incorporated
TCP202I Attempting to Establish Connection
TCP204I Connection has been Established
Client manager connection Established.
EMAIL Ready:
set host=192.168.155.98
ISIMAIL
EMAIL Ready:
set to=jlawson@intelliware.com
EMAIL Ready:
set from=VSE
EMAIL Ready:
set subject=This is a test
EMAIL Ready:
text
Text Ready:
This is a message...
Text Ready:
```

Email...

CICS Email Client...

```
 /+
send
Establishing connection with SMTP Daemon
220 X1 NT-ESMTP Server mail.intelliware.com (IMail 6.05 5772-1)
HELO VSESYSTEM
250 hello mail.intelliware.com
MAIL FROM:<VSE>
250 ok
RCPT TO:<jlawson@intelliware.com>
250 ok its for <jlawson@intelliware.com>
DATA
354 ok, send it; end with <CRLF>.<CRLF>
250 Message queued
QUIT
221 Goodbye
Closing the connection with SMTP Daemon
Connection complete
EMAIL Ready:
QUIT
TCP201I Client -- Shutdown --
TCP205I Connection Complete -- Already Closed
```

EMAIL...

AutoEmail Definitions

IPINITnn.L

```
DEFINE EVENT, ID=EMAIL_L, TYPE=POWER, CLASS=L, QUEUE=LST, ACTION=EMAIL,  
          HOSTNAME=DEST          (QUEUE=LST | PUN)  
                                (HOSTNAME=USERINFO | DEST | ROOM | DEPT | BLDG)
```

```
DEFINE NAME, NAME=EMSCRIPT, SCRIPT=EMSCRIPT
```

```
* $$ JOB JNM=EMSCRIPT, DISP=D, CLASS=0  
// JOB EMSCRIPT  
// EXEC LIBR  
A S=PRD2.CONFIG  
CATALOG EMSCRIPT.L          R=Y  
SET HOST=192.168.155.98  
SET FROM=Class240  
SET TO=jlawson@intelliware.com  
SET SUBJECT=Attached is a printout from VSE/POWER  
/+  
/*  
/&  
* $$ EOJ
```

EMAIL...

AutoEmail Example

```
* $$ JOB JNM=TESTAEM,DISP=D,CLASS=0
* $$ LST CLASS=L,DEST=(*,EMSCRIPT)
// JOB TESTAEM
// EXEC LSERV
/*
/&
* $$ EOJ
```

```
BG 0001 1Q47I   BG TESTAEM 01416 FROM ISICLASS(TCPA) , TIME=15:00:12
BG 0000 // JOB TESTAEM
          DATE 08/04/2000, CLOCK 15/00/12
BG 0000 EOJ TESTAEM
          DATE 08/04/2000, CLOCK 15/00/15, DURATION    00/00/02
BG 0001 1Q34I   BG WAITING FOR WORK
Z1 0089 0024: TCP911I Processing Event: EMAIL_L  Type: POWER Action:
Z1 0089 EMAIL
Z1 0089 0024: TCP907I Processing Output: TESTAEM ,01416-000 for
automated
Z1 0089 printing at:                               on: EMSCRIPT
Z1 0089 0024: TCP909I Processing Output: TESTAEM ,01416-000 has
completed
```

Email...



- Availability
 - TCP/IP 1.4.0
 - Documentation in 1.4.0A manuals
- Many enhancements in 1.4 service packs
 - More email attachment options
 - New EMAIL command
 - Additional SET options

Email...



- New Email attachment options (1.4.B)
 - Text to PDF conversion
 - Invoked by SET command
 - SET PDF=ON
 - SET PDF=pdf_configuration_file (.L library member)
 - Print format control (font, orientation, etc.)
 - Also supported for LPR clients, FTP server and HTTP web server
 - Binary attachments
 - EXTTYPES.L file used to determine filetype

Email...



- New Email attachment options (1.4.B)...
 - HTML support
 - | File sent with HTML mime type if first 6 bytes of data begin with <html>
 - Multiple attachments
 - | Can be different types with 1.4.D

Email...

Email Client Attachment Example

```
// JOB EMAIL3
// EXEC CLIENT,SIZE=CLIENT,PARM='APPL=EMAIL'
SET HOST=MAILSERV
SET FROM=Class240
SET TO=jlawson@intelliware.com
SET SUBJECT=Attached are some sample files
TEXT
Here are examples of multiple attachments and a PDF attachment.
/+
SET PDF=ON
ATTACH POWER.LST.A.PROGRAM.138 PROGRAM.PDF
SET PDF=OFF
ATTACH POWER.LST.A.DFHDMPA.139 AS DUMP139.TXT
SEND
/*
/ &
```

Email...

- New Email Command (1.4.B)
 - Provides defaults for email client and email script SET commands
 - QUERY EMAIL to display current settings

		Default for
EMAIL	SMTP=servername	SET HOST
	FROM=useremail	SET FROM
	USER=userid	SET USER
	SUBJECT=string	SET SUBJECT
	TRUNC=YES NO	SET TRUNCATE
	TRANS=translatetable	SET TRANSLATE
	DEST=domain.name	SET TO for autoemail script
	RPORT=nnnnn	SET RPORT
	REPLYTO=replyemail	SET REPLYTO (1.4.D)
	ATSIGN=hexvalue	code used for @ (1.4.C)

Email...



■ New SET Options (1.4.B)

- SET BCC synonym for SET BLIND

- Distribution lists

 - | SET TOLIST=list (list is .L library member)

 - | SET COPYLIST=list

 - | SET BCCLIST=list

```
CATALOG LIST1.L REPLACE=Y EOD=/+  
"John"<jlawson@intelliware.com>  
"Justin"<jmcmurry@intelliware.com>  
"Robert"<rhedgpeth@intelliware.com>  
/+
```

Email...



- New SET Options (1.4.B)...
 - SET NEWNAME=name
 - | Provides name for attachment in autoemail script
 - SET RPORT=portnumber
 - | Port number for SMTP server
 - SET TRUNCATION=ON|OFF
 - | Controls truncation of records with trailing blanks or nulls in attachments

Email...



- New SET Options (1.4.B)...
 - Variable support for email clients
 - Same SETVAR parameters used in AutoFTP

```
CATALOG EMSRIPT.L      R=Y
SET HOST=192.168.155.98
SET FROM=Class240
SET TO=&POWUSER@intelliware.com
SET SUBJECT=Attached is a printout from VSE/POWER
SETVAR &NAME=&PWRNAME + ".TXT"
SET NEWNAME=&NAME
/+
```

Email...



- New SET Options (1.4.D)
 - SET VCARD=NO|YES|name
 - | Virtual business card attachment
 - | DEFAULT.VCF used if YES specified
 - | Create on PC and FTP to VSE library as binary object
 - SET VALIDATE=ON|OFF
 - | Removes binary bytes from text file attachments

Email...



- New SET Options (1.4.D)...
 - SET PRIORITY=1-5|term
 - | For email clients that show email priority
 - | Term can be LOWEST, LOW, MEDIUM, HIGH, HIGHEST
 - SET NOTIFY=emailaddress
 - | Email address to notify when recipient reads email
 - SET REPLYTO= and SET REPLYTOLIST=
 - | Email address or email list for sending email reply

Other Clients and Daemons

- Network Time Protocol Daemon (NTPD)
 - Allows other hosts to synchronize with the VSE TOD clock

```
DEFINE NTPD, ID=name
    [, PORT=port]
    [, PROTOCOL={UDP | TCP}
    [, GMT=snum]
    [, ADJUSTMENT=snum1]
```

- Requires client on other hosts
 - *Tardis* is one

Other Clients and Daemons...

■ Discover Client

- Determines optimum MTU size between VSE and each remote host
- CICS, console, and batch
- You must set MTU size to maximum before running this client
- CICS transaction and VSE console:

```
DISCOVER [ipaddr|name]
```

Other Clients and Daemons...

DISCOVER on VSE console

```
87 discover 192.168.155.107
Z1 0082 TCP910I Client manager connection Established.
Z1 0082 TCP915I DISCOVER
Z1 0082 TCP910I DISCOVER Ready:
Z1 0082 TCP915I SET HOST= 192.168.155.107
Z1 0082 TCP910I 192.168.155.107
Z1 0082 TCP910I DISCOVER Ready:
Z1 0082 TCP915I DISCOVER
Z1 0082 TCP910I The best MTU discovered: 01480.
Z1 0082 TCP910I DISCOVER Ready:
Z1 0082 TCP915I QUIT
```

Other Clients and Daemons...

■ Traceroute Client

- Reports each hop to the destination and time for each hop
- CICS, console, and batch
- CICS transaction and VSE console:

```
TRACERT [ipaddr | name]
```

Other Clients and Daemons...

TRACERT on VSE console

```
87  tracert 206.171.236.253
Z1  0082  TCP910I  Client manager connection Established.
Z1  0082  TCP915I  TRACERT
Z1  0082  TCP910I  TRACERT Ready:
Z1  0082  TCP910I  TRACERT Ready:
Z1  0082  TCP915I  SET HOST= 206.171.236.253
Z1  0082  TCP910I  206.171.236.253
Z1  0082  TCP910I  TRACERT Ready:
Z1  0082  TCP915I  TRACERT
Z1  0082  TCP910I  Hop: 204.155.155.097 at milliseconds: 00196.
Z1  0082  TCP910I  Hop: 198.175.015.026 at milliseconds: 00084.
Z1  0082  TCP910I  Hop: 198.175.015.001 at milliseconds: 00082.
Z1  0082  TCP910I  Hop: 063.237.096.033 at milliseconds: 00082.
Z1  0082  TCP910I  Hop: 205.171.023.061 at milliseconds: 00089.
.
.
Z1  0082  TCP910I  Hop: 216.070.140.234 at milliseconds: 00109.
Z1  0082  TCP910I  Hop: 206.171.236.250 at milliseconds: 00132.
Z1  0082  TCP910I  TRACERT was successful, milliseconds: 00155.
Z1  0082  TCP910I  TRACERT Ready:
Z1  0082  TCP915I  QUIT
```

Other Clients and Daemons...

- Remote Execution Client (REXEC)
 - Issue command(s) to foreign TCP/IP hosts
 - Requires REXEC daemon on foreign hosts
 - Batch and CICS

```
// JOB REXEC
// EXEC CLIENT, PARM='APPL=REXEC, ID=00'
SET HOST=host_name
SET USER=name
SET PASS=password
COMMAND command
WAIT 300                                (1.4.D)
COMMAND command
QUIT
/*
/ &
```

Other Clients and Daemons...

- External FTP Batch Daemon (1.4.B)
 - VSE TCPIP File Server in batch partition
 - Can remove some/all DEFINE FTPD entries
 - FTP processing for remote FTP requests done in lower priority batch partition(s)

```
* $$ JOB JNM=FTPBATSR,DISP=K,CLASS=Z
// JOB FTPBATSR EXECUTE TCPIP FTPBATCH SERVER
// LIBDEF *,SEARCH=(TCPIP.TCP140B,TCPIP.TCP140)
// OPTION SYSPARM='00'
// EXEC FTPBATCH,SIZE=FTPBATCH,PARM='FTPDPORT=21'
/*
/ &
* $$ EOJ
```


Other Clients and Daemons...

- External FTP Batch Daemon (1.4.D)...
 - Supports file transfer to/from VSE dataspace
 - Dataspace size defined in 4K page multiples

```
* $$ JOB JNM=FTPBATSR,DISP=K,CLASS=Z
// JOB FTPBATSR EXECUTE TCPIP FTPBATCH SERVER
// LIBDEF *,SEARCH=(TCPIP.TCP140D,TCPIP.TCP140)
// OPTION SYSPARM='00'
// EXEC FTPBATCH,SIZE=FTPBATCH,PARM='FTPDPORT=3121'
DEFINE DSPACE RAW FTPDSPAC 2000
/*
/ &
* $$ EOJ
```

Other Clients and Daemons...

External FTPBATCH using Dataspace

```
// JOB  FTPJOB  EXAMPLE TCPIP BATCH FILE TRANSFER JOB
// LIBDEF *,SEARCH=(TCPIP.TCP140D,TCPIP.TCP140)
// DLBL VSMFILE,'TEST.FTP.FILE',,VSAM,CAT=USERCAT
// EXEC FTPBATCH,SIZE=FTPBATCH
* Step one - send file to VSE dataspace
LOPEN
LUSER vseuser
LPASS vsepasp
OPEN 192.155.152.173 3121
USER vseuser
PASS vsepasp
ASCII
QUOTE TYPE I
PUT %VSMFILE,KSDS,F,80 %FTPDSPAC,DSPACE,RAW,TESTFILE
CLOSE
LCLOSE
•End of transfer
TIMEWAIT 3          wait a few seconds
```

Other Clients and Daemons...

External FTPBATCH using Dataspace

```
* Step two - send file from dataspace to remote server
LOPEN 192.155.152.173 3121
LUSER vseuser
LPASS vsepasp
OPEN NTSERVER
USER ntuser
PASS ntpass
BINARY
PUT %FTPDPAC,DSPACE,RAW,TESTFILE TESTFILE.TXT
CLOSE
LCLOSE
/*
/ &
```

Other Clients and Daemons...

■ WHOIS Client (1.4.D)

```
* $$ JOB JNM=WHOIS,DISP=D,CLASS=0
// JOB WHOIS EXECUTE TCPIP WHOIS CLIENT
// LIBDEF *,SEARCH=(TCPIP.TCP140D,TCPIP.TCP140)
// EXEC CLIENT,PARM='APPL=WHOIS'
WHOIS TCPIP4VSE.COM
QUIT
/*
/&
* $$ EOJ
```

- Needs DNS server or name to resolve Internic address

Other Enhancements



- Multi-threaded AutoLPR, AutoFTP and AutoEmail (1.4.B)
 - Concurrent event processing
 - Control parameters
 - | SET MAX_EVENTS=5
 - maximum number of concurrent events
 - | SET SINGLEDEST=ON|OFF
 - One or multiple outputs to one destination at a time
 - | DEFINE EVENT RETRY count and RETRY_TIME apply to single event

Other Enhancements...



- VSE FTP Server welcome message (1.4.C)
 - DEFINE FTPD,WELCOME=FTPHELLO
 - Welcome message defined in .L library member
 - Welcome text in columns 5 – 72
- KSDS file transfers by keyrange (1.4.D)
 - SITE LOWKEY specifies starting key
 - SITE HIGHKEY specifies ending key
 - Key values can be generic or full key

Other Enhancements...



- Wait and retry options for FTPBATCH (1.4.D)
 - TIMEWAIT nnn
 - | Waits nnn seconds
 - SET RETRY nnn ttt
 - | Retries failed command nnn times every ttt seconds
- FTPBATCH diagnose support (1.4.D)
 - SET DIAGNOSE EVENTS in FTPBATCH job

Other Enhancements...

- Change directory support for ICCF library (1.4.C)
 - Does not support directory list (DIR)

```
CD ICCF.LIBRARY.10  
GET IPINIT00 IPINIT00.TXT
```


Other Enhancements...

■ CHECKTCP Utility

- Checks if TCPIP partition is running

```
* $$ JOB JNM=CHECKTCP,DISP=D,CLASS=0
// JOB CHECKTCP
// EXEC CHECKTCP,PARM='SYSID=00,WAIT=N'
/*
/&
* $$ EOJ
```

```
BG 0000 // JOB CHECKTCP
          DATE 07/14/2000, CLOCK 11/11/22
BG 0000 CTCPO2I  TCP/IP is currently active in Z1
BG 0000 EOJ CHECKTCP  MAX.RETURN CODE=0000
          DATE 07/14/2000, CLOCK 11/11/23, DURATION 00/00/00
```

Recommendations...



- Run in partition with 31-bit GETVIS
 - More 31-bit exploitation in 1.4 and later
 - 20 MB +
 - Use GETVIS partid,ALL to check VS usage
- Partition priorities w/Telnet (hi to low)
 - POWER, VTAM, TCP/IP, CICS(s), batch
 - Use FTPBATCH for host-initiated FTP or as host FTP server

Recommendations...



- Don't let TCP/IP partition see more network traffic than it needs to
 - Specify VSE's IP address in OSA and 3172 configurations
 - Filter non-IP traffic if the network attachment supports the option
 - Isolate VSE on its own LAN segment

Recommendations...



- SET GATEWAY=OFF if possible
 - Saves unnecessary scan of routing table
- Use POOL=NO on TELNET definitions
 - Costs more 31-bit partition GETVIS
- Use FTPBATCH for VSE batch FTP clients
 - Moves file I/O and FTP processing to lower priority batch partition

Recommendations...

- For debugging use the DIAGNOSE command
 - Particularly useful for diagnosing LPR, AFTP, and AutoEmail problems

```
DIAGNOSE { OFF|LPR|802.3|802.5|STALL|AFTP|SAM|
           FTP|FILEIO|STORAGE|RESET|DNC|HTTP|
           FDDI|PERFORM|POWER|ROUTING|SWS|CONT|
           CAFFTP|CLOSE|EMAIL }
```

- SET DIAGNOSE=value also accepted

Recommendations...

TCP/IP Statistics

```
91 q statistics
Z1 0089 IPN515I (( TCP/IP Operational Statistics ))
Z1 0089 IPN516I FTP Daemons = 5
Z1 0089 IPN516I - Current Active = 0
Z1 0089 IPN516I - Maximum Active = 1
Z1 0089 IPN516I - Current Buffers = 0
Z1 0089 IPN516I - Maximum Active Buffers = 1
Z1 0089 IPN516I Telnet Daemons = 10
Z1 0089 IPN516I - Current Active = 3
Z1 0089 IPN516I - Maximum Active = 4
Z1 0089 IPN516I - Current Buffers = 0
Z1 0089 IPN516I - Maximum Active Buffers = 0
Z1 0089 IPN516I LP Daemons = 5
Z1 0089 IPN516I HTTP Daemons = 2
```

Recommendations...

TCP/IP Statistics...

Z1	0089	IPN516I	Gopher Daemons	=	0
Z1	0089	IPN516I	FTP Sessions	=	5
Z1	0089	IPN516I	Telnet Sessions	=	3
Z1	0089	IPN516I	LPR Requests	=	0
Z1	0089	IPN516I	HTTP Requests	=	0
Z1	0089	IPN516I	Gopher Requests	=	0
Z1	0089	IPN516I	TCP Inbound Rejections	=	29
Z1	0089	IPN516I	FTP Files Sent	=	3
Z1	0089	IPN516I	FTP Files Received	=	0
Z1	0089	IPN516I	FTP File Bytes Sent	=	43296
Z1	0089	IPN516I	FTP File Bytes Received	=	0
Z1	0089	IPN516I	Telnet Bytes Sent	=	1899256
Z1	0089	IPN516I	Telnet Bytes Received	=	29911
Z1	0089	IPN516I	TCP Bytes Sent	=	2467631

Recommendations...

TCP/IP Statistics...

Z1	0089	IPN516I	TCP Bytes Received	=	31820
Z1	0089	IPN516I	UDP Bytes Sent	=	0
Z1	0089	IPN516I	UDP Bytes Received	=	0
Z1	0089	IPN516I	IP Bytes Sent	=	2786082
Z1	0089	IPN516I	IP Bytes Received	=	298376
Z1	0089	IPN516I	Storage Cushon Releases	=	0
Z1	0089	IPN516I	Received Blocks	=	0
Z1	0089	IPN516I	- Inbound Datagrams	=	0
Z1	0089	IPN516I	- Non-IP	=	0
Z1	0089	IPN516I	- Miss Routed IP	=	29
Z1	0089	IPN516I	- Arps	=	0
Z1	0089	IPN516I	- Arp Requests	=	0
Z1	0089	IPN516I	Transmitted Blocks	=	0
Z1	0089	IPN516I	- Outbound Datagrams	=	0
Z1	0089	IPN516I	- Arp Requests	=	0
Z1	0089	IPN516I	- Arp Replies	=	0


Recommendations...



- Key statistics to look at
 - Maximum active buffers vs. allocated
 - | FTP and Telnet
 - Non-IP and Miss-routed-IP datagrams
 - | Set filtering on in adapter (if available)
 - ARPS/ARP requests
 - | ARP_TIME set too low
 - Only if ARPDELETE ON active (default is OFF)
 - | Malfunctioning workstation/server on LAN
 - Use QUERY ARPS command to see who it is

Recommendations...



- Remove from IPINIT all SET commands for time values 
 - Product defaults have been updated
- Use QUERY SET command to see exactly which options you are running with
 - QUERY OPTIONS is identical

Recommendations...

QUERY SET Output

```
q set
0085 IPN451I (( TCP/IP Set Information ))
0085 IPN452I  System ID: 00
0085 IPN453I  IP Address: 204.155.155.115  Submask: 255.255.255.224
0085 IPN454I  All Bound Time: 30000  Link Retry Time: 18000
0085 IPN455I  Redispatch Time: 10  Dispatch Time: 30
0085 IPN456I  Retransmit Time: 100  Window: 4096
0085 IPN457I  Transfer Buffers: 20  Maximum Buffers: 4
0085 IPN518I  Receive MSS: 32684
0085 IPN458I  Console Hold: OFF  Debug: OFF  Record: OFF
0085 IPN459I  Gateway: OFF  Isolation: OFF  Security: ON
0085 IPN804I  Telnet translation will use System Default
0085 IPN806I  Checksum: Software Connect_Sequence: OFF
0085 IPN806I  Downcheck: OFF  Dynamic_Route: ON
0085 IPN806I  Fixed_Retransmit: OFF  Full_CETI: ON
0085 IPN806I  Full_Critical: OFF  Local_DLBL: ON
```

Recommendations...

QUERY SET Output

```
0085 IPN806I Match_Message: ON Ping_Message: ON
0085 IPN806I Reuse: ON Security_ARP: OFF
0085 IPN806I Security_IP: OFF Separator_Pages: OFF
0085 IPN806I SDOpen_Extra: OFF Spincheck: ON
0085 IPN806I Sockcheck: ON Upcase: OFF
0085 IPN806I Traffic: ON
0085 IPN806I ARPdelete: OFF ARP_Time: 90000
0085 IPN806I Auto_time: 9000 Pulse_Time: 18000
0085 IPN806I Console_Port: 0
0085 IPN806I Additional_Window: 100 Reuse_Size: 10
0085 IPN806I Window_Restart: 10 Window_Depth: 30
0085 IPN806I Slow_Start: 10 Slow_Restart: 10
0085 IPN806I Slow_Increment: 1
0085 IPN806I Default_Domain:
0085 IPN806I Close Connection Depth: 10 Separator Page Count: 0
0085 IPN806I FTPBATCH_Fetch: off
0085 IPN806I Subtask_OPEN: off
```

Information Sources



- There is `Great` how-to information available
 - TCP/IP redbook SG24-5626 `Getting Started with TCP/IP for VSE/ESA 1.4`
 - Updated by `you-know-who`
 - TCP/IP for VSE/ESA Under the Covers class (A3750)