VIRTEL Connectivity

User's Guide

Version : 4.54

Release Date : 05 Mar 2015

Publication Date : 03/06/2015

Syspertec Communication

196, Bureaux de la Colline 92213 Saint-Cloud Cedex

Tél. : +33 (0)1 46 02 60 42

www.syspertec.com

NOTICE

Table of contents

1. Introduction

1.1. Configuration Elements

The VIRTEL configuration is stored in a VSAM file called the “ARBO file” (VIRARBO). The ARBO file contains various types of elements, which are described in this chapter:

- **Lines**, which represent connections between VIRTEL and other network entities
- **Rules**, which are applied to incoming calls in order to establish the appropriate entry point for the call
- **Entry points**, which define how the call is processed by VIRTEL and contain a list of transactions available to the incoming call
- **Transactions**, which define VTAM applications or external servers which process incoming calls
- **Terminals**, which represent the virtual circuits through which calls flow between VIRTEL and its partners
- **External servers**, which define the connection parameters used by VIRTEL to connect outgoing calls to other network entities

1.2. Accessing The Application

The VIRTEL system administrator uses a set of programs called sub-applications to display and update the various elements in the VIRTEL configuration. The sub-applications are invoked via the Configuration Menu or the Sub-Application Menu. The Configuration Menu, introduced in VIRTEL version 4.27, provides access to the most commonly-used sub-applications required for VIRTEL Web Access and XOT. It is invoked from the VIRTEL Multi-Session menu via a transaction which calls module VIR0022. The Sub-Application Menu, invoked from the Configuration Menu, gives access to all of the sub-applications, including those rarely used today.

If you log on to VIRTEL in 3270 mode using the default entry point (“PC”), the VIRTEL Multi-Session menu offers the choice F1 – Admin to invoke the Configuration Menu.

The first screen you will see is the Multi-Session menu:

```
PC              S Y S P E R T E C   C O M M U N I C A T I O N        15:32:13
 VIRDBA                 VIRTEL z/OS Demonstration System              LCL717


            F1    Admin      Sub-application management

            F2    Lines      Line management

            F3    Entry      Entry point management
```

```
            F4    Servers    External server management

            F5    Call       Call external server

            F6    Status     CVC status display

            F7    Logoff     Disconnect from Virtel


 ENTER  = Next session       PA1 = Sign on     PA2 = Sub-menu
 P24 = Return to this menu from a session      VIRTEL   4.29  Applid = SPVIRH1
 ===>
 ADMINISTRATEUR             PREVIOUS CONNECTION  : 26/11/04  14:45:41  LCL717
```

The VIRTEL Multi-Session menu

Press [F1] to display the Configuration Menu:

```
Configuration Menu -------------------------------- Applid: SPVIRH1  15:34:32


                F1     Lines
                F2     Terminals
                F3     Entry Points
                F4     Security
                F5     Correspondents
                F6     Directories
                F7     External servers
                F8     Lines Overview
                F9     Lines Status

                PA2    More sub-applications
                CLEAR  Return
```

Configuration Menu

To invoke a sub-application, press one of the function keys shown in the menu (for example, F1 – Lines). To exit from the Configuration Menu and return to the Multi-Session menu, press CLEAR.

You can optionally display the Sub-Application Menu by pressing [PA2]:

```
SUB-APPLICATION Menu ------------------------------ Applid: SPVIRH1  15:37:39


                F1     State of a Terminal
                F2     Compression Statistics
                F3     Global Statistics
                F4     Memory Block Usage
                F5     Terminal Definition
                F6     VTAM Network
                F7     Videotex Definitions
                F8     Security Management
                F9     Application Definition
                F10    Virtual Circuit Usage
                F11    External Server Definition
                F12    Intelligent Terminal Control
                F13    Entry Point Definition
                F14    Line Definition
                F15    Connection summary
                CLEAR  Return
```

Sub-Application Menu

To invoke a sub-application, press one of the function keys shown in the menu (for example, F7 – Videotex Definitions). To exit from the Sub-Application Menu and return to the Configuration Menu, press CLEAR or PA2.

1.3. Sub-application Operation

The sub-applications have certain common operational characteristics:

- Most of the sub-applications start by displaying a list of the elements currently defined in the configuration file.
- To scroll up or down the list, press [F7] or [F8].
- To find an element in the list, overtype the name of the first element displayed with the first few characters of the element name you are looking for, then press [ENTER].
- To display the detail screen for a particular element, place the cursor on the element name in the list and press [F12].
- To alter the definition of an element, type the desired changes into the appropriate fields in the list and press [F1]. VIRTEL recognizes the changes only when you press [F1]. If you change a transaction you must also press [F1] on the entry point that the transaction belongs to.
- To delete an element, place the cursor on the element name in the list and press [F2]. Then press [F2] again to confirm the deletion.
- To create a new element, place the cursor on a part of the screen outside the list, and press [F12]. A detail screen will be displayed with all fields blank. Fill in the fields and press [ENTER].
- To copy an existing element, first press [F12] to display the detail screen for the existing element, then overtype the element name with the desired name of the new element, and press [ENTER].
- To rename an element, first copy it to a new element as above, then delete the old element.

2. Lines

2.1. Introduction

The “Line” is one of the basic elements of the VIRTEL configuration. A line represents a connection between VIRTEL and another network element: an NPSI MCH, an X25 router, an X25 application (GATE, PCNE), a CICS system, a VIRNT server, an SMTP server; alternatively, a line can represent a VIRTEL server (HTTP, SMTP) listening on a TCP/IP port.

This chapter describes all the functions associated with the definition of lines. A detailed example will be presented later in this chapter for each type of line.

2.1.1. Access to the application

The Line Management sub-application is invoked by pressing [PF1] in the Configuration Menu, by pressing [PF14] in the Sub-Application Menu, or via the Multi-Session Menu using a transaction which calls module VIR0046. This sub-application allows the management of all the line parameters under VIRTEL control.

2.1.2. Security

When the security subsystem is active, access to Line Management sub-application from the Configuration Menu or the Sub-Application Menu is controlled by the resource $$LINE$$.

When accessed by a transaction, normal transaction security rules will apply.

Security management is described in chapter 8 of the VIRTEL Installation Guide.

2.1.3. Objectives

This sub-application facilitates the definition of X25 and Reverse X25 lines, APPC connections, and TCP/IP lines. When the sub-application is started, it first displays a summary of existing definitions in alphanumeric order.

2.2. Summary Of Existing Definitions

The first screen shows a summay of existing line definitions in alphanumeric order:

```
LIST of SYSTEM LINES ------------------------------ Applid: SPVIRH1  16:55:22

 Internal External Description                          Rules    Prefix   Type
 Name     Name
 C-HTTP   HTTP-CLI HTTP line (entry point CLIWHOST)     C-HTTP   CL       TCP1
 H-HTTP   HTTP-LIG HTTP line (entry point DEMOHTTP)     H-HTTP   HT       TCP1
 P-CFT1   PCNECFT1 AntiPCNE connection to CFT2ACB1      P-CFT1   PCN1     /PCNE
 P-CFT2   PCNECFT2 AntiPCNE connection to CFT2ACB2      P-CFT2   PCN2     /PCNE
 P-PEL3   STARTERP AntiPCNE connection to PELSIT        P-PEL3   PCN3     /PCNE
 P-PEL4   STARTERH AntiPCNE connection to PELHS         P-PEL4   PCN4     /PCNE
 S-SMTP   SMTP-LIG client.com<virtel@client.com>        S-SMTP   SM       TCP1
 W-HTTP   HTTP-W2H HTTP line (entry point WEB2HOST)     W-HTTP   DE       TCP1
 X-AGCFT  ANTIGATE Liaison AntiGATE avec CFT            X-AGCFT  AG21     /GATE
 Y-AGPEL  ANTIGAT2 Liaison AntiGATE avec PEL            Y-AGPEL  AG22     /GATE
 1-X25F   X25F-MCH X25 Fast Connect line                1-X25F   X25F     FASTC
 2-X25G   X25G-MCH X25 Gate General (NON Fast Connect   2-X25G   X25G     GATE
 4-XOT    XOT-LIG  Cisco router                         4-XOT    XOTF     TCP1
 5-CICS   CICS-LIA LU 6.2 connection with CICS          5-CICS             APPC2
 6-NTTCP  NTTCP-LI VIRNT via TCP/IP                     6-NTTCP  NTTC     TCP1


 P1=Update            P2=Delete            P3=Return            P4=Terminals
 P6=First page        P7=Previous          P8=Next              P12=Edit
```

Summary of existing lines

2.2.1. Associated functions

2.2.1.1. Positioning the list

In browse, alter, or delete mode, it is possible to scroll the list of lines under the control of VIRTEL.

Search

Type the name (or partial name) of the required entity on the first line under the heading “Internal Name”, then press [Enter].

[PF6]

Return to the first page of the list.

[PF7]

Display the previous page.

[PF8]

Display the next page.

2.2.1.2. Modifying a line

Type the desired modifications into the appropriate fields then press [PF1]. Multiple definitions can be modified at the same time. If the modification affects a field not displayed on the summary screen, first position the cursor on the definition concerned, then press [PF12] to access the definition detail screen.

Modifications are not recognized until you press the [PF1] key. Certain modifications require a restart of the VIRTEL system.

2.2.1.3. Deleting a line

Position the cursor under the name of the entity to be deleted, then press [PF2]. The line associated with the entity to be deleted then appears highlighted, accompanied by the message CONFIRM DELETE. Then press [PF2] again to confirm deletion. The message DELETE OK confirms successful completion of the operation. Repeat the procedure for each entity to be deleted.

2.2.1.4. Adding a line

To add a new definition, press [PF12] at the summary screen, either with the cursor on an existing definition to copy its attributes, or on an empty line to create a new definition from a blank screen.

2.3. Parameters Of The Line

Pressing [PF12] at the line summary screen displays the line detail definition screen. This sub-application allows the definition of the various parameters for each type of line.

```
LINE DETAIL DEFINITION ---------------------------- Applid: SPVIRH1  17:05:32

Internal name ===>                       1st character is line code
External name ===>                       External entity name
Remote ident  ===>                       Remote VTAM LU or TCP/IP address
Local ident   ===>                       Local VTAM LU or TCP/IP address
Description   ===>
Prefix        ===>                       Prefix for terminals
Pool          ===>                       Pool for terminals
Pool          ===>                       Pool for terminals
Entry Point   ===>                       Default Entry Point on this line
Rule Set      ===>                       Rules to choose an entry point
Line type     ===>                       Eg: TCP1 MQ1 XM1 BATCH1 APPC2 ...
Possible calls            ===>           0=None 1=Inbound 2=Outbound 3=I & O
Startup prerequisite      ===>
Protocol program          ===>           Dialog manager
Security program          ===>           Non standard security
Time out  ===>         Action  ===>      Action if t/o:  0=none 1=keepalive
Window    ===>         Packet  ===>      eventual protocol parameters
Pad       ===>         Tran    ===>      PAD=INTEG/TRANSP/NO, TRAN=EVEN/ODD/NO
Retries   ===>         Delay   ===>      Retries for linked to terminals

P1=Update                          P3=Return                  P4=Terminals
Enter=Add                                                     P5=Rules
```

Line detail definition screen

2.3.1. Contents of each field

Internal name

> Internal name of the line. This is the name by which VIRTEL refers to the line internally. It must be unique within a VIRTEL instance.

External name

> External name of the line. This name appears in certain console messages. It can be used, for example, to display the real name of the line or link.

Remote ident

> This field contains the name or address of the remote partner. Usage depends on the line type and protocol. The contents of this field are described for each line type in the detailed examples which follow.

Local ident

This field contains the name or address used by VIRTEL. Usage depends on the line type and protocol. The contents of this field are described for each line type in the detailed examples which follow.

For an IP connection, this field represents the listening port opened by VIRTEL. The port can be specified in any of the following forms:

: pppp

VIRTEL opens port pppp on the default home IP address of the host TCP/IP. For example, :2048

nnn.nnn.nnn.nnn: pppp

VIRTEL opens port pppp on the indicated IP address. nnn.nnn.nnn.nnn must be a valid HOME address defined in the host TCP/IP. For example, 192.168.0.100:2048

0: pppp

VIRTEL opens port pppp without associating itself with a particular IP address. VIRTEL can receive calls on any HOME address defined in the host TCP/IP. For example, 0:2048 (or 0.0.0.0:2048)

The combination of IP address and port number must be unique. No two VIRTEL can contain a TCP/IP line with the same IP address and port number, except that:

- multiple VIRTELs can use a single distributed VIPA address, provided that the address is defined with a non-zero value for the TIMEDAFFINITY parameter.
- multiple XOT lines within a single VIRTEL can listen on the same IP address and port number, providing that this same address and port number are not used by another VIRTEL.

Note that the use of port numbers less than 1024 may require authorization in the profile of the TCP/IP stack (see for example the RESTRICTLOWPORTS, PORT, and PORTRANGE parameters of the z/OS Communications Server). In general, port numbers 1024 and above do not require authorization.

Description

Free-form description with no particular significance or syntax requirement, except for SMTP lines (see the detailed example of an SMTP line which follows).

Prefix

Terminal prefix associated with the line. As a general rule, the terminal prefix is a required field. It allows VIRTEL to associate a series of terminals to a line. Two lines cannot share the same group of terminals. The particular details of this field are described for each line type in the detailed examples which follow.

Pool

The name of a logical pool of terminals associated with the line. This pool is used for HTTP connections without predefined terminals (see “HTTP connections with non-predefined LU names”, page 20). In all other cases this field can be left blank.

Entry Point

Defines the default entry point used by the line. This is a required field for HTTP and SMTP lines. It is optional in all other cases. Entry point management is described in section 1.4.

Rule Set

The name of the rule set used by this line. The same rule set can be used by more than one line. If this field is blank, no rules are used. Rules are described in detail in section .

For compatability with VIRTEL versions prior to 4.26, the rule set name is usually the same as the internal name of the line.

Line type

Defines the category to which the line belongs. VIRTEL supports the following categories of lines:

X25 lines

represented by the values GATE or FASTC

Support for this type of line is governed by the presence of the parameters MINITEL=YES, GATE=GENERAL and possibly FASTC=YES in the VIRTCT.

Reverse-X25 lines

represented by the values /GATE, /FASTC, or /PCNE

Support for this type of line does not require any special parameters in the VIRTCT.

APPC lines

represented by the values APPC1 or APPC2

APPC1 represents a link with a BATCH environment

APPC2 represents all other types of APPC link with partners such as CICS or NT.

Support for this type of line does not require any special parameters in the VIRTCT.

TCP/IP lines

represented by the values TCP1 or TCP2

Support for this type of line is governed by the presence of the parameter TCP1 or TCP2 in the VIRTCT.

Used for HTTP, SMTP, ICONNECT, XOT, NATIVE, VIRPESIT, VIRNEOX, or VIRPASS TCP lines.

Cross-memory lines

represented by the values XM1 or XM2

Support for this type of line is governed by the presence of the parameter XM1 or XM2 in the VIRTCT.

Used for VIRPASS XM lines.

MQSeries lines

represented by the values MQ1 or MQ2

Support for this type of line is governed by the presence of the parameter MQ1 or MQ2 in the VIRTCT.

Batch lines

represented by the values BATCH1 or BATCH2

Support for this type of line is governed by the presence of the parameter BATCH1 or BATCH2 in the VIRTCT.

Possible calls

Determines which calls can be made on this line. Since the line management interface is common to all types of lines, all values between 0 and 3 are accepted.

In addition to being used to authorize incoming, outgoing, or both incoming and outgoing calls, this parameter also has an effect during VIRTEL startup. Any line which has “Possible calls” set to 0 will not be activated at VIRTEL startup. Also note the“Possible calls” field in the definition of the associated terminals.

Startup prerequisite

Allows conditional startup of the line. If this field is blank, VIRTEL starts the line automatically at system startup.

WAIT-LINE(n-xxxxxx)

waits for line n-xxxxxx to start. The name specified can be either the internal or external name of the other line.

WAIT-MINUTES(nn)

waits nn minutes after system startup before starting this line.

WAIT-COMMAND

waits for a console command LINE=linename,START (see “List of commands” in the VIRTEL Audit And Performance Guide)

WAIT-PARTNER

waits until VIRTEL receives an SNA BIND command from its partner LU.

MIMIC-LINE(n-xxxxxx)

specifies that this line starts and stops in synchronisation with line n-xxxxxx. The name specified can be either the internal or external name of the other line.

Protocol program

Indicates the protocol used for a TCP, XM, or MQ type line.

The following values are valid for a TCP line:

HTTP or VIRHTTP

for an HTTP line

NATIVE2(P) or NATIVE4(P)

for a line in native TCP/IP mode

SMTP or VIRSMTP

for an SMTP line

ICONNECT

for a RESUME TPIPE connection with IMS Connect

VIRPASS

for a VIRPASS TCP connection with an VIRNT or VIRKIX system

VIRPESIT

for a TCP connection with a file transfer program such as CFT/IP

VIRNEOX

for a TCP connection with a remote program using the VIRNEOX protocol

XOT or VIRXOT

for an XOT line

The following values are valid for an XM line:

VIRPASS

for a VIRPASS XM connection with a VIRKIX system running on the same MVS

The following values are valid for an MQ line:

RAW

for communication via an MQSeries message queue

PREFIXED or PREFIX12

for communication via an MQSeries message queue. This is similar to the RAW protocol except that VIRTEL adds 12 bytes of additional context information for the application program.

PREFIX20

for communication via an MQSeries message queue. This is similar to the RAW protocol except that VIRTEL adds 20 bytes of additional context information for the application program.

This field must not be completed for lines whose type is APPC1, APPC2, GATE, FASTC, /GATE, /FASTC, or /PCNE.

Security program

Reserved for future use.

Time out

Inactivity time in seconds after which the action specified in the following field will be taken. The value 0 inhibits the time out.

Action if T/O

Action taken if a time out occurs.

0 = no action

1 = keepalive

KEEPALIVE

is a message sent by the TCP/IP stack, during periods of inactivity, to check whether the connection has been broken. The value 1 is thus only valid for lines of type TCP. After a certain number of KEEPALIVE messages have been sent without being acknowledged by the partner (the number is determined by the TCP/IP stack), the session will be considered unusable and the connection will be terminated.

OS/390 and z/OS

KEEPALIVE must also be activated in the PROFILE of the TCP/IP stack (refer to parameters KEEPALIVEOPTIONS or TCPCONFIG INTERVAL). For z/OS V1R7 and later, the time out value specified in the preceding field determines the interval between KEEPALIVE messages. If the time out value is zero then the default TCPCONFIG INTERVAL will be used. For OS/390 and z/OS prior to V1R7, the TCP/IP stack uses a single KEEPALIVE interval which applies to all sessions, and the time out value specified in the preceding field is ignored.

TCP/IP for VSE

KEEPALIVE is managed globally by the TCP/IP command SET PULSE_TIME, and the parameters “Time Out” and “Action=1” are ignored.

Window

Window size at the packet level. This parameter is meaningful only for X25 (GATE or FASTC) and XOT lines.

Must correspond with your X25 service provider subscription, or with the X25 switch parameters if this type of equipment is used.

Packet

Packet size. Usually 128. This parameter is meaningful only for X25 (GATE or FASTC) and XOT lines.

Must correspond with your TRANSPAC subscription, or with the X25 switch parameters if this type of equipment is used.

Replaces the PACKET global parameter in the VIRTCT for versions prior to 4.0.

Pad

This parameter is meaningful only for X25 GATE non Fast-Connect lines and AntiGATE lines.

INTEG

Data without X’00’ prefix

TRANSP

Data with prefix

NO

Data with prefix

Must correspond with the NPSI parameters, or with the X25 switch parameters if this type of equipment is used.

Tran

This parameter is meaningful only for Reverse-X25 AntiPCNE lines. Specifies whether EBCDIC/ASCII translation occurs.

EVEN

ASCII data from the network is translated to EBCDIC when presented to the application, and vice versa (Even Parity)

ODD

Ditto (Odd Parity)

NO

No ASCII/EBCDIC translation

Retries

Number of attempts to reacquire auto-activated terminals during VIRTEL startup. The delay between attempts is specified by the “Delay” parameter.

Delay

Interval in seconds between attempts to reacquire terminals. The default delay is 2 seconds.

2.4. Examples Of Line Definitions

2.4.1. Definition of an HTTP line

When an HTTP line is started, VIRTEL becomes an HTTP server, authorising connections from a web browser to applications at the host site. Activation of this type of line is subject to the presence of the TCP1 parameter in the VIRTCT, as well as to a definition providing linkage to a file containing the HTML pages.

```
LINE DETAIL DEFINITION ---------------------------- Applid: SPVIRH1  13:19:39

 Internal name ===> H-HTTP                1st character is line code
 External name ===> HTTP-LIG              External entity name
 Remote ident  ===>                       Remote VTAM LU or TCP/IP address
 Local ident   ===> :41000                Local VTAM LU or TCP/IP address
 Description   ===> HTTP line (entry point DEMOHTTP)
 Prefix        ===> HT                    Prefix for terminals
 Pool          ===>                       Pool for terminals
 Pool          ===>                       Pool for terminals
 Entry Point   ===> DEMOHTTP              Default Entry Point on this line
 Rule Set      ===> H-HTTP                Rules to choose an entry point
 Line type     ===> TCP1                  Eg: TCP1 MQ1 XM1 BATCH1 APPC2 ...
 Possible calls             ===> 1        0=None 1=Inbound 2=Outbound 3=I & O
 Startup prerequisite       ===>
 Protocol program           ===> VIRHTTP  Dialog manager
 Security program           ===>          Non standard security
 Time out  ===> 0000     Action  ===> 0    Action if t/o:  0=none 1=keepalive
 Window    ===> 0000     Packet  ===> 0000 eventual protocol parameters
 Pad       ===>          Tran    ===>      PAD=INTEG/TRANSP/NO, TRAN=EVEN/ODD/NO
 Retries   ===> 0010     Delay   ===>      Retries for linked to terminals

 P1=Update                          P3=Return                  P4=Terminals
 Enter=Add                                                     P5=Rules
```

Definition of an HTTP line

Remote ident

Always blank.

Local ident

This is the VIRTEL IP address and port number which browser users must specify in order to connect to VIRTEL. If the port number is omitted then the default is port 80. See the description of the “Local ident” field under the heading “Parameters of the line, page 11” for more details about how to code this field.

Prefix

Terminal name prefix (see below).

Entry Point

When defining an HTTP line, it is obligatory to define a default entry point. This entry point will be used for all incoming calls which do not match any of the rules of the line. The entry point contains a list of transactions, and

these transactions determine which directories are used to retrieve the HTML pages, and which 3270 applications are accessible to the user.

According to the type of application accessed, each transaction must refer to one of the terminal sub-groups associated with the HTTP line (see "HTTP terminals" below).

For type 1 (Application) transactions

The prefix will be that of the terminal sub-group with an associated relay.

For type 2 (Virtel) or type 4 (Page) transactions

The prefix will be that of the terminal sub-group without an associated relay.

For type 3 (Server) transactions

No terminal prefix is required.

Line type

One of the TCP/IP protocols defined in the VIRTCT, for example TCP1.

Possible calls

Specify 1 (incoming calls only) to indicate that this line represents a listening port where VIRTEL is acting as an HTTP server.

For the case where VIRTEL acts as an HTTP requester, refer to the following section "Definition of an outbound HTTP line", page 23.

Protocol

VIRHTTP or HTTP.

Window

Always 0.

Packet

Always 0.

Pad

Always blank.

Tran

Always blank.

2.4.1.1. HTTP terminals

An HTTP line uses two sub-groups of type-3 terminals having a common prefix (in this case HT). Each terminal in the first sub-group represents one session between the client browser and VIRTEL; no relay is configured for this sub-group. Each terminal in the second sub-group represents one session between VIRTEL and a host application; in this sub-group, either a relay must be configured for each terminal, or the sub-group must refer to a "logical pool of relays", page 118. Whichever method is chosen, each relay must be defined by an APPL statement in a VTAM node of type APPL. Either explicit or repeated terminal definitions may be used.

Press [PF4] at the HTTP line detail definition screen to display the list of associated terminals whose prefix matches the prefix specified in the line definition. If the terminals refer to a logical pool, the pool itself may have a different prefix and will therefore not be displayed. In this case you can press [PF2] at the Configuration Menu to display a list of all terminals.

The example below shows the terminals for two HTTP lines which share a logical pool of relays. This list was displayed by pressing [PF2] at the Configuration Menu. The terminals with prefix HT belong to line H-HTTP, while the terminals with prefix DE belong to line W-HTTP. For line H-HTTP, the first sub-group consists of terminals HTLOC000-015 without a relay. The second sub-group consists of terminals HTVTA000-015 which refer to a logical pool of relays named *W2HPOOL. For line W-HTTP, the first sub-group is DELOC000-015, and the second sub-group is DEVTA000-015 which also refers to the logical pool named *W2HPOOL. The logical pool itself consists of terminals W2HTP000-015 whose

relay LU names are RHTVT000-015. The logical pool also refers to a pool of associated printer LU's. The printers are defined with terminal names W2HIP000-015 and LU names RHTIP000-015. In each case, the terminal name is an internal name used only within VIRTEL, while the relay name is an LU name defined by a VTAM APPL statement. The relay LU name is the name by which the terminal is known to CICS or other VTAM applications.

```
LIST of TERMINALS --------------------------------- Applid: SPVIRH1  13:35:58

Terminal  Repeated Relay     Entry        Type   I/O  Pool     2nd Relay

DELOC000  0010                            3      3
DEVTA000  0016     *W2HPOOL               3      3
HTLOC000  0016                            3      3
HTVTA000  0016     *W2HPOOL               3      3
W2HIP000  0016     RHTIP000               P      1
W2HTP000  0016     RHTVT000               3      3    *W2HPOOL RHTIP000









P1=Update          P2=Delete              P3=Return           P6=1st Page
P7=Page-1          P8=Page+1              P12=Details
```

Definition of terminals associated with an HTTP line

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: SPVIRH1  13:54:50

Terminal           ===> HTLOC000       ?wxyZZZZ for dynamic allocation
                                       w : Sna or Non-sna or * (category)
                                       x : 1, 2, 3, 4, 5 or *  (model)
                                       y : Colour, Monochrome or *
                                       Z : any characters
Relay              ===>                Name seen by VTAM applications
                                       = : copied from the terminal name
*Pool name         ===>                Pool where to put this terminal
Description        ===> HTTP terminals (no relay)

Entry Point        ===>                Enforced Entry Point
2nd relay          ===>                Possible 2nd relay (Printer)
Terminal type      ===> 3              1=LU1  2=3270  3=FC P=Printer S=Scs
Compression        ===> 2              0, 1, 2 or 3 : compression type
Possible Calls     ===> 3              0=None  1=Inbound  2=Outbound  3=Both
Write Stats to     ===> 2              1,4,5,6=VIRSTAT 2=VIRLOG

Repeat             ===> 0016           Number of generated terminals

P1=Update                          P3=Return                      Enter=Add
                                                                  P12=Server
```

Definition of HTTP terminals without relay

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: SPVIRH1  13:55:25

Terminal           ===> HTVTA000       ?wxyZZZZ for dynamic allocation
                                       w : Sna or Non-sna or * (category)
                                       x : 1, 2, 3, 4, 5 or *  (model)
                                       y : Colour, Monochrome or *
                                       Z : any characters
Relay              ===> *W2HPOOL       Name seen by VTAM applications
                                       = : copied from the terminal name
*Pool name         ===>                Pool where to put this terminal
```

```
 Description        ===> HTTP terminals (with relay)

 Entry Point        ===>                Enforced Entry Point
 2nd relay          ===>                Possible 2nd relay (Printer)
 Terminal type      ===> 3              1=LU1  2=3270  3=FC P=Printer S=Scs
 Compression        ===> 2              0, 1, 2 or 3 : compression type
 Possible Calls     ===> 3              0=None  1=Inbound  2=Outbound  3=Both
 Write Stats to     ===> 2              1,4,5,6=VIRSTAT 2=VIRLOG

 Repeat             ===> 0016           Number of generated terminals

 P1=Update                          P3=Return                     Enter=Add
                                                                  P12=Server
```

Definition of HTTP terminals with relay

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: SPVIRH1  13:57:46

 Terminal           ===> W2HTP000       ?wxyZZZZ for dynamic allocation
                                        w : Sna or Non-sna or * (category)
                                        x : 1, 2, 3, 4, 5 or *  (model)
                                        y : Colour, Monochrome or *
                                        Z : any characters
 Relay              ===> RHTVT000       Name seen by VTAM applications
                                        = : copied from the terminal name
 *Pool name         ===> *W2HPOOL       Pool where to put this terminal
 Description        ===> Relay pool for HTTP

 Entry Point        ===>                Enforced Entry Point
 2nd relay          ===> RHTIP000       Possible 2nd relay (Printer)
 Terminal type      ===> 3              1=LU1  2=3270  3=FC P=Printer S=Scs
 Compression        ===> 2              0, 1, 2 or 3 : compression type
 Possible Calls     ===> 3              0=None  1=Inbound  2=Outbound  3=Both
 Write Stats to     ===>                1,4,5,6=VIRSTAT 2=VIRLOG

 Repeat             ===> 0016           Number of generated terminals

 P1=Update                          P3=Return                     Enter=Add
                                                                  P12=Server
```

Definition of logical pool of relays for HTTP

```
 TERMINAL DETAIL DEFINITION ------------------------ Applid: SPVIRH1  13:59:01

 Terminal           ===> W2HIP000       ?wxyZZZZ for dynamic allocation
                                        w : Sna or Non-sna or * (category)
                                        x : 1, 2, 3, 4, 5 or *  (model)
                                        y : Colour, Monochrome or *
                                        Z : any characters
 Relay              ===> RHTIP000       Name seen by VTAM applications
                                        = : copied from the terminal name
 *Pool name         ===>                Pool where to put this terminal
 Description        ===> HTTP printers

 Entry Point        ===>                Enforced Entry Point
 2nd relay          ===>                Possible 2nd relay (Printer)
 Terminal type      ===> P              1=LU1  2=3270  3=FC P=Printer S=Scs
 Compression        ===> 2              0, 1, 2 or 3 : compression type
 Possible Calls     ===> 1              0=None  1=Inbound  2=Outbound  3=Both
 Write Stats to     ===>                1,4,5,6=VIRSTAT 2=VIRLOG

 Repeat             ===> 0016           Number of generated terminals

 P1=Update                          P3=Return                     Enter=Add
                                                                  P12=Server
```

Definition of associated printer relays for HTTP

Refer to the VIRTEL Web Access Guide for further information about printers.

2.4.1.2. Selection of LU by rule

When the terminals attached to an HTTP line are defined with a logical pool of relays, it is possible to force the use of a particular LU or group of LU's for specific callers. This is done by coding the desired LU name, or alternatively an LU name prefix terminated by an asterisk, in the "Parameter" field of the rule which selects the incoming HTTP request. Alternatively, if the value URL is entered in the "Parameter" field of the rule, then the desired LU name will be taken from the userdata supplied in the caller's URL (see "VIRTEL URL formats: Dynamic pages" in the VIRTEL Web Access Guide).

The rules attached to the HTTP line allow the LU name to be selected according to the caller's IP address, by using the fields "IP Subnet" and "Mask" in the rule to match with an IP address or range of IP addresses. The rules associated with a user (see "Correspondent management" in the VIRTEL Web Access Guide) allow an LU name to be assigned to a user according to the user's e-mail address; in this case, the user is identified by a "Cookie" which the browser presents to VIRTEL with the HTTP request.

2.4.1.3. HTTP connections with non-predefined LU names

It is possible for an HTTP client to connect to VIRTEL with a parameter specifying an arbitrary VTAM LU name to be used as relay name for host applications. For this to work, four conditions must be fulfilled:

- the VTAM LU name should be specified in the connection URL. For example, if the desired LU name is RLHVT500:

```
http://n.n.n.n:41002/w2h/web2ajax.htm+IMS+ForceLUNAME=RLHVT500
```

- the VIRTEL transaction must specifiy $LINE$ in the "Pseudo-terminals" field instead of a terminal name prefix.
- the HTTP line must specify a pool name
- a terminal pool of the same name should be defined; only the pool is needed, not the predefined pseudo-terminals that are normaly defined alongside a pool. The terminal and printer pseudo-terminals will be automatically generated using the pool as a template together with the relay name specified in the ForceLUNAME parameter of the URL.

The ForceLUNAME=luname parameter in the URL is valid only for transactions which specify TERMINAL=$LINE$ when attached to a line which has an associated terminal pool.

An example of a line with non-predefined LU names is shown below.

2.4.1.3.1. Examples

In this example the transaction whose external name is IMS defined under entry point CLIWHOST. The terminal prefix in the transaction definition is $LINE$:

```
TRANSACTION DETAIL DEFINITION ---------------------- Applid: VIRTEL1A  9:27:39

 Internal name ===> CLI-14                To associate with an entry point name
 External name ===> IMS                   Name displayed on user menu
 Description   ===> Logon to IMS
 Application   ===> IMS3270                Application to be called
 PassTicket    ===> 0  Name ===>          0=no 1=yes 2=unsigned
 Application type   ===> 1                1=VTAM 2=VIRTEL 3=SERV 4=PAGE 5=LINE
 Pseudo-terminals   ===> $LINE$           Prefix of name of partner terminals
 Logmode            ===>                  Specify when LOGMODE must be changed
 How started        ===> 1                1=menu 2=sub-menu 3=auto
 Security           ===> 1                0=none 1=basic 2=NTLM 3=TLS 4=HTML
 H4W commands ?     ===>                  0=no 1=yes 2=if2VIRTEL 4=auto
 Logon message      ===>
```

```
 TIOA at logon      ===>

 TIOA at logoff     ===>

 Initial Scenario   ===>                  Final Scenario      ===>
 Input Scenario     ===>                  Output Scenario     ===>

 P1=Update                          P3=Return                       P12=Server
```

Transaction definition using non-predefined LU names

The definition of line C-HTTP on port 41002 specifies *MYPOOL as the line pool name:

```
LINE DETAIL DEFINITION ---------------------------- Applid: VIRTEL1A  9:31:01

 Internal name ===> C-HTTP                1st character is line code
 External name ===> HTTP-CLI              External entity name
 Remote ident  ===>                       Remote VTAM LU or TCP/IP address
 Local ident   ===> 192.168.170.15:41002  Local VTAM LU or TCP/IP address
 Description   ===> HTTP line (entry point CLIWHOST)
 Prefix        ===> CL                    Prefix for terminals
 Pool          ===> *MYPOOL               Pool for terminals
 Entry Point   ===> CLIWHOST              Default Entry Point on this line
 Rule Set      ===> C-HTTP                Rules to choose an entry point
 Line type     ===> TCP1                  eg: TCP1 MQ1 XM1 BATCH1 APPC2 ...
 Possible calls             ===> 1        0=None 1=Inbound 2=Outbound 3=I & O
 Startup prerequisite       ===>
 Protocol program           ===> VIRHTTP  Dialog manager
 Security program           ===>          Non standard security
 Time out  ===> 0000     Action  ===> 0    Action if t/o:  0=none 1=keepalive
 Window    ===> 0000     Packet  ===> 0000 eventual protocol parameters
 Pad       ===>          Tran    ===>      PAD=INTEG/TRANSP/NO, TRAN=EVEN/ODD/NO
 Retries   ===> 0010     Delay   ===>      Retries for linked to terminals

 P1=Update                          P3=Return                  P4=Terminals
 Enter=Add                                                     P5=Rules
```

HTTP line definition using non-predefined LU names

The definition of the terminal pool *MYPOOL contains mask characters in the “Relay” and “2nd relay” fields. When a terminal is dynamically created, each “=” sign is substituted by the corresponding character in the ForceLUNAME parameter of the URL:

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: VIRTEL1A  9:40:05

 Terminal           ===> W2HTP000       ?wxyZZZZ for dynamic allocation
                                        w : Sna or Non-sna or * (category)
                                        x : 1, 2, 3, 4, 5 or *  (model)
                                        y : Colour, Monochrome or *
                                        Z : any characters
 Relay              ===> ========       Name seen by VTAM applications
                                        = : copied from the terminal name
 *Pool name         ===> *MYPOOL        Pool where to put this terminal
 Description        ===> Pool for non-predefined relays

 Entry Point        ===>                Enforced Entry Point
 2nd relay          ===> ===PR===       Possible 2nd relay (Printer)
 Terminal type      ===> S              1=LU1  2=3270  3=FC P=Printer S=Scs
 Compression        ===> 2              0, 1, 2 or 3 : compression type
 Possible Calls     ===> 3              0=None  1=Inbound  2=Outbound  3=Both
 Write Stats to     ===> 26             1,4,5,6=VIRSTAT 2=VIRLOG

 Repeat             ===> 0080           Number of generated terminals

 P1=Update                          P3=Return                     Enter=Add
                                                                  P12=Server
```

Terminal pool definition using non-predefined LU names

Note: the name of the pool is only used to match the pool to its associated line.

Using these definitions with URL parameter ForceLUNAME=RLHVT500 will dynamically generate two pseudo-terminals: RLHVT500 for the terminal session, and RLHPR500 for the associated printer.

2.4.1.3.2. Reconnecting to an existing session

The presence of a ForceLUNAME=luname parameter in the URL implies $UseCookieSession$. If a valid VirtelSession cookie is supplied, which corresponds to a currently active session, then the request will be reconnected to that session.

If no VirtelSession cookie is present, or if the cookie does not correspond to any currently open session, then an LU name will be constructed by applying the value of the ForceLUNAME parameter with the mask specified in the pool associated with the line.

If the LU name constructed in the preceding step is already in use then the request will be rejected with HTTP code 406.

Otherwise a new session will be opened using the constructed LU name.

2.4.1.4. VTAM definitions for HTTP terminals

HTTP relay LU's must be defined to VTAM by means of APPL statements in an application major node, as shown in the following example:

```
C52VIRTM VBUILD TYPE=APPL
* ------------------------------------------------------------------ *
* RHTVTxxx    : Relay for VTAM appl accessed by WEB to HOST          *
* ------------------------------------------------------------------ *
RHTVT000 APPL  AUTH=(ACQ,PASS),MODETAB=ISTINCLM,DLOGMOD=SNX32702,EAS=1
RHTVT001 APPL  AUTH=(ACQ,PASS),MODETAB=ISTINCLM,DLOGMOD=SNX32702,EAS=1
RHTVT002 APPL  AUTH=(ACQ,PASS),MODETAB=ISTINCLM,DLOGMOD=SNX32702,EAS=1
RHTVT003 APPL  AUTH=(ACQ,PASS),MODETAB=ISTINCLM,DLOGMOD=SNX32702,EAS=1
* ------------------------------------------------------------------ *
* RHTIPxxx    : Printer relays for WEB to HOST terminals             *
* ------------------------------------------------------------------ *
RHTIP000 APPL  AUTH=(ACQ,PASS),MODETAB=ISTINCLM,DLOGMOD=DSILGMOD,EAS=1
RHTIP001 APPL  AUTH=(ACQ,PASS),MODETAB=ISTINCLM,DLOGMOD=DSILGMOD,EAS=1
RHTIP003 APPL  AUTH=(ACQ,PASS),MODETAB=ISTINCLM,DLOGMOD=DSILGMOD,EAS=1
RHTIP004 APPL  AUTH=(ACQ,PASS),MODETAB=ISTINCLM,DLOGMOD=DSILGMOD,EAS=1
```

VTAM definitions for HTTP relay LU's

2.4.1.5. CICS definitions for HTTP terminals

The HTTP relay LU's must also be defined to CICS, as shown in the following example:

```
* VIRTEL 3270 TERMINALS FOR WEB2HOST
DEFINE  TERMINAL(T000) GROUP(VIRTEL) TYPETERM(DFHLU2E2)
        NETNAME(RHTVT000) PRINTER(I000)
        DESC(VIRTEL WEB TO HOST TERMINAL)
DEFINE  TERMINAL(T001) GROUP(VIRTEL) TYPETERM(DFHLU2E2)
        NETNAME(RHTVT001) PRINTER(I001)
        DESC(VIRTEL WEB TO HOST TERMINAL)
DEFINE  TERMINAL(T002) GROUP(VIRTEL) TYPETERM(DFHLU2E2)
        NETNAME(RHTVT002) PRINTER(I002)
        DESC(VIRTEL WEB TO HOST TERMINAL)
DEFINE  TERMINAL(T003) GROUP(VIRTEL) TYPETERM(DFHLU2E2)
        NETNAME(RHTVT003) PRINTER(I003)
        DESC(VIRTEL WEB TO HOST TERMINAL)
* VIRTEL 3284 PRINTERS FOR WEB2HOST
```

```
DEFINE  TERMINAL(I000) GROUP(VIRTEL) TYPETERM(DFHLU3)
        NETNAME(RHTIP000)
        DESC(VIRTEL WEB TO HOST PRINTER)
DEFINE  TERMINAL(I001) GROUP(VIRTEL) TYPETERM(DFHLU3)
        NETNAME(RHTIP001)
        DESC(VIRTEL WEB TO HOST PRINTER)
DEFINE  TERMINAL(I002) GROUP(VIRTEL) TYPETERM(DFHLU3)
        NETNAME(RHTIP002)
        DESC(VIRTEL WEB TO HOST PRINTER)
DEFINE  TERMINAL(I003) GROUP(VIRTEL) TYPETERM(DFHLU3)
        NETNAME(RHTIP003)
        DESC(VIRTEL WEB TO HOST PRINTER)
```

CICS definitions for HTTP relay LU's

This job is supplied in member CSDW2H of the VIRTEL SAMPLIB.

2.4.2. Definition of an HTTP Outbound line

An HTTP Outbound line allows VIRTEL to act as an HTTP requester. Activation of this type of line is subject to the presence of the TCP1 parameter in the VIRTCT.

By means of the OPTION$ FOR-HTTP and SEND$ TO-LINE instructions, a VIRTEL scenario can make requests to the remote HTTP server whose address is specified in the HTTP Outbound line definition. Multiple HTTP Outbound lines may be defined to allow requests to be sent to different HTTP servers. Refer to "VIRTEL Web Modernisation Scenarios" in the VIRTEL Web Access Guide for examples of the OPTION$ FOR-HTTP instruction.

```
 LINE DETAIL DEFINITION ----------------------------- Applid: VIRTELH1 12:47:00

 Internal name ===> G-HTTP                1st character is line code
 External name ===> WEBSERV1              External entity name
 Remote ident  ===> 10.41.230.1:10080     Remote VTAM LU or TCP/IP address
 Local ident   ===> $NONE$                Local VTAM LU or TCP/IP address
 Description   ===> Outbound call to WEB SERVICE
 Prefix        ===>                       Prefix for terminals
 Pool          ===>                       Pool for terminals
 Pool          ===>                       Pool for terminals
 Entry Point   ===>                       Default Entry Point on this line
 Rule Set      ===>                       Rules to choose an entry point
 Line type     ===> TCP1                  Eg: TCP1 MQ1 XM1 BATCH1 APPC2 ...
 Possible calls             ===> 2        0=None 1=Inbound 2=Outbound 3=I & O
 Startup prerequisite       ===>
 Protocol program           ===> VIRHTTP  Dialog manager
 Security program           ===>          Non standard security
 Time out  ===> 0000     Action  ===> 0    Action if t/o:  0=none 1=keepalive
 Window    ===> 0000     Packet  ===> 0000 eventual protocol parameters
 Pad       ===>          Tran    ===>      PAD=INTEG/TRANSP/NO, TRAN=EVEN/ODD/NO
 Retries   ===> 0010     Delay   ===>      Retries for linked to terminals

 P1=Update                          P3=Return                  P4=Terminals
 Enter=Add                                                     P5=Rules
```

Definition of an HTTP Outbound line

Internal name

> Must be unique.

External name

> Should be unique. Either the internal name or the external name may be specified in the SEND$ TO-LINE instruction in the scenario.

Remote ident

This is the IP address and port number of the remote HTTP server. The format is **nnn.nnn.nnn.nnn:pppp** where nnn.nnn.nnn.nnn is the IP address and pppp is the port number. The port number (normally port 80) must be specified, there is no default.

The remote HTTP server may also be specified by its DNS name and port number, for example webservices.mycompany.com:80

The special value $SITE$ indicates that the name and port number of the remote HTTP server are specified in the SITE parameter of the OPTION$ FOR-HTTP instruction.

Local ident

$NONE$ indicates that VIRTEL will not open a listening port for this line.

Prefix

Leave blank. No terminals are required for an HTTP Outbound line.

Line type

One of the TCP/IP protocols defined in the VIRTCT, for example TCP1.

Possible calls

Specify 2 to indicate that this line is used for outbound calls.

Protocol

VIRHTTP or HTTP.

2.4.3. Definition of an SMTP line

An SMTP line establishes a TCP/IP link between VIRTEL and an external SMTP server. The external SMTP server receives outgoing mail from VIRTEL for distribution to users. The SMTP line also defines the characteristics of VIRTEL's internal SMTP server which receives incoming mail sent to VIRTEL.

The activation of this type of line requires the presence of the TCP1 parameter in the VIRTCT.

In case of SMTP problems, use the command F VIRTEL,TRACE,L=S-SMTP to trace the dialog between VIRTEL and the SMTP server. The trace output is written to SYSPRINT or SYSLST.

```
LINE DETAIL DEFINITION ---------------------------- Applid: SPVIRH1  16:53:14

 Internal name ===> S-SMTP                 1st character is line code
 External name ===> SMTP-LIG               External entity name
 Remote ident  ===> 192.168.0.127:25       Remote VTAM LU or TCP/IP address
 Local ident   ===> 192.168.0.141:25       Local VTAM LU or TCP/IP address
 Description   ===> client.com<virtel@client.com>
 Prefix        ===> SM                     Prefix for terminals
 Pool          ===>                        Pool for terminals
 Pool          ===>                        Pool for terminals
 Entry Point   ===> SMTP                   Default Entry Point on this line
 Rule Set      ===> S-SMTP                 Rules to choose an entry point
 Line type     ===> TCP1                   Eg: TCP1 MQ1 XM1 BATCH1 APPC2 ...
 Possible calls             ===> 3         0=None 1=Inbound 2=Outbound 3=I & O
 Startup prerequisite       ===>
 Protocol program           ===> SMTP      Dialog manager
 Security program           ===>           Non standard security
 Time out  ===> 0000     Action  ===> 0    Action if t/o:  0=none 1=keepalive
 Window    ===> 0000     Packet  ===> 0000 eventual protocol parameters
 Pad       ===>          Tran    ===>      PAD=INTEG/TRANSP/NO, TRAN=EVEN/ODD/NO
 Retries   ===> 0010     Delay   ===>      Retries for linked to terminals

 P1=Update                          P3=Return                  P4=Terminals
 Enter=Add                                                     P5=Rules
```

Definition of an SMTP line

Remote ident

This field is required and represents the IP address and port number of the SMTP server to which VIRTEL sends outgoing mail.

Local ident

The IP address and port number on which VIRTEL listens for incoming mail. For details of how to code this field, refer to “Local ident” under the heading “Parameters of the line, page 11”.

Description

The sender name generated in outgoing e-mails. Not used for incoming e-mails.

Generally, the description field does not contain any significant information. However, in the case of an SMTP line, the contents of this field are used by VIRTEL.

The description field for an SMTP line must be in a specific format. It must contain a domain name, followed by an e-mail address enclosed in angle brackets (characters “<” and “>”). Everything up to the first angle bracket is the operand of the HELO command which VIRTEL sends to the SMTP server. The e-mail address in angle brackets is the default operand of the MAIL FROM command which VIRTEL sends to the SMTP server. This default e-mail address can optionally be overridden by the sending application by means of the FAD4 structured field. The e-mail address used will normally need to be defined to the SMTP server.

Prefix

Terminal name prefix (see below).

Entry Point

When defining an SMTP line, it is obligatory to define a default entry point. This entry point will be used for all incoming calls which do not match any of the rules of the line.

Entry points for use with SMTP lines are described under the heading “Incoming E-mails” in the VIRTEL Web Access Guide.

Line type

One of the TCP/IP protocols defined in the VIRTCT, for example TCP1.

Possible calls

Direction of calls.

The value 3 must be used in order to allow exchanges in both directions between VIRTEL and the partner SMTP server.

Protocol

Always SMTP.

Window

Always 0.

Packet

Always 0.

Pad

Always blank.

Tran

Always blank.

2.4.3.1. SMTP terminals

By pressing [PF4], the list of terminals associated with the SMTP line will be displayed. An SMTP line uses a single sub-group of type-3 terminals having a common prefix (in this case SM). The number of terminals defined determines the number of simultaneous SMTP sessions authorised. Either explicit or repeated terminal definitions may be used.

The example below shows a group of 16 SMTP terminals with associated relays:

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: SPVIRH1  18:00:43

 Terminal           ===> SMLOC000       ?wxyZZZZ for dynamic allocation
                                        w : Sna or Non-sna or * (category)
                                        x : 1, 2, 3, 4, 5 or *  (model)
                                        y : Colour, Monochrome or *
                                        Z : any characters
 Relay              ===> RSMVT200       Name seen by VTAM applications
                                        = : copied from the terminal name
 *Pool name         ===>                Pool where to put this terminal
 Description        ===> SMTP terminals

 Entry Point        ===> SMTP           Enforced Entry Point
 2nd relay          ===>                Possible 2nd relay (Printer)
 Terminal type      ===> 3              1=LU1  2=3270  3=FC P=Printer S=Scs
 Compression        ===> 2              0, 1, 2 or 3 : compression type
 Possible Calls     ===> 3              0=None  1=Inbound  2=Outbound  3=Both
 Write Stats to     ===>                1,4,5,6=VIRSTAT 2=VIRLOG

 Repeat             ===> 0016           Number of generated terminals

 P1=Update                          P3=Return                      Enter=Add
                                                                   P12=Server
```

Definition of terminals associated with an SMTP line

Terminal

The terminal name must match the prefix of the line.

Relay

A relay LU must be specified if incoming e-mails are used to trigger the start of a CICS transaction (or another VTAM application). The relay LU's must be defined by APPL statements in a VTAM application major node, as described below.

Entry point

Leave blank. The entry point is defined in the line (or in the rules of the line) for this type of terminal.

Type de terminal

Always 3.

Compression

Always 2.

Possible Calls

Always 3.

Repeat

The number of terminals defined.

2.4.3.1.1. VTAM definitions for SMTP terminals

Where incoming e-mails are used to trigger a CICS transaction (or other VTAM application), the SMTP relay LU's must be defined by APPL statements in a VTAM application major node, as shown in this example:

```
RWSVT200 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGREL
RWSVT201 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGREL
RWSVT202 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGREL
RWSVT203 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGREL
```

VTAM definitions for SMTP relay LU's

2.4.3.1.2. CICS definitions for SMTP terminals

Where incoming e-mails are used to trigger a CICS transaction, the SMTP relays must also be defined as CICS terminals, as shown in this example:

```
DEFINE TYPETERM(SMTP3270) GROUP(VIRTSMTP)
       DESCRIPTION(TYPETERM FOR SMTP PSEUDO-TERMINAL)
       DEVICE(3270) TERMMODEL(2) SHIPPABLE(YES) RECEIVESIZE(16384)
       PAGESIZE(24,80) DEFSCREEN(24,80) EXTENDEDDS(YES) QUERY(ALL)
       TTI(YES) RELREQ(YES) DISCREQ(YES) LOGONMSG(NO) UCTRAN(NO)
DEFINE TERMINAL(SM00) GROUP(VIRTSMTP)
       DESCRIPTION(PSEUDO-TERMINAL FOR SMTP)
       TYPETERM(SMTP3270) NETNAME(RWSVT200) USERID(SPVIRSTC)
DEFINE TERMINAL(SM01) GROUP(VIRTSMTP)
       DESCRIPTION(PSEUDO-TERMINAL FOR SMTP)
       TYPETERM(SMTP3270) NETNAME(RWSVT201) USERID(SPVIRSTC)
DEFINE TERMINAL(SM02) GROUP(VIRTSMTP)
       DESCRIPTION(PSEUDO-TERMINAL FOR SMTP)
       TYPETERM(SMTP3270) NETNAME(RWSVT202) USERID(SPVIRSTC)
DEFINE TERMINAL(SM03) GROUP(VIRTSMTP)
       DESCRIPTION(PSEUDO-TERMINAL FOR SMTP)
       TYPETERM(SMTP3270) NETNAME(RWSVT203) USERID(SPVIRSTC)
```

CICS definitions for SMTP relay LU's

2.4.4. Definition of an IMS Connect line

An IMS Connect line establishes a TCP/IP connection between VIRTEL and IMS Connect using the RESUME TPIPE protocol. Once the connection is established, IMS application programs running in an MPP or BMP region can send requests to VIRTEL using the ICAL DL/I call. VIRTEL processes these requests by launching a customer-written scenario. The scenario can perform actions such as making an outbound HTTP call to a web service before returning the result to the IMS application program. Activation of this type of line requires the presence of the TCP1 parameter in the VIRTCT.

```
LINE DETAIL DEFINITION ----------------------------- Applid: VIRTEL   11:26:11

 Internal name ===> I-CONN                1st character is line code
 External name ===> IVP1                  External entity name
 Remote ident  ===> 10.0.1.100:7003       Remote VTAM LU or TCP/IP address
 Local ident   ===>                       Local VTAM LU or TCP/IP address
 Description   ===> Connection to IMS Connect
 Prefix        ===> ICAL                  Prefix for terminals
 Pool          ===>                       Pool for terminals
 Entry Point   ===> SOAPVIRT              Default Entry Point on this line
 Rule Set      ===> I-CONN                Rules to choose an entry point
 Line type     ===> TCP1                  eg: TCP1 MQ1 XM1 BATCH1 APPC2 ...
 Possible calls             ===> 1        0=None 1=Inbound 2=Outbound 3=I & O
 Startup prerequisite       ===>
 Protocol program           ===> ICONNECT  Dialog manager
 Security program           ===>          Non standard security
 Time out  ===> 0010     Action  ===> 0    Action if t/o:  0=none 1=keepalive
 Window    ===> 0003     Packet  ===> 0128 eventual protocol parameters
 Pad       ===>          Tran    ===>      PAD=INTEG/TRANSP/NO, TRAN=EVEN/ODD/NO
 Retries   ===> 0010     Delay   ===>      Retries for linked to terminals

 P1=Update                          P3=Return                  P4=Terminals
 Enter=Add                                                     P5=Rules
```

Definition of an IMS Connect line

Internal name

The VIRTEL internal name for this connection.

External name

Must match the IMS destination id (IRM_IMSDestId).

Remote ident

IP address of IMS Connect followed by the port number.

Local ident

Leave blank.

Prefix

Terminal name prefix (see below).

Entry Point

The entry point name must match the IMS TPIPE name (IRM_CLIENTID).

Line type

One of the TCP/IP protocols defined in the VIRTCT, for example TCP1.

Possible calls

Always 1.

Protocol

Always ICONNECT.

2.4.4.1. IMS Connect terminals

Press [PF4] at the Line Detail Definition screen to display the list of terminals associated with an IMS Connect line. An IMS Connect line uses a single sub-group of type-3 terminals having a common prefix (ICAL in this example). No relays are defined for this type of line. The number of terminals defined determines the maximum number of simultaneous RESUME TPIPE sessions between VIRTEL and IMS Connect.

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: VIRTEL   11:33:14

 Terminal           ===> ICALV500       ?wxyZZZZ for dynamic allocation
                                        w : Sna or Non-sna or * (category)
                                        x : 1, 2, 3, 4, 5 or *  (model)
                                        y : Colour, Monochrome or *
                                        Z : any characters
 Relay              ===>                Name seen by VTAM applications
                                        = : copied from the terminal name
 *Pool name         ===>                Pool where to put this terminal
 Description        ===> IMS Connect terminals without relay

 Entry Point        ===>                Enforced Entry Point
 2nd relay          ===>                Possible 2nd relay (Printer)
 Terminal type      ===> 3              1=LU1  2=3270  3=FC P=Printer S=Scs
 Compression        ===> 2              0, 1, 2 or 3 : compression type
 Possible Calls     ===> 1              0=None  1=Inbound  2=Outbound  3=Both
 Write Stats to     ===> 12             1,4,5,6=VIRSTAT 2=VIRLOG

 Repeat             ===> 0016           Number of generated terminals

 P1=Update                          P3=Return                      Enter=Add
                                                                   P12=Server
```

Definition of terminals associated with an IMS Connect line

Terminal

The terminal name must match the prefix of the line.

Relais

Leave blank.

Entry point

Leave blank.

Terminal Type

Always 3.

Compression

Always 2.

Possible calls

Always 1.

Repeat

Number of terminals (RESUME TPIPE sessions) defined.

2.4.4.1.1. IMS Connect entry point

Each IMS Connect line must have an associated Entry Point whose name is specified in the line definition. An example is shown below:

```
ENTRY POINT DETAIL DEFINITION ---------------------- Applid: VIRTEL   13:55:50

Name          ===> SOAPVIRT               Name this ENTRY POINT (LOGON DATA)
Description   ===> Requests from IMS Connect
Transactions  ===> OTMA                   Prefix for associated transactions
Last page     ===>                        Displayed at end of session
Transparency  ===>                        Server types NOT to emulate
Time out      ===> 0150       minutes     Maximum inactive time
Do if timeout ===> 0                      0=logoff  1=bip+logoff   2=anti pad
Emulation     ===> SCENARIO               Type of terminal:
HOST4WEB    :  program driven             HTML  :  Web Browser
SCENARIO    :  script driven              EMAIL :  SMTP client
Directory for scenarios    ===> OTM-DIR   If scenarios in VSAM, not LOADLIB
Signon program             ===>           Controls user name and password
Menu program               ===>           List of transactions
Identification scenario    ===>           eg XML identification
Type 3 compression         ===>           Discover typical screens  (Virtel/PC)
Mandatory identification   ===>                                    (PC or minitel)
3270 swap key              ===>           eg P24
Extended colors            ===>           E: extended  X: extended + DBCS

P1=Update                          P3=Return                  P4=Transactions
Enter=Add
```

Definition of entry point associated with an IMS Connect line

Name

The name of the entry point must match the IMS TPIPE name specified in the IRM_CLIENTID parameter of the IMS Connect definition.

Transactions

Prefix of associated transaction names (see next section).

Emulation

Always SCENARIO.

Directory for scenarios

The name of the VIRTEL directory which contains the scenario(s) for processing requests from IMS.

2.4.4.1.2. IMS Connect transactions

Each IMS Connect entry point must have one or more associated transactions. Press [PF4] at the Entry Point Detail Definition screen to display the list of transactions associated with an IMS Connect entry point. The transaction definition specifies the name of the scenario which will be invoked to process an incoming request from IMS. If the incoming request does not specify a transaction name, or if the specified transaction name is not defined in the entry point, then VIRTEL will invoke the transaction whose external name is the same as the entry point name. If there is no such default transaction, then the request is rejected and VIRTEL issues message VIRIC57E.

```
TRANSACTION DETAIL DEFINITION ---------------------- Applid: VIRTEL   14:27:31

Internal name ===> OTMA-EX1              To associate with an entry point name
External name ===> EXAMPLE1              Name displayed on user menu
Description   ===> Access to scenario SOAPVIRT
Application   ===> $NONE$                Application to be called
PassTicket    ===>    Name ===>          0=no 1=yes 2=unsigned
Application type   ===> 2                1=VTAM 2=VIRTEL 3=SERV 4=PAGE 5=LINE
Pseudo-terminals   ===>                  Prefix of name of partner terminals
Logmode            ===>                  Specify when LOGMODE must be changed
How started        ===> 1                1=menu 2=sub-menu 3=auto
Security           ===> 0                0=none 1=basic 2=NTLM 3=TLS 4=HTML
Translation(s)     ===>                  0=idem 1=8040 2=8080 3=4040 4=auto
Logon message      ===>

TIOA at logon      ===> &/S

TIOA at logoff     ===>

Initial Scenario   ===> SOAPVIRT         Final Scenario      ===>
Input Scenario     ===>                  Output Scenario     ===>

P1=Update                          P3=Return                        P12=Server
```

Definition of a transaction associated with an IMS Connect entry point

Internal name

Must match the transaction prefix specified in the entry point.

External name

This is the transaction name specified by the IMS application in the message header. For the default transaction, the external name must be the same as the entry point name.

Application

Always $NONE$.

Application type

Always 2.

Security

Always 0.

TIOA at logon

Always &/S.

Initial scenario

The name of the VIRTEL scenario which will process requests from IMS for this transaction.

2.4.4.1.3. IMS Connect scenarios

When a scenario is invoked to process a request message from IMS connect, VIRTEL places the contents of the request message in the variable $INFILE$. After processing the message, the scenario returns a response message to IMS by

means of the SEND$ AS-ANSWER instruction. By way of illustration, the simple example shown below converts the request message to upper case before sending it back as a response message to IMS:

```
OTMACL   SCREENS APPL=OTMACL
*
* Scenario for testing an IMS CONNECT connection
*
         SCENARIO INITIAL
*
         CONVERT$ EBCDIC-TO-UPPERCASE,VAR='$INFILE$'
         SEND$  AS-ANSWER,VAR='$INFILE$',TYPE='TEXT'
*
         SCENARIO END
*
         SCRNEND
         END    ,
```

Example scenario for processing an IMS Connect request

More complex scenarios may be constructed with the aid of VIRTEL Studio.

2.4.4.1.4. IMS Connect message format

Messages sent from an IMS application to VIRTEL may be prefixed by a 12-byte header. The format of the header is shown in the figure below:

Bytes	Length	EBCDIC value	Meaning
0-3	4	/V1/	Identifies the type of prefix
4-11	8	xxxxxxxx	External transaction name Left-justified and padded with blanks

Format of an IMS Connect message header

All data following the header is treated as binary data which is passed to the scenario without translation in the $INFILE$ variable.

2.4.5. Definition of an XOT line

An XOT line establishes a connection between VIRTEL and a CISCO router. Across this type of line, VIRTEL processes incoming and outgoing calls to and from the X25 network. Activation of this type of line requires the presence of the TCP1 parameter in the VIRTCT.

```
LINE DETAIL DEFINITION ---------------------------- Applid: SPVIRH1  13:24:02

 Internal name ===> 4-XOT                  1st character is line code
 External name ===> XOT-IP31               External entity name
 Remote ident  ===> 192.168.0.80:1998      Remote VTAM LU or TCP/IP address
 Local ident   ===> 192.168.235.31:1998    Local VTAM LU or TCP/IP address
 Description   ===> Connexions via routeur Cisco (IP addr 31)
 Prefix        ===> XOTF                   Prefix for terminals
 Pool          ===>                        Pool for terminals
 Pool          ===>                        Pool for terminals
 Entry Point   ===>                        Default Entry Point on this line
 Rule Set      ===> 4-XOT                  Rules to choose an entry point
 Line type     ===> TCP1                   Eg: TCP1 MQ1 XM1 BATCH1 APPC2 ...
 Possible calls             ===> 3         0=None 1=Inbound 2=Outbound 3=I & O
 Startup prerequisite       ===>
 Protocol program           ===> XOT       Dialog manager
 Security program           ===>           Non standard security
 Time out  ===> 0010     Action  ===> 0    Action if t/o:  0=none 1=keepalive
 Window    ===> 0003     Packet  ===> 0128 eventual protocol parameters
```

```
Pad       ===>          Tran    ===> NO   PAD=INTEG/TRANSP/NO, TRAN=EVEN/ODD/NO
Retries   ===> 0010     Delay   ===>      Retries for linked to terminals

P1=Update                          P3=Return                  P4=Terminals
Enter=Add                                                     P5=Rules
```

Definition of an XOT line

Remote ident

IP address of the router followed by the port number 1998.

The address specified here is used by VIRTEL as the destination address for outgoing calls. Incoming calls are accepted from any IP address, except in the case of XOT lines which share a common IP address and port (specified in the "Local ident" field). Such lines only accept calls whose IP source address matches the router address specified in the "Remote ident" field. This allows VIRTEL to allocate incoming calls to the correct XOT line. The parameter UNIQUEP=Y (which can be specified only in batch definition mode using the VIRCONF utility) allows this check to be enforced regardless of whether the "Local ident" field specifies a shared address.

Take care to ensure that the router presents the expected address to VIRTEL. You may need to use the xot-source parameter in the router configuration to ensure that the router presents the correct IP address to VIRTEL for incoming calls. Example:
x25 route .* xot 10.0.1.1 xot-source loopback0

Local ident

The IP address and port number on the VIRTEL side. For details of how to code this field, refer to "Local ident" under the heading "Parameters of the line", page 11.

The port number must be 1998. This port number is fixed by the XOT protocol, and the router does not provide any configuration statement which allows the port number to be altered.

From VIRTEL version 4.24 onwards, multiple XOT lines with the same local IP address and port number can be defined within a single instance of VIRTEL. As explained above, VIRTEL uses the router IP address ("Remote ident") to match calls from a router with the correct XOT line. However, if multiple instances of VIRTEL are started on a single MVS system, each VIRTEL must have its own distinct IP address for XOT. The use of VIPA allows multiple IP addresses to be defined within a single TCP/IP stack (see the IBM manual z/OS Communications Server IP Configuration Guide for details of VIPA).

Prefix

Terminal name prefix (see below).

Entry Point

Not required for this type of line.

Line type

One of the TCP/IP protocols defined in the VIRTCT, for example TCP1.

Possible calls

No special restriction.

Protocol

Always XOT.

Window

In accordance with the window size for the X25 line specified in the router configuration (see note below).

Packet

In accordance with the packet size for the X25 line specified in the router configuration (see note below).

Note: VIRTEL will normally use the window size and packet size negotiated with the partner during call setup. The Window and Packet values specified in the line definition are the default values which will be used if no values are supplied by the partner in the Call or Call Accepted packets.

Pad

Always blank.

Tran

Normally blank, unless non-standard ASCII translation is required for special applications.

2.4.5.1. XOT terminals

Press [PF4] at the line definition screen to display the list of terminals associated with an XOT line. An XOT line uses a single sub-group of type-3 terminals having a common prefix (XOTF in this example). Each terminal may be associated with an application relay defined by a VTAM APPL statement. The number of terminals defined determines the maximum number of simultaneous sessions (or virtual circuits) between the router and VIRTEL.

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: SPVIRH1  12:28:44

 Terminal           ===> XOTF0000       ?wxyZZZZ for dynamic allocation
                                        w : Sna or Non-sna or * (category)
                                        x : 1, 2, 3, 4, 5 or *  (model)
                                        y : Colour, Monochrome or *
                                        Z : any characters
 Relay              ===> RXOTF000       Name seen by VTAM applications
                                        = : copied from the terminal name
 *Pool name         ===>                Pool where to put this terminal
 Description        ===> XOT terminals

 Entry Point        ===>                Enforced Entry Point
 2nd relay          ===>                Possible 2nd relay (Printer)
 Terminal type      ===> 3              1=LU1  2=3270  3=FC P=Printer S=Scs
 Compression        ===> 2              0, 1, 2 or 3 : compression type
 Possible Calls     ===> 3              0=None  1=Inbound  2=Outbound  3=Both
 Write Stats to     ===> 24             1,4,5,6=VIRSTAT 2=VIRLOG

 Repeat             ===> 0016           Number of generated terminals

 P1=Update                         P3=Return                     Enter=Add
                                                                 P12=Server
```

Definition of terminals associated with an XOT line

Terminal

The terminal name must match the prefix of the line.

Relais

The name of a relay LU must be specified if incoming calls are routed to a type-1 transaction (VTAM application). The relay LU's must be defined by APPL statements in a VTAM application major node, as described below. If all incoming calls are routed to a type-3 transaction (external server), as is the case for calls routed to a GATE or PCNE application such as CFT or Inter.PEL, no relay is required on the terminals attached to the XOT line.

Entry point

Leave blank.

Terminal Type

Always 3.

Compression

Always 2.

Possible calls

Always 3.

Repeat

Number of terminals (virtual circuits) defined.

2.4.5.2. VTAM definitions for XOT terminals

When incoming calls are routed to a type-1 transaction (VTAM application), the relay LU's must be defined by APPL statements in a VTAM application major node, as shown in the example below:

```
RXOTF000 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGREL
RXOTF001 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGREL
RXOTF002 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGREL
RXOTF003 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGREL
```

VTAM definitions for XOT relay LU's

2.4.6. Definition of an MQ line

An MQ line establishes a connection between VIRTEL and an MQSeries message queue. Each MQ line can receive messages from, or send messages to, one MQSeries message queue. Activation of this type of line requires the presence of the MQ1 or MQ2 parameter in the VIRTCT. The queue can be shared with another application (another VIRTEL for instance) or used in exclusive mode depending on its own definition.

```
LINE DETAIL DEFINITION ---------------------------- Applid: SPVIRMQ  12:34:16

Internal name ===> M-MQ1                  1st character is line code
External name ===> VIRTELIN               External entity name
Remote ident  ===>                        Remote VTAM LU or TCP/IP address
Local ident   ===> VIRTELIN               Local VTAM LU or TCP/IP address
Description   ===> MQSeries input queue
Prefix        ===> MQIN                   Prefix for terminals
Pool          ===>                        Pool for terminals
Entry Point   ===> MQIN                   Default Entry Point on this line
Rule Set      ===> M-MQ1                  Rules to choose an entry point
Line type     ===> MQ1                    Eg: TCP1 MQ1 XM1 BATCH1 APPC2 ...
Possible calls             ===> 1         0=None 1=Inbound 2=Outbound 3=I & O
Startup prerequisite       ===> WAIT-LINE(M-MQ2)
Protocol program           ===> RAW       Dialog manager
Security program           ===>           Non standard security
Time out  ===> 0000     Action  ===> 0    Action if t/o:  0=none 1=keepalive
Window    ===> 0000     Packet  ===> 0000 eventual protocol parameters
Pad       ===>          Tran    ===>      PAD=INTEG/TRANSP/NO, TRAN=EVEN/ODD/NO
Retries   ===> 0010     Delay   ===> 0002 Retries for linked to terminals

P1=Update                          P3=Return                  P4=Terminals
Enter=Add                                                     P5=Rules
```

Definition of an MQ line

Remote ident

For the RAW protocol: Leave blank.

For the PREFIXED, PREFIX12, and PREFIX20 protocols: The special value $REPLYTOQ indicates that outbound messages are sent to the destination indicated by the REPLYTOQ and REPLYTOQMGR parameters taken from the inbound message and saved in the 12- or 20-byte header.

Local ident

The name of the MQSeries message queue. The queue name prefix specified in the MQn parameter of the VIRTCT will be added to the front of this name. Refer to "Parameters of the VIRTCT" in the VIRTEL Installation Guide for details of the MQn parameter.

Prefix

Terminal name prefix (see below).

Entry Point

Required for MQ input queue.

Line type

One of the MQn protocols defined in the VIRTCT, for example MQ1.

Possible calls

Specify one of the following values:

- 1 = Input: VIRTEL receives messages from the MQSeries queue
- 2 = Output: VIRTEL writes messages to the MQSeries queue

Protocol

RAW, PREFIXED, PREFIX12, or PREFIX20. (See “Remote ident” above).

Tran

Specify the way in which messages are processed on the line.

- STR = The messages are processed as MQFMT_STRING formatted messages. This will allow MQ to perform the appropriate character set translations between the communicating systems.
- no value = The messages are processed as MQFMT_NONE formatted messages.

2.4.6.1. MQ terminals

Press [PF4] at the line definition screen to display the list of terminals associated with an MQ line. An MQ line uses a single sub-group of type-3 terminals having a common prefix (MQIN in this example). The number of terminals defined determines the maximum number of messages which can be processed simultaneously by VIRTEL.

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: SPVIRMQ  12:49:07

 Terminal           ===> MQIN1000       ?wxyZZZZ for dynamic allocation
                                        w : Sna or Non-sna or * (category)
                                        x : 1, 2, 3, 4, 5 or *  (model)
                                        y : Colour, Monochrome or *
                                        Z : any characters
 Relay              ===>                Name seen by VTAM applications
                                        = : copied from the terminal name
 *Pool name         ===>                Pool where to put this terminal
 Description        ===> Terminals for MQ line

 Entry Point        ===>                Enforced Entry Point
 2nd relay          ===>                Possible 2nd relay (Printer)
 Terminal type      ===> 3              1=LU1  2=3270  3=FC P=Printer S=Scs
 Compression        ===> 2              0, 1, 2 or 3 : compression type
 Possible Calls     ===> 3              0=None  1=Inbound  2=Outbound  3=Both
 Write Stats to     ===>                1,4,5,6=VIRSTAT 2=VIRLOG

 Repeat             ===> 0016           Number of generated terminals

 P1=Update                          P3=Return                     Enter=Add
                                                                  P12=Server
```

Definition of terminals associated with an MQ line

Terminal

The terminal name must match the prefix of the line.

Relais

Leave blank.

Entry point

Leave blank.

Terminal Type

Always 3.

Compression

Always 2.

Possible calls

Always 3.

Repeat

Number of terminals defined.

2.4.7. Definition of a BATCH line

A batch line allows VIRTEL to process HTTP requests in batch mode. When a batch line is defined in the VIRTEL configuration, VIRTEL reads HTTP requests from an input sequential file at startup, processes the requests, writes the responses to an output sequential file, and shuts down. Activation of this type of line is subject to the presence of the BATCHn parameter in the VIRTCT.

```
LINE DETAIL DEFINITION ---------------------------- Applid: VIRTELB1 15:28:53

 Internal name ===> B-BT1                 1st character is line code
 External name ===> BATCH-L1              External entity name
 Remote ident  ===>                       Remote VTAM LU or TCP/IP address
 Local ident   ===>                       Local VTAM LU or TCP/IP address
 Description   ===> Batch line
 Prefix        ===> BT1                   Prefix for terminals
 Pool          ===>                       Pool for terminals
 Entry Point   ===> EPBATCH               Default Entry Point on this line
 Rule Set      ===> B-BT1                 Rules to choose an entry point
 Line type     ===> BATCH1                Eg: TCP1 MQ1 XM1 BATCH1 APPC2 ...
 Possible calls             ===> 1        0=None 1=Inbound 2=Outbound 3=I & O
 Startup prerequisite       ===>
 Protocol program           ===> VIRHTTP  Dialog manager
 Security program           ===>          Non standard security
 Time out  ===> 0000     Action  ===> 0    Action if t/o:  0=none 1=keepalive
 Window    ===> 0000     Packet  ===> 0000 eventual protocol parameters
 Pad       ===>          Tran    ===>      PAD=INTEG/TRANSP/NO, TRAN=EVEN/ODD/NO
 Retries   ===> 0010     Delay   ===> 0002 Retries for linked to terminals

 P1=Update                          P3=Return                  P4=Terminals
 Enter=Add                                                     P5=Rules
```

Definition of a batch line

Remote ident

Always blank.

Local ident

Always blank.

Prefix

Terminal name prefix (see below).

Entry Point

When defining a batch line, it is obligatory to define a default entry point. This entry point is similar to the entry point used for an HTTP line. The entry point contains a list of transactions, and these transactions determine which directories are used to retrieve page templates, and which 3270 applications are accessible to the batch requests.

Each transaction must refer to one of the terminal sub-groups associated with the batch line (see "Batch terminals" below).

For type 1 (Application) transactions:

The prefix will be that of the terminal sub-group with an associated relay.

For type 2 (Virtel) or type 4 (Page) transactions

The prefix will be that of the terminal sub-group without an associated relay.

For type 3 (Server) transactions

No terminal prefix is required.

Line type

BATCH1 or BATCH2, corresponding to one of the BATCH parameters defined in the VIRTCT.

Possible calls

Specify 1 (incoming calls only).

Protocol

VIRHTTP or HTTP.

Window

Always 0.

Packet

Always 0.

Pad

Always blank.

Tran

Always blank.

2.4.7.1. Batch terminals

Like an HTTP line, a batch line uses up to two sub-groups of type-3 terminals having a common prefix (in this case BT1). Refer to "HTTP terminals" 26 for further details. If the batch requests do not require connection to a host VTAM application, then it is only necessary to define the first terminal sub-group (the sub-group without relays).

Press [PF4] at the line detail definition screen to display the list of associated terminals whose prefix matches the prefix specified in the line definition. Then press [PF12] to display the terminal detail definition. The example below shows the terminals for a batch line without relays:

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: VIRTEKB1 16:34:36

 Terminal           ===> BT1LOC00       ?wxyZZZZ for dynamic allocation
                                        w : Sna or Non-sna or * (category)
                                        x : 1, 2, 3, 4, 5 or *  (model)
                                        y : Colour, Monochrome or *
                                        Z : any characters
 Relay              ===>                Name seen by VTAM applications
                                        = : copied from the terminal name
 *Pool name         ===>                Pool where to put this terminal
 Description        ===> Batch terminals (no relay)
```

```
Entry Point        ===>               Enforced Entry Point
2nd relay          ===>               Possible 2nd relay (Printer)
Terminal type      ===> 3             1=LU1  2=3270  3=FC P=Printer S=Scs
Compression        ===> 2             0, 1, 2 or 3 : compression type
Possible Calls     ===> 3             0=None  1=Inbound  2=Outbound  3=Both
Write Stats to     ===> 12            1,4,5,6=VIRSTAT 2=VIRLOG

Repeat             ===> 0004          Number of generated terminals

P1=Update                         P3=Return                      Enter=Add
                                                                 P12=Server
```

Definition of terminals without relay for a batch line

2.4.8. Definition of a NATIVE TCP/IP line

VIRTEL can act as an IP-to-SNA gateway allowing existing VTAM applications to communicate with partner applications via the IP network. By connecting to a VIRTEL NATIVE TCP/IP port, a remote application can establish a TCP/IP session with VIRTEL and exchange messages with a host VTAM application using a simple record-oriented protocol.

The connection is always established by the remote TCP/IP application, but messages can flow in both directions. Each message exchanged between VIRTEL and the partner application is preceded by a two- or four-byte length field. Typically the host application is a CICS application designed to communicate with banking terminals such as the IBM 3650.

The activation of this type of line requires the presence of the TCP1 parameter in the VIRTCT.

```
LINE DETAIL DEFINITION ---------------------------- Applid: VIRTEL    9:55:24

 Internal name ===> 7-IP                  1st character is line code
 External name ===> IP-LINE               External entity name
 Remote ident  ===>                       Remote VTAM LU or TCP/IP address
 Local ident   ===> :7777                 Local VTAM LU or TCP/IP address
 Description   ===> Incoming IP call
 Prefix        ===> VIP                   Prefix for terminals
 Pool          ===>                       Pool for terminals
 Entry Point   ===> IPVIR                 Default Entry Point on this line
 Rule Set      ===>                       Rules to choose an entry point
 Line type     ===> TCP1                  Eg: TCP1 MQ1 XM1 BATCH1 APPC2 ...
 Possible calls             ===> 1        0=None 1=Inbound 2=Outbound 3=I & O
 Startup prerequisite       ===>
 Protocol program           ===> NATIVE2  Dialog manager
 Security program           ===>          Non standard security
 Time out  ===> 0000     Action  ===> 0    Action if t/o:  0=none 1=keepalive
 Window    ===> 0000     Packet  ===> 8192 eventual protocol parameters
 Pad       ===>          Tran    ===> NO   PAD=INTEG/TRANSP/NO, TRAN=EVEN/ODD/NO
 Retries   ===> 0010     Delay   ===>      Retries for linked to terminals

 P1=Update                          P3=Return                  P4=Terminals
 Enter=Add                                                     P5=Rules
```

Definition of a NATIVE TCP/IP line

Remote ident

Not used for a NATIVE TCP/IP line.

Local ident

The IP address and port number on which VIRTEL listens for incoming connections from the partner application. For details of how to code this field, refer to “Local ident” under the heading “Parameters of the line”, page 11.

Prefix

Terminal name prefix (see below).

Entry Point

The default entry point will be used for all incoming calls which do not match any of the rules of the line.

Entry points for use with native TCP/IP lines must specify Emulation type $NONE$

Line type

One of the TCP/IP protocols defined in the VIRTCT, for example TCP1.

Possible calls

Specify 1 to allow inbound calls.

Protocol

NATIVE2 or NATIVE2P for native TCP/IP protocol with a two-byte length field

NATIVE4 or NATIVE4P for native TCP/IP protocol with a four-byte length field

Packet

Specify a packet size sufficient to contain the largest message sent by either the host or the partner application, plus 2 or 4 bytes for the length field.

2.4.8.1. NATIVE TCP/IP terminals

By pressing [PF4], the list of terminals associated with the NATIVE TCP/IP line will be displayed. A NATIVE TCP/IP line uses a single group of type-3 terminals having a common prefix (VIP in this example). The number of terminals defined determines the number of simultaneous conversations authorised.

The example below shows a group of 4 NATIVE TCP/IP terminals:

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: VIRTEL   10:08:10

 Terminal           ===> VIPTER00       ?wxyZZZZ for dynamic allocation
                                        w : Sna or Non-sna or * (category)
                                        x : 1, 2, 3, 4, 5 or *  (model)
                                        y : Colour, Monochrome or *
                                        Z : any characters
 Relay              ===> *VIPPOOL       Name seen by VTAM applications
                                        = : copied from the terminal name
 *Pool name         ===>                Pool where to put this terminal
 Description        ===> IP terminals (with relay)

 Entry Point        ===>                Enforced Entry Point
 2nd relay          ===>                Possible 2nd relay (Printer)
 Terminal type      ===> 3              1=LU1  2=3270  3=FC P=Printer S=Scs
 Compression        ===> 2              0, 1, 2 or 3 : compression type
 Possible Calls     ===> 3              0=None  1=Inbound  2=Outbound  3=Both
 Write Stats to     ===> 2              1,4,5,6=VIRSTAT 2=VIRLOG

 Repeat             ===> 0004           Number of generated terminals

 P1=Update                         P3=Return                    Enter=Add
                                                                P12=Server
```

Definition of terminals associated with a NATIVE TCP/IP line

Terminal

The terminal name must match the prefix of the line.

Relay

Specify the name of the relay pool which defines the terminal LU names as seen by the VTAM application. The first character is an asterisk indicating that this is the name of a pool.

Entry point

Leave blank. The entry point is defined in the line (or in the rules of the line) for this type of terminal.

Terminal type

Always 3.

Compression

Always 2.

Possible Calls

Always 3.

Repeat

The number of terminals defined.

2.4.8.2. NATIVE TCP/IP relay pool

The figure below shows the definition of the NATIVE TCP/IP relay pool:

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: VIRTEL   10:14:11

Terminal           ===> VIPREL00       ?wxyZZZZ for dynamic allocation
                                       w : Sna or Non-sna or * (category)
                                       x : 1, 2, 3, 4, 5 or *  (model)
                                       y : Colour, Monochrome or *
                                       Z : any characters
Relay              ===> RVIPLU00       Name seen by VTAM applications
                                       = : copied from the terminal name
*Pool name         ===> *VIPPOOL       Pool where to put this terminal
Description        ===> Relay pool for HTTP

Entry Point        ===>                Enforced Entry Point
2nd relay          ===>                Possible 2nd relay (Printer)
Terminal type      ===> 3              1=LU1  2=3270  3=FC P=Printer S=Scs
Compression        ===> 2              0, 1, 2 or 3 : compression type
Possible Calls     ===> 3              0=None  1=Inbound  2=Outbound  3=Both
Write Stats to     ===> 2              1,4,5,6=VIRSTAT 2=VIRLOG

Repeat             ===> 0004           Number of generated terminals

P1=Update                        P3=Return                     Enter=Add
                                                               P12=Server
```

Definition of terminals associated with a NATIVE TCP/IP line

Terminal

Any terminal name may be used for the relay pool.

Relay

Specify the name of the the terminal LU names as seen by the VTAM application.

Pool name

Must match the relay name field in the NATIVE TCP/IP terminal definition. The first character is an asterisk indicating that this is the name of a pool.

Entry point

Leave blank.

Terminal type

Always 3.

Compression

Always 2.

Possible Calls

Always 3.

Repeat

The number of terminals defined.

2.4.8.3. VTAM definitions for NATIVE TCP/IP terminals

Relay LU's must be defined to VTAM by means of APPL statements in an application major node, as shown in the following example:

```
VIRTAPPL VBUILD TYPE=APPL
* ---------------------------------------------------------------- *
* RVIPLU00    : VTAM relays for VIRTEL NATIVE TCP/IP terminals      *
* ---------------------------------------------------------------- *
RVIPLU00 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGREL
RVIPLU01 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGREL
RVIPLU02 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGREL
RVIPLU03 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGREL
```

VTAM definitions for NATIVE TCP/IP relay LU's

2.4.8.4. CICS definitions for NATIVE TCP/IP terminals

The NATIVE TCP/IP relay LU's must also be defined to CICS, as shown in the following example:

```
DEFINE  TYPETERM(DT3650) GROUP(VIRTEL)
        DESC(3650 FOR VIRTEL TCP/IP)
        DEVICE(3650) SESSIONTYPE(USERPROG)
        SENDSIZE(1536) RECEIVESIZE(1536)
DEFINE  TERMINAL(VR00) GROUP(VIRTEL) NETNAME(RVIPLU00)
        DESC(VIRTEL NATIVE TCP/IP TERMINAL) TYPETERM(DT3650)
DEFINE  TERMINAL(VR01) GROUP(VIRTEL) NETNAME(RVIPLU01)
        DESC(VIRTEL NATIVE TCP/IP TERMINAL) TYPETERM(DT3650)
DEFINE  TERMINAL(VR02) GROUP(VIRTEL) NETNAME(RVIPLU02)
        DESC(VIRTEL NATIVE TCP/IP TERMINAL) TYPETERM(DT3650)
DEFINE  TERMINAL(VR03) GROUP(VIRTEL) NETNAME(RVIPLU03)
        DESC(VIRTEL NATIVE TCP/IP TERMINAL) TYPETERM(DT3650)
```

CICS definitions for NATIVE TCP/IP relay LU's

2.4.8.5. NATIVE TCP/IP message format

All messages sent on a NATIVE TCP/IP conversation are prefixed by a 2-byte or 4-byte header. The format of the header for the NATIVE2 protocol is shown in the figure below:

Bytes	Length	Meaning
0-1	2	Message length in bytes, excluding the length field itself. This is a 16-bit unsigned binary number in big-endian format (most significant byte first)

Format of NATIVE2 message header

The format of the header for the NATIVE4 protocol is shown in the figure below:

Bytes	Length	Meaning
0-3	4	Message length in bytes, excluding the length field itself. This is a 32-bit unsigned binary number in big-endian format (most significant byte first)

Format of NATIVE4 message header

All data following the header is treated as binary data which is passed to the CICS application without translation. The maximum message length is specified in the definition of the NATIVE TCP/IP line.

2.4.8.6. NATIVE2P and NATIVE4P message formats

The variants NATIVE2P and NATIVE4P may be used if the terminal is defined to the application as a 3270 (LU2) device. In this case, VIRTEL will add the prefix X'7D4040' to inbound messages before sending them to the application, and will remove the 3270 prefix (for example X'F1C1') from outbound messages before sending them to the terminal. The message format to the terminal is the same as described above for NATIVE2 and NATIVE4.

2.4.9. Definition of a VIRPASS TCP line for VIRKIX

Communication between VIRTEL and CICS can be established via APPC, TCP/IP, or Cross-memory. This section describes communications in TCP/IP mode using the VIRKIX program on the CICS side.

```
LINE DETAIL DEFINITION ---------------------------- Applid: SPVIRH1  14:57:45

 Internal name ===> 9-CPASS                1st character is line code
 External name ===> TCP44000               External entity name
 Remote ident  ===>                        Remote VTAM LU or TCP/IP address
 Local ident   ===> 127.0.0.1:44000        Local VTAM LU or TCP/IP address
 Description   ===> Liaison Virpass IP / CICS pour VIRKIX
 Prefix        ===> CA40AT                 Prefix for terminals
 Pool          ===>                        Pool for terminals
 Entry Point   ===>                        Default Entry Point on this line
 Rule Set      ===> 9-CPASS                Rules to choose an entry point
 Line type     ===> TCP1                   Eg: TCP1 MQ1 XM1 BATCH1 APPC2 ...
 Possible calls             ===> 3         0=None 1=Inbound 2=Outbound 3=I & O
 Startup prerequisite       ===>
 Protocol program           ===> VIRPASS   Dialog manager
 Security program           ===>           Non standard security
 Time out  ===> 0000     Action  ===> 0    Action if t/o:  0=none 1=keepalive
 Window    ===> 0000     Packet  ===> 0000 eventual protocol parameters
 Pad       ===>          Tran    ===>      PAD=INTEG/TRANSP/NO, TRAN=EVEN/ODD/NO
 Retries   ===> 0010     Delay   ===> 0003 Retries for linked to terminals

 P1=Update                          P3=Return                  P4=Terminals
 Enter=Add                                                     P5=Rules
```

Definition of a VIRPASS TCP line for VIRKIX

Remote ident

> Contains the IP address and port number of the CICS side of the link. It must match the fields “adresse TCP/IP” and “port serveur” of the TCP/IP interface defined in VIRKIX. This field should only be used when the VIRKIX relay type is “Virpass TCP/IP” (previously known as “Virpass Symétrique”). If the VIRKIX relay type is “Virpass Asymétrique” (previously known as “Virtel TCP/IP”), this field must be blank, and VIRTEL will wait for VIRKIX to make the connection on the address specified in the “Local ident” field.

Local ident

Must be specified. Contains the IP address and port number of the VIRTEL side of the link. Must match the fields “Adresse TCP/IP” and “port du serveur” specified in the VIRPASS interface (relay type “Virpass TCP/IP” or “Virpass Asymétrique”) defined in VIRKIX.

Prefix

Terminal name prefix (see below).

Entry point

Leave blank.

Line type

TCP1

Possible calls

Always 3.

Protocol

Always VIRPASS.

Window

Always 0.

Packet

Always 0.

Pad, Tran

Always blank.

2.4.9.1. Terminals on a VIRPASS TCP line for VIRKIX

A VIRPASS TCP line for communication with VIRKIX uses a single sub-group of terminals dedicated to outgoing calls. Either explicit or repeated definitions can be used. The terminals are defined as type 3, compression 2, and the “Possible calls” field must be set to 2. The “Relay” field in the terminal definition must contain the name of the VIRKIX relay which will be activated at connection time. In the case of incoming X25 calls this relay is defined in the VIRKIX menu “Interface X25” – “Appels X25 entrant”. The “Type de ligne” field in the relay definition must contain the value X25VIRPA (or E25TCPIP in previous versions of VIRKIX). Unlike other terminal types, the relay name specified here is not the name of a VTAM LU.

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: SPVIRH1  15:14:29

 Terminal           ===> CA40AT01       ?wxyZZZZ for dynamic allocation
                                        w : Sna or Non-sna or * (category)
                                        x : 1, 2, 3, 4, 5 or *  (model)
                                        y : Colour, Monochrome or *
                                        Z : any characters
 Relay              ===> VAPITCPE       Name seen by VTAM applications
                                        = : copied from the terminal name
 *Pool name         ===>                Pool where to put this terminal
 Description        ===> Liaison VIRTEL/VIRKIX pour X25

 Entry Point        ===>                Enforced Entry Point
 2nd relay          ===>                Possible 2nd relay (Printer)
 Terminal type      ===> 3              1=LU1  2=3270  3=FC P=Printer S=Scs
 Compression        ===> 2              0, 1, 2 or 3 : compression type
 Possible Calls     ===> 2              0=None  1=Inbound  2=Outbound  3=Both
 Write Stats to     ===>                1,4,5,6=VIRSTAT 2=VIRLOG

 Repeat             ===> 0006           Number of generated terminals

 P1=Update                          P3=Return                      Enter=Add
```

```
                                                                  P12=Server
```

Terminals on a VIRPASS TCP line for VIRKIX

2.4.10. Definition of a VIRPASS TCP line for VIRNT

A VIRNT system can be connected to VIRTEL to act as an X25 gateway handling incoming and outgoing connections to and from VIRTEL, or to act as a LECAM server. Communication between VIRTEL and VIRNT can be established using either an APPC line or a TCP/IP line. This section describes TCP/IP mode.

```
LINE DETAIL DEFINITION ---------------------------- Applid: SPVIRH1  16:22:01

 Internal name ===> 6-NTTCP               1st character is line code
 External name ===> NTTCP-LI              External entity name
 Remote ident  ===>                       Remote VTAM LU or TCP/IP address
 Local ident   ===> :43002                Local VTAM LU or TCP/IP address
 Description   ===> Liaison passerelle VIRNT en TCP/IP
 Prefix        ===> NTTC                  Prefix for terminals
 Pool          ===>                       Pool for terminals
 Entry Point   ===> VPASSTCP              Default Entry Point on this line
 Rule Set      ===> 6-NTTCP               Rules to choose an entry point
 Line type     ===> TCP1                  Eg: TCP1 MQ1 XM1 BATCH1 APPC2 ...
 Possible calls             ===> 3        0=None 1=Inbound 2=Outbound 3=I & O
 Startup prerequisite       ===>
 Protocol program           ===> VIRPASS  Dialog manager
 Security program           ===>          Non standard security
 Time out  ===> 0000     Action  ===> 0    Action if t/o:  0=none 1=keepalive
 Window    ===> 0000     Packet  ===> 0000 eventual protocol parameters
 Pad       ===>          Tran    ===>      PAD=INTEG/TRANSP/NO, TRAN=EVEN/ODD/NO
 Retries   ===> 0000     Delay   ===>      Retries for linked to terminals

 P1=Update                          P3=Return                  P4=Terminals
 Enter=Add                                                     P5=Rules
```

Definition of a VIRPASS TCP line for VIRNT

Remote ident

Always blank.

Local ident

This field must be the same as the TCP/IP port referenced under the heading “HOST IP Port” in the VIRPASS.INI file on the VIRNT system.

Prefix

Terminal name prefix (see below).

Entry Point

Not required for this type of line.

Line type

TCP1

Possible calls

No special restriction.

Protocol

Always VIRPASS.

Window

Always 0.

Packet

Always 0.

Pad, Tran

Always blank.

2.4.10.1. Terminals on a VIRPASS TCP line for VIRNT

A VIRPASS TCP connection with a VIRNT system can use up to two sub-groups of terminals. The first sub-group is dedicated to incoming calls and has an associated relay. The second sub-group is dedicated to outgoing calls and has no associated relay. The two sub-groups have a common prefix which associates them with the line. Either explicit or repeated terminal definitions may be used.

```
 LIST of TERMINALS --------------------------------- Applid: SPVIRH1  16:29:06

 Terminal  Repeated Relay     Entry        Type   I/O  Pool     2nd Relay

 NTTCE980  0020     RNTTC000  $X25$        3      1
 NTTCS980  0020               $X25$        3      2
```

```
 P1=Update          P2=Delete             P3=Return           P6=1st Page
 P7=Page-1          P8=Page+1             P12=Details
```

List of terminals for a VIRPASS TCP line for VIRNT

Each terminal in the pool dedicated to incoming calls must have an associated relay. The terminals are defined as type 3, compression 2, and the “Possible Calls” field must be set to 1:

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: SPVIRH1  16:31:23

 Terminal           ===> NTTCE980       ?wxyZZZZ for dynamic allocation
                                        w : Sna or Non-sna or * (category)
                                        x : 1, 2, 3, 4, 5 or *  (model)
                                        y : Colour, Monochrome or *
                                        Z : any characters
 Relay              ===> RNTTC000       Name seen by VTAM applications
                                        = : copied from the terminal name
 *Pool name         ===>                Pool where to put this terminal
 Description        ===> VIRNT TCP/IP inbound terminals

 Entry Point        ===> $X25$          Enforced Entry Point
 2nd relay          ===>                Possible 2nd relay (Printer)
 Terminal type      ===> 3              1=LU1  2=3270  3=FC P=Printer S=Scs
 Compression        ===> 2              0, 1, 2 or 3 : compression type
 Possible Calls     ===> 1              0=None  1=Inbound  2=Outbound  3=Both
 Write Stats to     ===>                1,4,5,6=VIRSTAT 2=VIRLOG
```

```
Repeat             ===> 0020          Number of generated terminals

P1=Update                          P3=Return                       Enter=Add
                                                                   P12=Server
```

Inbound terminals for a VIRPASS TCP line for VIRNT

Terminals in the pool dedicated to outgoing calls do not have an associated relay. The terminals are defined as type 3, compression 2, and the “Possible Calls” field must be set to 2:

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: SPVIRH1  16:33:28

Terminal           ===> NTTCS980       ?wxyZZZZ for dynamic allocation
                                       w : Sna or Non-sna or * (category)
                                       x : 1, 2, 3, 4, 5 or *  (model)
                                       y : Colour, Monochrome or *
                                       Z : any characters
Relay              ===>                Name seen by VTAM applications
                                       = : copied from the terminal name
*Pool name         ===>                Pool where to put this terminal
Description        ===> VIRNT TCP/IP outbound terminals

Entry Point        ===> $X25$          Enforced Entry Point
2nd relay          ===>                Possible 2nd relay (Printer)
Terminal type      ===> 3              1=LU1  2=3270  3=FC P=Printer S=Scs
Compression        ===> 2              0, 1, 2 or 3 : compression type
Possible Calls     ===> 2              0=None  1=Inbound  2=Outbound  3=Both
Write Stats to     ===>                1,4,5,6=VIRSTAT 2=VIRLOG

Repeat             ===> 0020           Number of generated terminals

P1=Update                          P3=Return                       Enter=Add
                                                                   P12=Server
```

Outbound terminals for a VIRPASS TCP line for VIRNT

2.4.11. Definition of a VIRPASS XM line for VIRKIX

Communication between VIRTEL and CICS can be established via APPC, TCP/IP, or Cross-memory. This section describes communications in Cross-memory (XM) mode using the VIRKIX program on the CICS side.

```
LINE DETAIL DEFINITION ---------------------------- Applid: SPVIRX5  17:59:25

Internal name ===> 9-XMPASS               1st character is line code
External name ===> VIRTELXM               External entity name
Remote ident  ===> SPCICST                Remote VTAM LU or TCP/IP address
Local ident   ===> XM44000                Local VTAM LU or TCP/IP address
Description   ===> Liaison Virpass XM / CICS pour VIRKIX
Prefix        ===> CA40XM                 Prefix for terminals
Pool          ===>                        Pool for terminals
Entry Point   ===>                        Default Entry Point on this line
Rule Set      ===> 9-XMPASS               Rules to choose an entry point
Line type     ===> XM1                    Eg: TCP1 MQ1 XM1 BATCH1 APPC2 ...
Possible calls             ===> 3         0=None 1=Inbound 2=Outbound 3=I & O
Startup prerequisite       ===>
Protocol program           ===> VIRPASS   Dialog manager
Security program           ===>           Non standard security
Time out  ===> 0000     Action  ===> 0    Action if t/o:  0=none 1=keepalive
Window    ===> 0000     Packet  ===> 0000 eventual protocol parameters
Pad       ===>          Tran    ===>      PAD=INTEG/TRANSP/NO, TRAN=EVEN/ODD/NO
Retries   ===> 0002     Delay   ===> 0003 Retries for linked to terminals
```

```
P1=Update                          P3=Return                  P4=Terminals
Enter=Add                                                     P5=Rules
```

Definition of a VIRPASS XM line for VIRKIX

External name

Must match the relay name of a VIRPASS cross-memory interface in VIRKIX.

Remote ident

Contains the jobname of the CICS region in which VIRKIX is running. The CICS region must be in the same MVS system as VIRTEL.

Local ident

Must match the field “Nom de la liaison” specified in the definition of the VIRPASS cross-memory interface in VIRKIX.

Prefix

Terminal name prefix (see below).

Entry point

Leave blank.

Line type

XM1

Possible calls

Always 3.

Protocol

Always VIRPASS.

Window

Always 0.

Packet

Always 0.

Pad, Tran

Always blank.

2.4.11.1. Terminals on a VIRPASS XM line for VIRKIX

A VIRPASS XM line for communication with VIRKIX uses a single sub-group of terminals dedicated to outgoing calls. Either explicit or repeated definitions can be used. The terminals are defined as type 3, compression 2, and the “Possible calls” field must be set to 2. The “Relay” field in the terminal definition must contain the name of the VIRKIX relay which will be activated at connection time. In the case of incoming X25 calls this relay is defined in the VIRKIX menu “Interface X25” – “Appels X25 entrant”. The “Type de ligne” field in the relay definition must contain the value X25VIRPA (this is the same value as for VIRPASS TCP, which was coded as E25TCPIP in previous versions of VIRKIX). Unlike other terminal types, the relay name specified here is not the name of a VTAM LU.

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: SPVIRX5  15:14:29

Terminal           ===> CA40XM01       ?wxyZZZZ for dynamic allocation
                                       w : Sna or Non-sna or * (category)
                                       x : 1, 2, 3, 4, 5 or *  (model)
                                       y : Colour, Monochrome or *
                                       Z : any characters
Relay              ===> VAPIXMEM       Name seen by VTAM applications
```

```
                                      = : copied from the terminal name
*Pool name          ===>              Pool where to put this terminal
Description         ===> Liaison VIRTEL/VIRKIX pour X25

Entry Point         ===>              Enforced Entry Point
2nd relay           ===>              Possible 2nd relay (Printer)
Terminal type       ===> 3            1=LU1  2=3270  3=FC P=Printer S=Scs
Compression         ===> 2            0, 1, 2 or 3 : compression type
Possible Calls      ===> 2            0=None  1=Inbound  2=Outbound  3=Both
Write Stats to      ===>              1,4,5,6=VIRSTAT 2=VIRLOG

Repeat              ===> 0006         Number of generated terminals

P1=Update                         P3=Return                     Enter=Add
                                                                P12=Server
```

Terminals on a VIRPASS XM line for VIRKIX

2.4.11.2. VIRKIX definitions for a VIRPASS XM connection

A VIRPASS cross-memory connection is defined in VIRKIX by means of an entity known as a “Virpass cross-memory interface”:

```
KIXADMIN - Virpass Cross-Memory      ----------  V2R5  - 30/06/2005 - 10:54:55
                                                          Sysid CICS: CICT
Nom interface XM: VIRTELXM
--------------------------------------------------------------------------------
Nom du job partenaire : SPTSABYV
Nom de la liaison     : XM44000
--------------------------------------------------------------------------------
Autres définitions:

Lancement             : A              M:Manuel A:Autom,évt dans SYSID:
Nbr maxi de connexions: 0010           de 01 à 1024
Transaction associée  : APIW           APIW par défaut
Trace et Snap         : O              O:Oui N:Non
Trace Connexion       : O              O:Oui N:Non
Snap centralisé       : O              O:Oui N:Non
Priorité              : 080            de 000 à 255

--------------------------------------------------------------------------------



P3--------P4--------P5--------P6--------P7--------P8--------P12-------ENTER----
Menu      Quitter   M.A.J     Supprimer                     Saisir    Valider
```

VIRKIX definitions for a VIRPASS XM connection

Nom interface

> The name of the VIRPASS cross-memory interface (also known as the relay name or “nom relais”) must match the “external name” of the VIRPASS XM line in VIRTEL.

Nom du job partenaire

> Specifies the jobname of the VIRTEL STC, which must be in the same MVS system as VIRKIX.

Nom de la liaison

> Must match the “Local ident” of the VIRPASS XM line in VIRTEL.

Refer to the VIRKIX Configuration documentation for details of the other fields on this panel.

2.4.12. Definition of a VIRPESIT line

A VIRPESIT line establishes a TCP/IP link between VIRTEL and a file transfer application such as CFT. A VIRPESIT line allows VIRTEL to act as an IP-to-X25 gateway for file transfer sessions using the PESIT and ETEBAC protocols. File transfer requests arriving via IP on a VIRPESIT line may be routed either to a local GATE or PCNE application, or to a remote partner via the X25 network. Similarly, file transfer requests from the X25 network or from local GATE or PCNE applications may be routed to the IP network via a VIRPESIT line.

The activation of this type of line requires the presence of the TCP1 parameter in the VIRTCT.

```
LINE DETAIL DEFINITION ---------------------------- Applid: SPVIRGW  14:58:32

 Internal name ===> I-PESIT               1st character is line code
 External name ===> I001LINE              External entity name
 Remote ident  ===>                       Remote VTAM LU or TCP/IP address
 Local ident   ===> 192.168.235.30:2498   Local VTAM LU or TCP/IP address
 Description   ===> Gateway VIRTEL IP/PESIT
 Prefix        ===> I001T                 Prefix for terminals
 Pool          ===>                       Pool for terminals
 Entry Point   ===> I001EP                Default Entry Point on this line
 Rule Set      ===> I001LINE              Rules to choose an entry point
 Line type     ===> TCP1                  Eg: TCP1 MQ1 XM1 BATCH1 APPC2 ...
 Possible calls             ===> 3        0=None 1=Inbound 2=Outbound 3=I & O
 Startup prerequisite       ===>
 Protocol program           ===> VIRPESIT  Dialog manager
 Security program           ===>          Non standard security
 Time out  ===> 0000     Action  ===> 0    Action if t/o:  0=none 1=keepalive
 Window    ===> 0000     Packet  ===> 0000 eventual protocol parameters
 Pad       ===>          Tran    ===>      PAD=INTEG/TRANSP/NO, TRAN=EVEN/ODD/NO
 Retries   ===> 0000     Delay   ===>      Retries for linked to terminals

 P1=Update                          P3=Return                  P4=Terminals
 Enter=Add                                                     P5=Rules
```

Definition of a VIRPESIT line

Remote ident

(optional) IP address and port number of the default partner (for outbound calls when the external server does not specify a partner IP address).

Local ident

The IP address and port number on which VIRTEL listens for incoming connections from the partner application. For details of how to code this field, refer to “Local ident” under the heading “Parameters of the line”, page 11.

Prefix

Terminal name prefix (see below).

Entry Point

The default entry point will be used for all incoming calls which do not match any of the rules of the line.

Entry points for use with VIRPESIT lines are described under the heading “VIRPESIT gateway” in the “Incoming calls” section of the VIRTEL Technical Documentation.

Line type

One of the TCP/IP protocols defined in the VIRTCT, for example TCP1.

Possible calls

Specify 3 to allow exchanges in both directions.

Protocol

Always VIRPESIT.

2.4.12.1. VIRPESIT terminals

By pressing [PF4], the list of terminals associated with the VIRPESIT line will be displayed. A VIRPESIT line uses a single group of type-3 terminals having a common prefix (I001T in this example). The number of terminals defined determines the number of simultaneous file transfer sessions authorised.

The example below shows a group of 8 VIRPESIT terminals:

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: SPVIRGW  15:45:03

 Terminal           ===> I001T000       ?wxyZZZZ for dynamic allocation
                                        w : Sna or Non-sna or * (category)
                                        x : 1, 2, 3, 4, 5 or *  (model)
                                        y : Colour, Monochrome or *
                                        Z : any characters
 Relay              ===>                Name seen by VTAM applications
                                        = : copied from the terminal name
 *Pool name         ===>                Pool where to put this terminal
 Description        ===> Terminals for I001LINE

 Entry Point        ===>                Enforced Entry Point
 2nd relay          ===>                Possible 2nd relay (Printer)
 Terminal type      ===> 3              1=LU1  2=3270  3=FC P=Printer S=Scs
 Compression        ===> 2              0, 1, 2 or 3 : compression type
 Possible Calls     ===> 3              0=None  1=Inbound  2=Outbound  3=Both
 Write Stats to     ===> 24             1,4,5,6=VIRSTAT 2=VIRLOG

 Repeat             ===> 0008           Number of generated terminals

 P1=Update                          P3=Return                      Enter=Add
                                                                   P12=Server
```

Definition of terminals associated with a VIRPESIT line

Terminal

The terminal name must match the prefix of the line.

Relay

Leave blank.

Entry point

Leave blank. The entry point is defined in the line (or in the rules of the line) for this type of terminal.

Terminal type

Always 3.

Compression

Always 2.

Possible Calls

Always 3.

Repeat

The number of terminals defined.

2.4.13. Definition of a VIRNEOX line

A VIRNEOX line allows VIRTEL to act as a server for communications with application programs over a TCP/IP connection using a simplified X25-like protocol. Typically the application will be an existing X25 application which has been converted to TCP/IP.

The activation of this type of line requires the presence of the TCP1 parameter in the VIRTCT.

```
LINE DETAIL DEFINITION ---------------------------- Applid: SPVIRGW  15:15:28

Internal name ===> 3-NEOX                1st character is line code
External name ===> NEOX25                External entity name
Remote ident  ===>                       Remote VTAM LU or TCP/IP address
Local ident   ===> 192.168.235.61:2525   Local VTAM LU or TCP/IP address
Description   ===> Connexions NEO X.25
Prefix        ===> XNE3                  Prefix for terminals
Pool          ===>                       Pool for terminals
Entry Point   ===>                       Default Entry Point on this line
Rule Set      ===> 3-NEOX                Rules to choose an entry point
Line type     ===> TCP1                  Eg: TCP1 MQ1 XM1 BATCH1 APPC2 ...
Possible calls             ===> 1        0=None 1=Inbound 2=Outbound 3=I & O
Startup prerequisite       ===>
Protocol program           ===> VIRNEOX  Dialog manager
Security program           ===>          Non standard security
Time out  ===> 0010     Action  ===> 0    Action if t/o:  0=none 1=keepalive
Window    ===> 0000     Packet  ===> 8192 eventual protocol parameters
Pad       ===>          Tran    ===>      PAD=INTEG/TRANSP/NO, TRAN=EVEN/ODD/NO
Retries   ===> 0010     Delay   ===>      Retries for linked to terminals

P1=Update                          P3=Return                  P4=Terminals
Enter=Add                                                     P5=Rules
```

Definition of a VIRNEOX line

Local ident

The IP address and port number on which VIRTEL listens for incoming connections from the partner application. For details of how to code this field, refer to “Local ident” under the heading “Parameters of the line”, page 11.

Prefix

Terminal name prefix (see below).

Entry Point

The default entry point will be used for all incoming calls which do not match any of the rules of the line.

Entry points for use with VIRNEOX lines must specify Emulation type $NONE$

Line type

One of the TCP/IP protocols defined in the VIRTCT, for example TCP1.

Possible calls

Specify 1 to allow inbound calls.

Protocol

Always VIRNEOX.

Packet

Specify a packet size sufficient to contain the largest message sent by either the host or the partner application.

2.4.13.1. VIRNEOX terminals

By pressing [PF4], the list of terminals associated with the VIRNEOX line will be displayed. A VIRNEOX line uses a single group of type-3 terminals having a common prefix (XNE3 in this example). The number of terminals defined determines the number of simultaneous conversations authorised.

The example below shows a group of 8 VIRNEOX terminals:

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: SPVIRGW  15:45:03

Terminal           ===> XNE30000       ?wxyZZZZ for dynamic allocation
                                       w : Sna or Non-sna or * (category)
                                       x : 1, 2, 3, 4, 5 or *  (model)
                                       y : Colour, Monochrome or *
                                       Z : any characters
Relay              ===>                Name seen by VTAM applications
                                       = : copied from the terminal name
*Pool name         ===>                Pool where to put this terminal
Description        ===> Terminals for VIRNEOX line

Entry Point        ===>                Enforced Entry Point
2nd relay          ===>                Possible 2nd relay (Printer)
Terminal type      ===> 3              1=LU1  2=3270  3=FC P=Printer S=Scs
Compression        ===> 2              0, 1, 2 or 3 : compression type
Possible Calls     ===> 3              0=None  1=Inbound  2=Outbound  3=Both
Write Stats to     ===> 24             1,4,5,6=VIRSTAT 2=VIRLOG

Repeat             ===> 0008           Number of generated terminals

P1=Update                          P3=Return                      Enter=Add
                                                                  P12=Server
```

Definition of terminals associated with a VIRNEOX line

Terminal

The terminal name must match the prefix of the line.

Relay

Leave blank.

Entry point

Leave blank. The entry point is defined in the line (or in the rules of the line) for this type of terminal.

Terminal type

Always 3.

Compression

Always 2.

Possible Calls

Always 3.

Repeat

The number of terminals defined.

2.4.14. Definition of an X25 GATE Non Fast-Connect line

An X25 GATE Non Fast-Connect line establishes a connection between VIRTEL and an X25 line connected to an IBM 3745 communications controller. Across this type of line, VIRTEL handles incoming and outgoing calls to and from the X25 network. Activation of this type of line requires the presence of the GATE and MINITEL parameters in the VIRTCT.

```
LINE DETAIL DEFINITION ---------------------------- Applid: SPVIRG2  16:41:13

 Internal name ===> 2-X25G                1st character is line code
 External name ===> X25G-MCH              External entity name
 Remote ident  ===> X25G-MCH              Remote VTAM LU or TCP/IP address
 Local ident   ===>                       Local VTAM LU or TCP/IP address
 Description   ===> X25 Gate General (NON Fast Connect)
 Prefix        ===> X25G                  Prefix for terminals
```

```
Pool          ===>                        Pool for terminals
Entry Point   ===>                        Default Entry Point on this line
Rule Set      ===> 2-X25G                 Rules to choose an entry point
Line type     ===> GATE                   Eg: TCP1 MQ1 XM1 BATCH1 APPC2 ...
Possible calls             ===> 3         0=None 1=Inbound 2=Outbound 3=I & O
Startup prerequisite       ===>
Protocol program           ===>           Dialog manager
Security program           ===>           Non standard security
Time out  ===> 0000     Action  ===> 0    Action if t/o:  0=none 1=keepalive
Window    ===> 0003     Packet  ===> 0128 eventual protocol parameters
Pad       ===> INTEG    Tran    ===>      PAD=INTEG/TRANSP/NO, TRAN=EVEN/ODD/NO
Retries   ===> 0010     Delay   ===>      Retries for linked to terminals

P1=Update                          P3=Return                  P4=Terminals
Enter=Add                                                     P5=Rules
```

Definition of an X25 GATE non-Fast Connect line

Remote ident

Name of the MCH LU generated by NPSI.

Local ident

Always blank.

Prefix

Terminal name prefix (see below). The terminal names must be identical to the virtual circuit LU names generated by NPSI.

Entry Point

Not required for this type of line.

Line type

Always GATE.

Possible calls

No special restriction.

Protocol

Always blank.

Window

Must agree with the NPSI definition.

Packet

Must agree with the NPSI definition.

Pad

Must agree with the NPSI definition.

Tran

Must agree with the NPSI definition.

From VIRTEL version 4.15 onwards, TRAN must be blank if TRAN=EVEN is specified in the NPSI definition.

2.4.14.1. Terminals on an X25 GATE Non Fast-Connect line

An X25 GATE Non Fast-Connect line uses a single sub-group of terminals dedicated to the management of sessions between VIRTEL and the switched virtual circuits on the one hand, and between VIRTEL and the host applications on the other hand. Each terminal is associated with an application relay defined by a VTAM APPL statement.

The relay name is compulsory for this type of terminal.

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: SPVIRG2  10:22:00

Terminal           ===> X25G0000       ?wxyZZZZ for dynamic allocation
                                       w : Sna or Non-sna or * (category)
                                       x : 1, 2, 3, 4, 5 or *  (model)
                                       y : Colour, Monochrome or *
                                       Z : any characters
Relay              ===> RX25G000       Name seen by VTAM applications
                                       = : copied from the terminal name
*Pool name         ===>                Pool where to put this terminal
Description        ===> Gate General terminals

Entry Point        ===>                Enforced Entry Point
2nd relay          ===>                Possible 2nd relay (Printer)
Terminal type      ===> 1              1=LU1  2=3270  3=FC P=Printer S=Scs
Compression        ===> 2              0, 1, 2 or 3 : compression type
Possible Calls     ===> 3              0=None  1=Inbound  2=Outbound  3=Both
Write Stats to     ===>                1,4,5,6=VIRSTAT 2=VIRLOG

Repeat             ===> 0016           Number of generated terminals

P1=Update                          P3=Return                      Enter=Add
                                                                  P12=Server
```

Terminals on an X25 GATE Non Fast-Connect line

Terminal

The terminal name must match the virtual circuit LU names generated by the X25.VC macro in the NPSI.

Relay

The application relay is a VTAM LU which represents the VIRTEL side of the session with NPSI for each virtual circuit. Relay LUs are defined in a VTAM application major node.

Terminal type

Always 1.

Compression

Always 2.

Possible calls

Specify 3 to allow both incoming and outgoing calls.

Repeat

The number of virtual circuits defined by NPSI.

2.4.14.2. VTAM definitions for GATE terminals

Each Minitel or PC wishing to benefit from VIRTEL functionality must be defined in a VTAM switched major node similar to the one shown below.

```
VIRTMINI VBUILD TYPE=SWNET
PU01  PU    ADDR=01,                                  *
            IDBLK=003,                                *
            IDNUM=xxyyy,              Note 1          *
            MAXDATA=4101,             Note 2          *
            MODETAB=MODVIRT,          Note 3          *
            DLOGMOD=DLOGMINI,                         *
            PACING=1,                                 *
            VPACING=3,                                *
```

```
            PUTYPE=1,                                  *
            DISCNT=YES,                                *
            SSCPFM=USSNTO,                             *
            LOGAPPL=vvvvvv          Note 4             *
MINI1 LU    LOCADDR=0,                                 *
            TERM=TWX
```

The switched major nodes must be defined as shown in the above example. The associated relays must refer to DLOGMODE DLOGREL in the MODVIRT mode table.

Note 1

IDNUM takes the value xxyyy with xx equal to the value of the parameter IDNUMH in the NPSI X25MCH MACRO; yyy is a hexadecimal value decrementing in steps of 2 from the CVC number assigned to the LU.

Let us suppose for example that we have a configuration made up of two TRANSPAC lines, L1 and L2, containing respectively 16 and 8 entries. The Minitels are installed on line L2. The value yyy assigned to the first Minitel is X'030' ((16 + 8) x 2) in hexadecimal. The values of yyy respectively assigned to the other Minitels are X'02E', X'02C', X'02A', X'028', etc.

Note 2

The value of MAXDATA must not exceed MAXBFRU times UNITSZ, nor must it exceed the NCP MAXDATA value.

Note 3

The MODVIRT mode table must be placed in an executable module library (VSE) or in a LOADLIB (MVS, VM) known to VTAM before activation of the switched major node.

Note 4

LOGAPPL takes the value specified in the APPLID TYPE=INITIAL parameter in the VIRTCT. If both Minitels and PC's are used simultaneously, the LOGAPPL parameter must be replaced by the value USSTAB=USSVIRT (the source of this USSTAB is in the VIRTEL SSL for VSE and in the MACLIB for MVS).

The LOGAPPL and USSTAB parameters are valid only for non GATE lines. For sites making outgoing calls, from NCP 5.40 onwards, USSTAB and GATE are incompatible, and therefore the USSTAB keyword should be omitted for a switched major node describing type 1 LU's.

2.4.14.3. NCP parameters for a GATE line

The LUDRPOOL MACRO must contain an NUMTYP1 parameter with a value greater than or equal to the number of CVC available on the lines. For LU6.2 connections, check for the presence of the NUMILU parameter which indicates the number of available PU type 2.1.

2.4.14.4. NPSI parameters for a GATE line

The following parameters must agree with the specification of your TRANSPAC subscription.

2.4.14.4.1. Macro X25VCCPT

MAXPKTL (packet length)

Must equal the value given for "Packet Size" on your TRANSPAC subscription (usually 128).

VWINDOW (packet level window size)

Must equal the value given for "Packet Window Size" on your TRANSPAC subscription (usually 3).

2.4.14.4.2. Macro X25MCH

CONNECT

Must be specified as NO.

GATE

Must be specified as GENERAL.

LLCLIST

Must have the value LLC4. LLC0,LLC2,LLC3,LLC4 and LLC5 can for example take the values 0, 2, 3, 4 et 5. Only the value assigned to the LLC4 parameter is important, because it will be appended to the TRANSPAC number allowing access to the server.

MWINDOW (frame level window size)

Must equal the value given for “Frame Window Size” on your TRANSPAC subscription (usually 7).

FRMLENGTH

Must equal MAXPKTL + 3 (usually 131).

PAD

Permissible values are NO, INTEG or TRANSP. If the value is INTEG, support for DARK (invisible fields) is not provided on Minitels in 80 column mode. It is provided where PAD=TRANSP.

In GATE mode, VIRTEL supports DARK in 80 column mode whatever the value of the PAD parameter.

SUBADDR

Must be YES.

TRAN

Must be EVEN or NO.

2.4.14.5. Routing of incoming calls

Incoming calls are routed by means of an entry point name specified in the Call User Data of the incoming call packet. If no Call User Data is specified, the value specified in the “Entry Point” parameter of the terminal definition is used. If this field is not supplied, the second value of the DEFENTR parameter in the VIRTCT is used.

Other possibilities are available through the use of a type 1 user exit.

2.4.14.6. Sharing a GATE non Fast-Connect line

While the sharing of a line in Fast-Connect mode would give better performance, it may prove necessary to use another method if, for example, the line is used for 3174 connections, or by another product which does not support Fast-Connect. Except for the definition of the line itself, the remainder of the configuration is similar to that of a non-shared GATE line. Be aware, however, that the implementation of such a solution can be complex.

To be able to support line sharing without Fast-Connect mode, the line must be defined as GATE=GENERAL and the X25MCH CONNECT parameter must be set to NO. The parameters SUBADDR, CTCP and CUD0 define the routing of connections and the use of the associated QLLC’s.

```
X25.MCH RESS=003,                                          *
      FRMLENGTH=131,                                       *
      LUNAME=(XU01,XU02),       LU MCH (Application x, VIRTEL)*
      LCGDEF=(0,19),                                       *
      MWINDOW=3,                                           *
      ANS=CONT,                                            *
      DBIT=NO,                                             *
      GATE=GENERAL,                                        *
```

```
       CONNECT=NO,              Multi applications without F-C*
       CTCP=(00,01),            Reference CTCP                *
       CUD0=(09,01),                                          *
* Calls with subaddr 9 connect the terminal to the application
* controlling line XU01 (CTCP=00)
* Calls with subaddr 1 connect the terminal to the application
* VIRTEL controlling line XU02 (CTCP=01)
       LLCLIST=(LLC0,LLC4,LLCn,...),                          *
       LOGAPPL=(PELC00,VIRTEL),                               *
       SUBADDR=YES,                                           *
       IDBLKC=62,               Idblk for PCNE (LLC0)         *
       IDBLKG=63,               Idblk for GATE (LLC4)         *
* In VTAM there are 2 switched major nodes with the same IDNUM
* but different IDBLK (062 for the first, 063 for VIRTEL)
       PAD=INTEG,                                             *
       PKTMODL=8,                                             *
       STATION=DTE,                                           *
       SPPED=19200,                                           *
       TRAN=EVEN
 X25.LCG LCGN=0
 X25.VC LCN=(0,19),             20 physical CVC               *
       TYPE=SWITCHED,                                         *
       MAXDATA=4101,            Largest VTAM message size     *
       VCCINDX=1,                                             *
       CALL=INOUT               Incoming and outgoing calls
```

Each application can potentially use up to 20 CVC's. It is not possible to limit the number of circuits which can be used by each application, as can be done with Fast-Connect.

2.4.15. Definition of an X25 GATE Fast-Connect line

An X25 GATE Fast-Connect line establishes a connection between VIRTEL and an X25 line connected to an IBM 3745 communications controller. Across this type of line, VIRTEL handles incoming and outgoing calls to and from the X25 network. Activation of this type of line requires the presence of the FASTC, GATE and MINITEL parameters in the VIRTCT.

```
LINE DETAIL DEFINITION ---------------------------- Applid: SPVIRG2  17:52:20

Internal name ===> 1-X25F                1st character is line code
External name ===> X25F-MCH              External entity name
Remote ident  ===> X25F-MCH              Remote VTAM LU or TCP/IP address
Local ident   ===>                       Local VTAM LU or TCP/IP address
Description   ===> X25 Fast Connect line
Prefix        ===> X25F                  Prefix for terminals
Pool          ===>                       Pool for terminals
Entry Point   ===>                       Default Entry Point on this line
Rule Set      ===> 1-X25F                Rules to choose an entry point
Line type     ===> FASTC                 Eg: TCP1 MQ1 XM1 BATCH1 APPC2 ...
Possible calls            ===> 3         0=None 1=Inbound 2=Outbound 3=I & O
Startup prerequisite      ===>
Protocol program          ===>           Dialog manager
Security program          ===>           Non standard security
Time out  ===> 0000     Action  ===> 0    Action if t/o:  0=none 1=keepalive
Window    ===> 0003     Packet  ===> 0128 eventual protocol parameters
Pad       ===> NO       Tran    ===> NO   PAD=INTEG/TRANSP/NO, TRAN=EVEN/ODD/NO
Retries   ===> 0010     Delay   ===>      Retries for linked to terminals

P1=Update                        P3=Return                  P4=Terminals
Enter=Add                                                   P5=Rules
```

Definition of an X25 GATE Fast Connect line

Remote ident

Name of the MCH LU generated by NPSI.

Local ident

Always blank.

Prefix

An X25 GATE Fast-Connect line uses a single sub-group of terminals dedicated to the management of sessions between VIRTEL and the switched virtual circuits on the one hand, and between VIRTEL and the host applications on the other hand. Each terminal is associated with an application relay defined by a VTAM APPL statement.

Entry Point

Not required for this type of line.

Line type

Always FASTC.

Possible calls

No special restriction.

Protocol

Always blank.

Window

Must agree with the NPSI definition.

Packet

Must agree with the NPSI definition.

Pad

Must agree with the NPSI definition.

Tran

Must agree with the NPSI definition.

2.4.15.1. Terminals on an X25 GATE Fast-Connect line

An X25 GATE Fast-Connect line uses a single sub-group of terminals dedicated to the management of sessions between VIRTEL and the switched virtual circuits on the one hand, and between VIRTEL and the host applications on the other hand. Each terminal is associated with an application relay defined by a VTAM APPL statement.

The relay name is compulsory for this type of terminal.

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: SPVIRG2  10:22:00

Terminal           ===> X25F0000       ?wxyZZZZ for dynamic allocation
                                       w : Sna or Non-sna or * (category)
                                       x : 1, 2, 3, 4, 5 or *  (model)
                                       y : Colour, Monochrome or *
                                       Z : any characters
Relay              ===> RX25F000       Name seen by VTAM applications
                                       = : copied from the terminal name
*Pool name         ===>                Pool where to put this terminal
Description        ===> Fast Connect terminals

Entry Point        ===>                Enforced Entry Point
2nd relay          ===>                Possible 2nd relay (Printer)
Terminal type      ===> 1              1=LU1  2=3270  3=FC P=Printer S=Scs
Compression        ===> 2              0, 1, 2 or 3 : compression type
Possible Calls     ===> 3              0=None  1=Inbound  2=Outbound  3=Both
Write Stats to     ===>                1,4,5,6=VIRSTAT 2=VIRLOG
```

```
Repeat             ===> 0016          Number of generated terminals

P1=Update                          P3=Return                      Enter=Add
                                                                  P12=Server
```

Terminals on an X25 GATE Fast-Connect line

Terminal

The terminal name must match the virtual circuit LU names generated by the X25.VC macro in the NPSI.

Relay

The application relay is a VTAM LU which represents the VIRTEL side of the session with NPSI for each virtual circuit. Relay LUs are defined in a VTAM application major node.

Terminal type

Always 1.

Compression

Always 2.

Possible calls

Specify 3 to allow both incoming and outgoing calls.

Repeat

The number of virtual circuits defined by NPSI.

2.4.15.2. VTAM definitions for Fast-Connect

Each Minitel or PC wishing to take advantage of VIRTEL functionality must be defined to VTAM in a switched major node similar to that shown in section “Definition of an X25 GATE Non Fast-Connect line”, page 52.

2.4.15.3. NCP / NPSI parameters for Fast-Connect

As well as offering a noticable performance improvement, the use of Fast-Connect allows one line to be shared between several CTCP’s. When the Fast-Connect option is used, there is no VTAM switched major node. The switched virtual circuit is directly connected to the CTCP. This permanent connection minimizes connection time as well as the consumption of memory and CPU resources.

The definition of a Fast-Connect line is similar to that of a GATE line, apart from:

2.4.15.3.1. Macro X25MCH

CONNECT

Must have a value other than NO. The remaining parameters depend on the value of the CONNECT parameter.

LLCLIST

Must contain the value LLC5.

2.4.15.4. Sharing of Fast-Connect lines

```
X25.MCH ADRESS=003,                                          *
      FRMLENGTH=131,                                         *
```

```
      LUNAME=(XU01,XU02),       LU associated with each VIRTEL*
      LCGDEF=(0,19),                                        *
      MWINDOW=3,                                            *
      ANS=CONT,                                             *
      DBIT=NO,                                              *
      GATE=GENERAL,                                         *
      CONNECT=SUBD,             F-C to multiple VIRTEL      *
      SUBD=(4,9,1),             Subaddresses 4, 9, 1        *
      CTCP=(0,1,1)              1st VIRTEL if 4,            *
                                2nd VIRTEL if 9 or 1        *
      LOGAPPL=(VIRTEL1,VIRTEL2)  Applid of each VIRTEL      *
      LLCLIST=(LLC4)                                        *
      SUBADDR=NO,                                           *
      PAD=NO,                                               *
      PKTMODL=8,                                            *
      STATION=DTE,                                          *
      SPEED=19200,                                          *
      TRAN=NO
X25.LCG  LCGN=0
X25.VC LCN=(0,19),              20 physical CVC             *
      TYPE=SWITCHED,                                        *
      MAXDATA=4101,             Largest VTAM message size   *
      VCCINDX=1,                                            *
      CALL=INOUT                Incoming and outgoing calls
X25.FCG QTY=(15),               No.of CVC used for CTCP 0   *
      CTCPNO=(0),               CTCP number                 *
      ANS=CONT,                                             *
      MAXDATA=4101,                                         *
      PRFLINE=XU01,             Line name prefix            *
      PRFPU=XP01,               PU name prefix              *
      PRFLU=XL01,               Virtual LU name prefix      *
      SUFFIX=0001               LU numbers incremented by 1
X25.FCG QTY=(15),               No of CVC used for CTCP 1   *
      CTCPNO=(1),               CTCP number                 *
      ANS=CONT,                                             *
      MAXDATA=4101,                                         *
      PRFLINE=XU02,             Line name prefix            *
      PRFPU=XP02,               PU name prefix              *
      PRFLU=XL02,               Virtual LU name prefix      *
      SUFFIX=0001               LU numbers incremented by 1
```

Example of a Fast-Connect line shared between 2 VIRTELs using subaddressing

The number of “logical” virtual circuits can be greater than the number of “physical” virtual circuits. This example has 20 physical virtual circuits for 30 (2 X 15) logical virtual circuits.

```
X25.MCH ADRESS=003,                                         *
      FRMLENGTH=131,                                        *
      LUNAME=XU01,              MCH LU associated with VIRTEL *
      LCGDEF=(0,19),                                        *
      MWINDOW=3,                                            *
      ANS=CONT,                                             *
      DBIT=NO,                                              *
      GATE=GENERAL,                                         *
      CONNECT=YES,              F-C to multiple VIRTEL      *
      LOGAPPL=VIRTEL1,          Applid of VIRTEL            *
      LLCLIST=LLC4,                                         *
      SUBD=NO,                  SUBD=NO
      PAD=NO,                                               *
      PKTMODL=8,                                            *
      STATION=DTE,                                          *
      SPPED=19200,                                          *
      TRAN=NO
X25.LCG  LCGN=0
X25.VC LCN=(0,19),              20 physical CVC             *
      TYPE=SWITCHED,                                        *
      MAXDATA=4101,             Largest VTAM message size   *
      PRFLINE=ZL01,                                         *
```

```
       PRFPU=ZPU01,                                              *
       PRFLU=ZLU01,                                              *
       VCCINDX=1,                                                *
       CALL=INOUT               Incoming and outgoing calls
```

Example of a Fast-Connect line with a single CTCP without subaddressing

2.4.16. Definition of an X25 AntiGATE line

A Reverse-X25 AntiGATE line establishes a link between VIRTEL and a Communication and Transmission Control Program (CTCP) application. On this type of line, VIRTEL communicates with the CTCP to manage incoming and outgoing calls to and from the X25 network. Once a virtual circuit is established, data flows across LU-LU sessions between the VIRTEL terminals and the CTCP. In this way, VIRTEL emulates an IBM 3745 controller with NPSI.

```
LINE DETAIL DEFINITION ---------------------------- Applid: SPVIRG2  10:29:46

Internal name ===> X-AGCFT               1st character is line code
External name ===> ANTIGATE              External entity name
Remote ident  ===> CFT2GATE              Remote VTAM LU or TCP/IP address
Local ident   ===> VXU21                 Local VTAM LU or TCP/IP address
Description   ===> Liaison AntiGATE avec CFT
Prefix        ===> AG21                  Prefix for terminals
Pool          ===>                       Pool for terminals
Entry Point   ===>                       Default Entry Point on this line
Rule Set      ===> X-AGCFT               Rules to choose an entry point
Line type     ===> /GATE                 Eg: TCP1 MQ1 XM1 BATCH1 APPC2 ...
Possible calls             ===> 3        0=None 1=Inbound 2=Outbound 3=I & O
Startup prerequisite       ===> WAIT-PARTNER
Protocol program           ===>          Dialog manager
Security program           ===>          Non standard security
Time out  ===> 0000     Action  ===> 0    Action if t/o:  0=none 1=keepalive
Window    ===> 0003     Packet  ===> 0128 eventual protocol parameters
Pad       ===> NO       Tran    ===> NO   PAD=INTEG/TRANSP/NO, TRAN=EVEN/ODD/NO
Retries   ===> 0010     Delay   ===>      Retries for linked to terminals

P1=Update                          P3=Return                  P4=Terminals
Enter=Add                                                     P5=Rules
```

Definition of an X25 AntiGATE line

Remote ident

LU name of the CTCP (CFT, Inter.PEL, etc). May be blank if WAIT-PARTNER is coded in the “Startup pre-requisite” field.

Local ident

Name of the LU which represents the physical circuit for the AntiGATE line (analogous to the LU generated by the NPSI X25.MCH macro in the NCP). This LU must be defined by a VTAM APPL statement.

Prefix

Terminal name prefix (see below).

Entry Point

The default entry point, if no entry point is defined at the terminal level, or in the line rules or call user data.

Line type

Always /GATE.

Possible calls

No special restriction.

Startup prerequisite

WAIT-PARTNER is recommended for AntiGATE lines. WAIT-PARTNER must be specified if the partner is CFT.

Protocol

Always blank.

Window, Packet

Must agree with the definition in the CTCP.

Pad, Tran

Must agree with the definition in the CTCP.

2.4.16.1. Terminals on an AntiGATE line

An AntiGATE line uses a single sub-group of terminals which represent the virtual circuits allocated to the line (analogous to the LU's linked to the virtual circuits defined by the NPSI macro X25.VC in the NCP). The terminal name is an internal name which is used to associate the terminal definition with the AntiGATE line. The associated relay name must match the name of a VTAM APPL statement. Either explicit or repeated terminal definitions may be used.

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: SPVIRG2  10:40:18

Terminal           ===> AG21TM01       ?wxyZZZZ for dynamic allocation
                                       w : Sna or Non-sna or * (category)
                                       x : 1, 2, 3, 4, 5 or *  (model)
                                       y : Colour, Monochrome or *
                                       Z : any characters
Relay              ===> AG21LU01       Name seen by VTAM applications
                                       = : copied from the terminal name
*Pool name         ===>                Pool where to put this terminal
Description        ===> Terminal AntiGATE

Entry Point        ===>                Enforced Entry Point
2nd relay          ===>                Possible 2nd relay (Printer)
Terminal type      ===> 3              1=LU1  2=3270  3=FC P=Printer S=Scs
Compression        ===> 0              0, 1, 2 or 3 : compression type
Possible Calls     ===> 3              0=None  1=Inbound  2=Outbound  3=Both
Write Stats to     ===>                1,4,5,6=VIRSTAT 2=VIRLOG

Repeat             ===> 0008           Number of generated terminals

P1=Update                         P3=Return                      Enter=Add
                                                                 P12=Server
```

Terminals on an X25 AntiGATE line

2.4.16.2. VTAM definitions for AntiGATE

The The LU's representing the line and the virtual circuits must be defined by APPL statements in a VTAM application major node similar to the following example:

```
VIRAGATE VBUILD TYPE=APPL
* ------------------------------------------------------------------ *
* Pseudo ligne gate émulée par Virtel (note 1)                       *
* ------------------------------------------------------------------ *
VXU21    APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGANTI
* ------------------------------------------------------------------ *
* Pseudo cvcs pour ligne gate émulée par Virtel (note 1)             *
* ------------------------------------------------------------------ *
AG21LU01 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGANTI
AG21LU02 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGANTI
```

```
AG21LU03 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGANTI
AG21LU04 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGANTI
 ...
```

VTAM definitions for an X25 AntiGATE line

Note 1

The LU's defined in the "Local ident" field of the line must specify logmode DLOGANTI.

Note 2

The LU's for the terminal relays can use a logmode appropriate for the application.

Note 3

The MODVIRT phase must be placed in an executable library (VSE) or in a LOADLIB (MVS, VM) defined to VTAM before the application major node can be activated.

2.4.17. Definition of an X25 AntiFastConnect line

Similar to an AntiGATE line, a Reverse-X25 AntiFastC line establishes a link between VIRTEL and a Communication and Transmission Control Program (CTCP) application. On this type of line, VIRTEL communicates with the CTCP to manage incoming and outgoing calls to and from the X25 network. Once a virtual circuit is established, data flows across LU-LU sessions between the VIRTEL terminals and the CTCP. In this way, VIRTEL emulates an IBM 3745 controller with NPSI.

```
LINE DETAIL DEFINITION ---------------------------- Applid: SPVIRG2  10:46:30

Internal name ===> 8-AFAST               1st character is line code
External name ===> X25AFMCH              External entity name
Remote ident  ===> CTCPAPPL              Remote VTAM LU or TCP/IP address
Local ident   ===> VXU14                 Local VTAM LU or TCP/IP address
Description   ===> Liaison X25 /Fast Connect
Prefix        ===> VFAS                  Prefix for terminals
Pool          ===>                       Pool for terminals
Entry Point   ===>                       Default Entry Point on this line
Rule Set      ===> 8-AFAST               Rules to choose an entry point
Line type     ===> /FASTC                Eg: TCP1 MQ1 XM1 BATCH1 APPC2 ...
Possible calls             ===> 3        0=None 1=Inbound 2=Outbound 3=I & O
Startup prerequisite       ===>
Protocol program           ===>          Dialog manager
Security program           ===>          Non standard security
Time out  ===> 0000     Action  ===> 0    Action if t/o:  0=none 1=keepalive
Window    ===> 0003     Packet  ===> 0128 eventual protocol parameters
Pad       ===> NO       Tran    ===> NO   PAD=INTEG/TRANSP/NO, TRAN=EVEN/ODD/NO
Retries   ===> 0010     Delay   ===>      Retries for linked to terminals

P1=Update                          P3=Return                  P4=Terminals
Enter=Add                                                     P5=Rules
```

Definition of an X25 AntiFastC line

Remote ident

CTCP LU name.

Local ident

Name of the LU which represents the physical circuit for the AntiFastC line (analogous to the LU generated by the NPSI X25.MCH macro in the NCP). This LU must be defined by a VTAM APPL statement.

Prefix

Terminal name prefix (see below).

Entry Point

The default entry point, if no entry point is defined at the terminal level, or in the line rules or call user data.

Line type

Always /FASTC.

Possible calls

No special restriction.

Protocol

Always blank.

Window, Packet

Must agree with the definition in the CTCP.

Pad

Must agree with the definition in the CTCP.

Tran

Specify EVEN, ODD, or NO according to the requirements of the CTCP. Additionally, for AntiFastC lines only: the special value EBCD indicates that VIRTEL will perform the necessary conversion to allow a Videotex server CTCP to be accessed in 3270 mode (VIRTEL Multisession or Web Access).

2.4.17.1. Terminals on an AntiFastC line

An AntiFastC link uses a single sub-group of terminals which represent the virtual circuits allocated to the line (analogous to the LU's linked to the virtual circuits defined by the NPSI macro X25.VC in the NCP). The terminal name is an internal name which is used to associate the terminal definition with the AntiFastC line. The associated relay name must match the name of a VTAM APPL statement. Either explicit or repeated terminal definitions may be used.

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: SPVIRG2  10:49:52

Terminal           ===> VFAS0000       ?wxyZZZZ for dynamic allocation
                                       w : Sna or Non-sna or * (category)
                                       x : 1, 2, 3, 4, 5 or *  (model)
                                       y : Colour, Monochrome or *
                                       Z : any characters
Relay              ===> X25AF500       Name seen by VTAM applications
                                       = : copied from the terminal name
*Pool name         ===>                Pool where to put this terminal
Description        ===>

Entry Point        ===>                Enforced Entry Point
2nd relay          ===>                Possible 2nd relay (Printer)
Terminal type      ===> 3              1=LU1  2=3270  3=FC P=Printer S=Scs
Compression        ===> 2              0, 1, 2 or 3 : compression type
Possible Calls     ===> 3              0=None  1=Inbound  2=Outbound  3=Both
Write Stats to     ===>                1,4,5,6=VIRSTAT 2=VIRLOG

Repeat             ===> 0016           Number of generated terminals

P1=Update                          P3=Return                      Enter=Add
                                                                  P12=Server
```

Terminals on an X25 AntiFastC line

2.4.17.2. VTAM definitions for AntiFastC

The LU's representing the line and the virtual circuits must be defined by APPL statements in a VTAM application major node similar to the following example:

```
VIRAFAST VBUILD TYPE=APPL
* ------------------------------------------------------------------ *
* Pseudo ligne fastc émulée par Virtel (note 1)                      *
* ------------------------------------------------------------------ *
VXU14    APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGANTI
* ------------------------------------------------------------------ *
* Pseudo cvcs pour ligne fastc émulée par Virtel (note 1)            *
* ------------------------------------------------------------------ *
X25AF500 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGANTI
X25AF501 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGANTI
X25AF502 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGANTI
X25AF503 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGANTI
 ...
```

VTAM definitions for an X25 AntiFastC line

Note 1

> The LU's defined in the "Local ident" field of the line must specify logmode DLOGANTI.

Note 2

> The LU's for the terminal relays can use a logmode appropriate for the application.

Note 3

> The MODVIRT phase must be placed in an executable library (VSE) or in a LOADLIB (MVS, VM) defined to VTAM before the application major node can be activated.

2.4.18. Definition of an X25 AntiPCNE line

Like an AntiGATE or AntiFastC line, a Reverse-X25 AntiPCNE line establishes a link between VIRTEL and an application. By contrast however, VIRTEL does not use a line-level LU to manage call setup, and the application does not supply VIRTEL with a call packet. Instead, the application makes outgoing calls by choosing a particular LU associated with the AntiPCNE line. The X25 called number is defined at the terminal level by means of an associated external server definition. In this way, VIRTEL emulates an IBM 3745 controller with NPSI.

```
LINE DETAIL DEFINITION ---------------------------- Applid: SPVIRG2  10:58:06

Internal name ===> P-PCNE1               1st character is line code
External name ===> ANTIPCN1              External entity name
Remote ident  ===> CFTAACB1              Remote VTAM LU or TCP/IP address
Local ident   ===>                       Local VTAM LU or TCP/IP address
Description   ===> AntiPCNE line for CFTA
Prefix        ===> PCN1                  Prefix for terminals
Pool          ===>                       Pool for terminals
Entry Point   ===>                       Default Entry Point on this line
Rule Set      ===> P-PCNE1               Rules to choose an entry point
Line type     ===> /PCNE                 Eg: TCP1 MQ1 XM1 BATCH1 APPC2 ...
Possible calls             ===> 3        0=None 1=Inbound 2=Outbound 3=I & O
Startup prerequisite       ===>
Protocol program           ===>          Dialog manager
Security program           ===>          Non standard security
Time out  ===> 0000     Action  ===> 0    Action if t/o:  0=none 1=keepalive
Window    ===> 0003     Packet  ===> 0128 eventual protocol parameters
Pad       ===> NO       Tran    ===> NO   PAD=INTEG/TRANSP/NO, TRAN=EVEN/ODD/NO
Retries   ===> 0001     Delay   ===>      Retries for linked to terminals

P1=Update                        P3=Return                  P4=Terminals
```

```
Enter=Add                                                    P5=Rules
```

Definition of an X25 AntiPCNE line

Remote ident

Partner application LU name.

Local ident

Always blank.

Prefix

Terminal name prefix (see below).

Entry Point

Leave blank. The entry point should be defined in the rules of the line.

Line type

Always /PCNE.

Possible calls

No special restriction.

Protocol

Always blank.

Window

Not used for an AntiPCNE line.

Packet

Not used for an AntiPCNE line.

Pad

Always NO.

Tran

Always NO.

2.4.18.1. Terminals on an AntiPCNE line

An AntiPCNE line uses two sub-groups of terminals. In each case, the terminal name is an internal name which is used to associate the terminal definition with the AntiPCNE line. The associated relay name must match the name of a VTAM APPL statement.

The first sub-group is used for outgoing calls (from the point of view of the application), and consists of explicitly defined terminals with the “Possible calls” field set to 1. Each terminal in this first sub-group corresponds to a single remote partner. The “Relay” field of each terminal in this first sub-group must contain the LU name which the application uses to make outgoing calls to the remote partner concerned. The entry point specified by the rules of the line contains a type-3 transaction which specifies “&R” as the application name. This makes the link with an external server whose name is identical to the Relay LU name. The external server contains the call parameters (X25 number, etc) needed to route calls to the required partner.

The example below shows the definition of an AntiPCNE terminal for outbound calls made using LU name AP1LU01O, and the associated external server containing the X25 call parameters:

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: SPVIRG2  11:27:09

Terminal           ===> PCN1O0001       ?wxyZZZZ for dynamic allocation
                                        w : Sna or Non-sna or * (category)
                                        x : 1, 2, 3, 4, 5 or *  (model)
                                        y : Colour, Monochrome or *
                                        Z : any characters
Relay              ===> AP1LU01O        Name seen by VTAM applications
                                        = : copied from the terminal name
*Pool name         ===>                 Pool where to put this terminal
Description        ===> Outbound calls to customer 101

Entry Point        ===>                 Enforced Entry Point
2nd relay          ===>                 Possible 2nd relay (Printer)
Terminal type      ===> 3               1=LU1  2=3270  3=FC P=Printer S=Scs
Compression        ===> 0               0, 1, 2 or 3 : compression type
Possible Calls     ===> 1               0=None  1=Inbound  2=Outbound  3=Both
Write Stats to     ===>                 1,4,5,6=VIRSTAT 2=VIRLOG

Repeat             ===> 0001            Number of generated terminals

P1=Update                          P3=Return                      Enter=Add
                                                                  P12=Server
```

Outbound terminal definition for X25 AntiPCNE

```
EXTERNAL SERVER DETAIL DEFINITION ----------------- Applid: SPVIRG2  11:31:02

Name          ===> AP1LU01O              Name of this server
Description   ===> PCNECFT1 to customer 101
Number        ===> 123456101             Number to call
Data          ===>                       Data to complete call packet
Line number   ===> 4-XOT                 Line for OUT calls (*=auto)
Backup line   ===>                       Used when first line is unavailable
Caller        ===>                       Caller id number (*=auto)
Emulation     ===> 2                     0=none 1=VirtelPc 2=Minitel 3=M80
                                         4=VT100 5=3174 6=VT200 7=LECAM 8=Bull
Character set      ===> 3                1= ASCII-7  2= ASCII-8  3= EBCDIC
Server time out    ===> 0030  seconds    Maximum inactivity time for server
User time out      ===> 0001  minutes    Maximum idle time for user
Cut off warning    ===> 0                0=none          1=bell     2=message
Price level        ===> 7                0 - Z : price level for this server
Secret             ===> 1                1=not shown in the list
Facilities         ===>                  In hex, inserted into call packet
CUD0 (hex)         ===> C0123450         protocol identification
TIOA at start up   ===>

P1=Update                          P3=Return                       Enter=Add
```

External server definition for X25 AntiPCNE

The second sub-group is used for incoming calls (from the point of view of the application). In this sub-group, the “Possible calls” field is set to 2. Either explicit or repeated terminal definitions may be used for this second sub-group, and no entry point is necessary. Each terminal in the second sub-group can be used for calls originating from any remote partner. This method is suitable for applications such as CFT which do not verify the LU name for incoming calls.

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: SPVIRG2  11:35:01

Terminal           ===> PCN1I001        ?wxyZZZZ for dynamic allocation
                                        w : Sna or Non-sna or * (category)
                                        x : 1, 2, 3, 4, 5 or *  (model)
                                        y : Colour, Monochrome or *
                                        Z : any characters
```

```
Relay              ===> AP1LU01I       Name seen by VTAM applications
                                       = : copied from the terminal name
*Pool name         ===>                Pool where to put this terminal
Description        ===> P-PCNE1 inbound calls

Entry Point        ===>                Enforced Entry Point
2nd relay          ===>                Possible 2nd relay (Printer)
Terminal type      ===> 3              1=LU1  2=3270  3=FC P=Printer S=Scs
Compression        ===> 0              0, 1, 2 or 3 : compression type
Possible Calls     ===> 2              0=None  1=Inbound  2=Outbound  3=Both
Write Stats to     ===>                1,4,5,6=VIRSTAT 2=VIRLOG

Repeat             ===> 0001           Number of generated terminals

P1=Update                          P3=Return                      Enter=Add
                                                                  P12=Server
```

Inbound terminal definition for X25 AntiPCNE (method 1)

A second method of defining AntiPCNE terminals allows the administrator to specify the selection of an LU name according to the characteristics of the incoming call. This method is suitable for applications such as Inter.PEL which require incoming calls to arrive on specific LU names according to the identity of the partner which originated the call. In this case, the terminals in the second sub-group specify the name of a logical pool instead of a relay LU name (see “logical pool of relays”, page 118). The terminals in the logical pool contain the relay LU’s. The selection of an LU is done by means of the rule which routes the incoming call, by specifying the required LU name in the “Parameter” field of the rule. Note that the rules which route incoming calls are those attached to the line on which the call arrives (for example, an XOT line) and not those attached to the AntiPCNE line.

The example below shows the definition of a set of inbound terminals (PCN1TM51-54) attached to an AntiPCNE line. These terminals, which are defined using the repeated method, all refer to a logical pool *POOLPCN. Terminal definitions PCNETM51-54 are explicitly defined and constitute the logical pool. The relay names AP30LU51-54 are defined in the logical pool. A set of rules attached to the XOT line on which incoming calls arrive assigns an LU from the pool to each incoming call according to the contents of the CUD0 field in the incoming call packet.

```
LIST of TERMINALS ---------------------------------- Applid: SPVIRG2  12:27:17

Terminal  Repeated Relay     Entry        Type   I/O  Pool     2nd Relay

PCNETM51  0001     AP30LU51               3      2    *POOLPCN
PCNETM52  0001     AP30LU52               3      2    *POOLPCN
PCNETM53  0001     AP30LU53               3      2    *POOLPCN
PCNETM54  0001     AP30LU54               3      2    *POOLPCN
PCN1TM01  0000     AP30LU01               3      1
PCN1TM02  0001     AP30LU02               3      1
PCN1TM03  0001     AP30LU03               3      1
PCN1TM04  0001     AP30LU04               3      1
PCN1TM51  0004     *POOLPCN               3      2









P1=Update          P2=Delete              P3=Return           P6=1st Page
P7=Page-1          P8=Page+1              P12=Details
```

List of inbound terminal definitions for X25 AntiPCNE (method 2)

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: SPVIRG2  12:30:11

Terminal           ===> PCN1TM51       ?wxyZZZZ for dynamic allocation
                                       w : Sna or Non-sna or * (category)
```

```
                                    x : 1, 2, 3, 4, 5 or *  (model)
                                    y : Colour, Monochrome or *
                                    Z : any characters
Relay              ===> *POOLPCN    Name seen by VTAM applications
                                    = : copied from the terminal name
*Pool name         ===>             Pool where to put this terminal
Description        ===> PCNE LU appels vers Inter.PEL

Entry Point        ===>             Enforced Entry Point
2nd relay          ===>             Possible 2nd relay (Printer)
Terminal type      ===> 3           1=LU1  2=3270  3=FC P=Printer S=Scs
Compression        ===> 0           0, 1, 2 or 3 : compression type
Possible Calls     ===> 2           0=None  1=Inbound  2=Outbound  3=Both
Write Stats to     ===>             1,4,5,6=VIRSTAT 2=VIRLOG

Repeat             ===> 0004        Number of generated terminals

P1=Update                       P3=Return                    Enter=Add
                                                             P12=Server
```

Inbound terminal definition for X25 AntiPCNE (method 2)

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: SPVIRG2  12:32:18

Terminal           ===> PCNETM53    ?wxyZZZZ for dynamic allocation
                                    w : Sna or Non-sna or * (category)
                                    x : 1, 2, 3, 4, 5 or *  (model)
                                    y : Colour, Monochrome or *
                                    Z : any characters
Relay              ===> AP30LU53    Name seen by VTAM applications
                                    = : copied from the terminal name
*Pool name         ===> *POOLPCN    Pool where to put this terminal
Description        ===> PCNE LU appels vers Inter.PEL

Entry Point        ===>             Enforced Entry Point
2nd relay          ===>             Possible 2nd relay (Printer)
Terminal type      ===> 3           1=LU1  2=3270  3=FC P=Printer S=Scs
Compression        ===> 0           0, 1, 2 or 3 : compression type
Possible Calls     ===> 2           0=None  1=Inbound  2=Outbound  3=Both
Write Stats to     ===>             1,4,5,6=VIRSTAT 2=VIRLOG

Repeat             ===> 0001        Number of generated terminals

P1=Update                       P3=Return                    Enter=Add
                                                             P12=Server
```

Logical pool definition for X25 AntiPCNE (method 2)

```
DETAIL of RULE from RULE SET: 4-XOT    ------------- Applid: SPVIRG2  12:33:50

Name          ===> 4X060PEL            Rule priority is per name
Status        ===> ACTIVE              20 Oct 2004 14:33:19       SPTBOWL
Description   ===> XOT->AntiPCNE->PEL (CUD0=C0005300)
Entry point   ===> APPEL               Target Entry Point
Parameter     ===> AP30LU53                        optional &1 value
Trace         ===>                     1=commands 2=data 3=partner

C : 0=IGNORE 1=IS 2=IS NOT 3=STARTS WITH 4=DOES NOT 5=ENDS WITH 6=DOES NOT
0 IP Subnet   ===> 000.000.000.000     Mask     ===> 000.000.000.000
0 Host        ===>
0 eMail       ===>
0 Calling DTE ===>                     Calling DTE address or proxy
0 Called      ===>                     Called DTE address
3 CUD0 (Hex)  ===> C0005300            First 4 bytes of CUD (X25 protocol)
0 User Data   ===>
```

```
0 Days        ===> M:      T:      W:      T:      F:      S:      S:
0 Start time  ===> H:      M:      S:     End time ===> H:      M:      S:

P1=Update                          P3=Return                        Enter=Add
P4=Activate                        P5=Inactivate                    P12=Entry P.
```

Rule for incoming X25 AntiPCNE calls (method 2)

2.4.18.2. VTAM definitions for AntiPCNE

The LU's representing the line and the virtual circuits must be defined by APPL statements in a VTAM application major node similar to the following example:

```
VIRAPCNE VBUILD TYPE=APPL
* ------------------------------------------------------------------ *
* Pseudo cvcs pour ligne pcne émulée par Virtel (note 1)             *
* ------------------------------------------------------------------ *
AP30LU01 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGPCNE
AP30LU02 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGPCNE
AP30LU03 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGPCNE
AP30LU04 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGPCNE
AP30LU51 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGPCNE
AP30LU52 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGPCNE
AP30LU53 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGPCNE
AP30LU54 APPL  AUTH=(ACQ,PASS),MODETAB=MODVIRT,DLOGMOD=DLOGPCNE
```

VTAM definitions for an X25 AntiPCNE line

Note 1

> The LU's for the terminal relays must specify logmode DLOGPCNE.

Note 2

> The MODVIRT phase must be placed in an executable library (VSE) or in a LOADLIB (MVS, VM) defined to VTAM before the application major node can be activated.

2.4.18.3. Adding or changing AntiPCNE LU names

From VIRTEL version 4.28 onwards, it is possible to add a new terminal to an AntiPCNE line, or to change the relay LU name in an existing terminal, without stopping and restarting VIRTEL.

The procedure for adding a new AntiPCNE terminal is as follows:

1. For an outbound terminal, add a new terminal definition by pressing [PF12] at the List of Terminals screen (position the cursor on an existing terminal if desired to copy its definition). Specify the new terminal name and LU name in the "Terminal" and "Relay" fields, and specify "Terminal type 3" "Compression 0" and "Possible Calls 1". Then press [Enter] to add the new definition. While still in the Terminal Detail Definition screen, press [PF12] to define a new external server with the same name as the relay. Fill in the outbound call parameters and press [Enter] to add the new definition.
2. For an inbound terminal, add a new terminal definition as above but with "Possible Calls 2". Specify either an LU name or the name of a logical pool in the "Relay" field. If using a logical pool, also add a new terminal definition to the logical pool specifying the LU name in the "Relay" field, and add a rule to the XOT line to allocate incoming calls to this LU.
3. Define the new LU name as an APPL statement in a VTAM application major node and activate it.
4. Use the VIRTEL LINE START command to activate the new terminal(s) on the AntiPCNE line. For example:
   F VIRTEL,LINE=P-PCNE1,START

The procedure for changing the LU name of an existing AntiPCNE terminal is as follows:

1. Enter the new LU name in the “Relay” field of the Terminal Detail Definition screen for the terminal or logical pool concerned, and press [PF1] to record the change.
2. For an outbound terminal, copy the existing external server definition for the old LU name, renaming it using the new LU name. For an inbound terminal, go to the XOT line definition and alter the rule (if any) which specifies the old LU name in its “Parameter” field, replacing the old LU name by the new LU name, and press [PF1].
3. Inactivate the existing VTAM LU.
4. Define the new LU name as an APPL statement in a VTAM application major node and activate it.
5. Use the VIRTEL LINE START command to reactivate the changed terminal(s) on the AntiPCNE line. For example: F VIRTEL,LINE=P-PCNE1,START

2.4.19. Support of X25 non GATE terminals

Support for incoming connections via an X25 non GATE line still exists. This type of connection does not require a line definition in VIRTEL. All that is needed is to create a series of terminals using the Terminal Management sub-application. Each terminal is defined as type 1 compression 2 and is associated with an application relay.

This mode allows only incoming calls, with no facility for call routing.

2.4.19.1. VTAM definitions for X25 non GATE terminals

Each Minitel or PC which is to log on to VIRTEL must be defined in a VTAM switched major node as described in “Definition of an X25 GATE Non Fast-Connect line”, page 52.

2.4.19.2. NCP / NPSI parameters for X25 non GATE terminals

The information presented in the section “Definition of an X25 GATE Non Fast-Connect line” 76 applies here with the following addition:

2.4.19.2.1. Macro X25.MCH

LLCLIST

Must contain the value LLC5.

2.5. Lines Overview

2.5.1. Introduction

VIRTEL call routing is performed by sets of interrelated definitions. A call arriving on a line is processed by a set of rules which assign an entry point. The entry point contains a set of transactions which indicate the application or external server which will process the call. An external server refers to one or more lines on which the call may exit from VIRTEL. Each type of entity (lines, terminals, entry points, external servers) is defined by a separate sub-application but it is often useful to have an overall view of all the related definitions. The summary screen displayed by the Lines Overview sub-application presents an overall view and allows the administrator to zoom in on individual definitions to display and optionally modify the detailed definition. Missing definitions (those referenced by another entity but not defined in the configuration) are highlighted in red.

```
LINES OVERVIEW ------------------------------------ Applid: SPVIRH1  10:18:52

Line     Rule     Entry    Transac. Terminal Server   Line out Terminal out
                  Point
A-XOT    AX120CFT AGCFTX   AGCFTX   TMXOTA   AGCFTX   X-AG70   AG70
B-XOT    BX120CFT AGCFTX            TMXOTB
C-XOT    CX120CFT AGCFTX            TMXOTC
P-PCNE1  1P100XOT APXOT    APXOT    PCN1     AP70LU01 A-XOT    TMXOTA
X-AG70   XA900XOT AGXOTA   AGXOTA   AG70     AGXOTA   A-XOT    TMXOTA
Y-AG71   YA900XOT AGXOTA            AG71
Z-AG72   ZA900XOT AGXOTA            AG72









P1=Expand            P2=Internal/external Enter=Refresh
P3=Return            P7=Page-1            P8=Page+1               P12=Show
```

Lines overview

2.5.2. Access to the application

The Lines Overview sub-application is invoked by pressing [PF8] at the Configuration Menu, by pressing [PF15] at the Sub-Application Menu, or via the Multi-Session using a transaction which calls module VIR0049.

2.5.3. Security

When the security subsystem is active, access to Lines Overview sub-application from the Configuration Menu or the Sub-Application Menu is controlled by the resource $$LINE$$.

When accessed by a transaction, normal transaction security rules will apply.

Security management is described in chapter 4 of the VIRTEL Technical Documentation.

2.5.4. Objectives

This sub-application allows the administrator to display and optionally modify the various entities associated with each line defined in the VIRTEL configuration. When the sub-application is started, it first displays a summary of existing definitions in alphanumeric order of lines.

3. Rules

3.1. Introduction

Each line can have a set of rules which allow the selection of an entry point for each incoming call according to the characteristics of the call.

3.2. Summary Of Existing Definitions

Press [PF5] at the line definition screen to display the list of rules associated with the line:

```
LIST of RULES in RULE SET: H-HTTP   ---------------- Applid: SPVIRH1  18:49:11

Name     Status   Description                                          Entry
                                                                       Point
1HT00100 ACTIVE   HTTP access (users authorised by cookie)             $COOKIE$
1HT00200 ACTIVE   HTTP access (other users)                           DEMOHTTP
1HT01000 INACTIVE Incoming calls on www2.virtel.com (Mon-Fri)          WEB2HOST
1HT02000 INACTIVE Incoming calls on www1.virtel.com (Mon-Fri)          WEB2HOST
1HT03000 INACTIVE All incoming calls (weekends)                        DEMOHTTP









P1=Update           P2=Suppress         P3=Return
P6=1st page         P7=Page-1           P8=Page+1               P12=Edit
```

List of rules for a line

3.2.1. Associated functions

3.2.1.1. Positioning the list

Search

Type the name (or partial name) of the required entity on the first line under the heading “Name”, then press [Enter].

[PF6]

Return to the first page of the list.

[PF7]

Display the previous page.

[PF8]

Display the next page.

3.2.1.2. Modifying a rule

Type the desired modifications into the appropriate fields then press [PF1]. Multiple definitions can be modified at the same time. If the modification affects a field not displayed on the summary screen, first position the cursor on the definition concerned, then press [PF12] to access the definition detail screen.

Modifications are not recognized until you press the [PF1] key. Certain modifications require a restart of the VIRTEL system.

3.2.1.3. Deleting a rule

Position the cursor under the name of the entity to be deleted, then press [PF2]. The line associated with the entity to be deleted then appears highlighted, accompanied by the message CONFIRM DELETE. Then press [PF2] again to confirm deletion. The message DELETE OK confirms successful completion of the operation. Repeat the procedure for each entity to be deleted.

3.2.1.4. Adding a rule

To add a new definition, press [PF12] at the summary screen, either with the cursor on an existing definition to copy its attributes, or on an empty line to create a new definition from a blank screen.

3.2.1.5. Displaying detailed definitions

To display or update the detailed definition of an entity, place the cursor on the name of the entity and press [PF12]. The detail definition screen will then be displayed.

3.2.2. Contents of each field

Name

The name of the rule. Rules associated with a line are processed in alphanumeric order.

Status

Indicates whether the rule is ACTIVE or INACTIVE. To change the status, display the detailed definition of the rule [PF12], then press [PF4] to activate, or [PF5] to inactivate.

Description

Free-form description of the rule.

Entry Point

Name of the entry point which will be assigned to incoming calls whose characteristics match this rule.

3.3. Parameters Of The Rule

To display the detailed characteristics of a rule, position the cursor on the desired rule on the summary screen and press [PF12].

```
DETAIL of RULE from RULE SET: H-HTTP   ------------ Applid: SPVIRH1  19:00:53

Name          ===> 1HT01000               Rule priority is per name
Status        ===> INACTIVE               Mon, 24 Sep 2001 14:19:14
Description   ===> Incoming calls on www2.virtel.com (Mon-Fri)
Entry point   ===> WEB2HOST               Target Entry Point
Parameter     ===>                                 &1 value or LUNAME
Trace         ===>                        1=commands 2=data 3=partner

C : 0=IGNORE 1=IS 2=IS NOT 3=STARTS WITH 4=DOES NOT 5=ENDS WITH 6=DOES NOT
0 IP Subnet   ===>                        Mask     ===>
3 Host        ===> www2.virtel.com
0 eMail       ===>
0 Calling DTE ===>                        Calling DTE address or proxy
0 Called      ===>                        Called DTE address
0 CUD0 (Hex)  ===>                        First 4 bytes of CUD (X25 protocol)
0 User Data   ===>

1 Days        ===> M: X    T: X    W: X    T: X    F: X    S:      S:
0 Start time  ===> H:      M:      S:     End time ===> H:      M:      S:

P1=Update                         P3=Return                     Enter=Add
P4=Activate                       P5=Inactivate                 P12=Entry P.
```

Rule detail definition screen

3.3.1. Contents of each field

Name

The name of the rule. This name must be unique across all rules in the system. The rules associated with a line are processed in alphanumeric order of this name. The rule name thus determines the priority of the rule within the line.

Status

Indicates whether the rule is ACTIVE or INACTIVE. To activate a rule, press [PF4]. To inactivate a rule, press [PF5].

Description

Description of the rule. This information is not used.

Entry point

The name of the entry point which will be assigned to the incoming call if this rule matches the call characteristics.

The value $COOKIE$ in the “Entry Point” field has a special meaning. This value is meaningful only in rules attached to an HTTP line. If a rule with this value is found, and if the HTTP request contains a cookie named VirtelRef, then the value of the cookie is used to identify the user, and VIRTEL switches to the rule set associated with the user, instead of processing the remainder of the rules attached to the line. If the HTTP request does not contain a cookie named VirtelRef, VIRTEL ignores this rule, and continues with the next rule attached to the line. See “Correspondent management” in the VIRTEL Web Access Guide.

Parameter

(optional) A parameter which will be associated with incoming calls matched by this rule. This parameter can be used in the following cases:

- the value of the parameter can be retrieved in a connection script via the '&1' variable (see “Connection – Disconnection Scripts”, page 95)
- For an XOT line: the parameter can specify the LU name for an incoming PCNE call. The terminals on the AntiPCNE line to which the call is routed must be defined in a logical pool (see “Terminals on an AntiPCNE line”, page 66)
- For an HTTP line: the parameter can specify the LU name to be used as the VTAM relay for an incoming HTTP call. The relay terminals on the HTTP line must be defined in a logical pool (see “Terminals on an HTTP line”, page 17).

An asterisk at the end of the LU name signifies that the parameter is a prefix rather than a specific value.

For an HTTP line: The value URL in the “Parameter” field indicates that the actual parameter value will be obtained from the userdata field of the URL (see “VIRTEL URL formats” in the VIRTEL Web Access Guide).

The value $COOKIE$ in the “Parameter” field has a special meaning. This value is meaningful only in rules attached to an HTTP line. If a rule with this value is found, and if the HTTP request contains a cookie named VirtelRef, and the value of the cookie matches a record in the VIRTEL correspondent file (see “Correspondent management” in the VIRTEL Web Access Guide), then VIRTEL selects this rule and uses the VTAM LU name contained in the correspondent record as the VTAM relay for the incoming HTTP call. If the HTTP request does not contain a cookie named VirtelRef, or if the value of the cookie does not match any user in the correspondent file, then VIRTEL ignores this rule, and continues with the next rule attached to the line.

Trace

Trace indicator for incoming calls which match this rule.

Blank

No trace.

1

Trace X25 commands.

2

Trace X25 data.

12

Trace X25 commands + data.

123

Where the call is rerouted via an external server, the trace will also be applied on the line used for the outgoing call.

Each of the following fields is preceded by a comparison indicator. The comparison indicator can be 0 (ignore), 1 (must equal), 2 (must not equal), 3 (must begin with), 4 (must not begin with), 5 (must end with), or 6 (must not end with). An incoming call matches this rule if all of the fields (except those whose comparison indicator is 0) match the corresponding characteristic of the call. A rule with all its comparison indicators set to 0 is an unconditional rule, which matches all incoming calls not matched by a higher priority rule.

IP Subnet

For an HTTP or SMTP line: The originating IP address or subnet address.

Mask

Indicates which bit positions in the IP address form the subnet address. For example, IP address 192.168.210.0 combined with mask 255.255.255.0 corresponds to addresses 192.168.210.0 through 192.168.210.255.

HTTP Host

For an HTTP line: The host name (possibly followed by a port number) supplied by the browser in the Host: HTTP header when connecting to VIRTEL.
For example, www.virtel.com:21000

In the case of requests forwarded by a reverse proxy (bastion host), the rule compares the value of this field with the X-Forwarded-Host: header (if present) instead of the Host: header.

For an SMTP line: The recipient's email address.

eMail

For an SMTP line: The sender's email address.

Calling DTE

For an X25 line: The calling number specified in the X25 call packet.

For an HTTP line: The IP address of the reverse proxy (bastion host) which forwarded the request on behalf of the originating user. If this field is present in the rule, and matches the source IP address of the HTTP request, then a "forwarding header" (see below) in the HTTP request is considered to contain the real originating IP address. This real originating IP address will be the one used for testing against the "IP Subnet" and "Mask" fields (if any) in the rule. If the rule matches, then message VIRHT56I will be issued and the call will henceforth be considered to have originated from the real originating IP address for the purposes of console messages and VIRLOG.

VIRTEL recognizes the following "forwarding headers" (in order of priority):

- iv-remote-address:
- X-Forwarded-For:

When the "Calling DTE" field contains an IP address, leading zeroes must be included where necessary. For example, 192.168.001.020

Reverse proxy addresses may also be specified in the HTFORWD parameter of the VIRTCT (see "Parameters of the VIRTCT" in the VIRTEL Installation Guide).

Called

For an X25 line: The called number specified in the X25 call packet.

CUD0 (Hex)For an X25 line: Up to 8 hexadecimal digits representing the first 4 bytes of the CUD field of the X25 call packet. For example, 01000000 (PAD), C0123450 (PCNE), C4 (GATE).

User Data

For an X25 line: The remaining part of the CUD (call user data) in the X25 call packet. The data in this field is expressed in character format. It is compared with the ASCII data starting at the 5th byte of the CUD field in the X25 call packet. VIRTEL performs the necessary ASCII-EBCDIC translation prior to comparing the contents of this field. To test the first 4 bytes of the CUD, use the CUD0 field in the rule instead.

Example: a call packet whose "Call User Data" field contains: C0123450 41424331 matches a rule which specifies CUD0=C0123450 and UserData=ABC1.

For an HTTP line: The contents of the userdata field of the URL (see "VIRTEL URL formats" in the VIRTEL Web Access Guide).

The following fields indicate the time periods during which this rule is active. The comparison indicator can be 0, 1, or 2.

Days

The days of the week on which this rule applies. Applicable days are marked by an 'X'.

Start Time / End Time

Indicates the period of operation of this rule for each applicable day.

4. Entry points

4.1. Introduction

Entry points define the session context for a terminal or for certain types of lines. A terminal connecting to VIRTEL must connect via an entry point.

This chapter describes the functions associated with entry point management, as well as the correlation with other elements of VIRTEL system administration, for example, line and terminal management.

4.1.1. Definition of an Entry Point

An entry point is a named entity that groups certain information designed to authorise, personalise and protect access to the host site. Entry points define the type of emulation required, the type of security control, which sign-on screen must be sent to the user at log on time, what type of Multi-session menu must be used and what applications are to be made available to the user.

4.1.2. Accessing the application

The Entry Point Management sub-application is accessed by pressing [PF3] in the Configuration Menu, or [PF13] in the Sub-Application Menu, or from the Multi-Session Menu via a transaction referencing module VIR0044. This sub-application allows management of the parameters associated with each entry point.

4.1.3. Security

When security is active, access to entry point management from the Configuration Menu or the Sub-Application Menu is controlled by the resource $$GLOG$$.

When accessed by a transaction, the rules governing the management of transaction security apply.

Security management is described in chapter 4 of the VIRTEL Technical Documentation.

4.1.4. Choosing the Entry Point

The entry point used in the connection from a terminal may be specified in various ways:

4.1.4.1. 3270 Terminals

The entry point to be used for a connection from a 3270 terminal can be specified:

- In the DATA parameter of a logon sequence.
  For example: LOGON APPLID(VIRTEL) DATA(PE-0001)
- In the VIRTEL terminal definition (see “Parameters Of The Terminal”, page 110).
- If no entry point is specified, the default entry point is the first value of the DEFENTR parameter in the VIRTCT. If this value does not exist, the terminal receives a signon screen compatible with the original Multi-Session VIRTEL (before version 3.0).

4.1.4.2. Asynchronous terminals on X25 non-GATE lines

A Minitel connecting to VIRTEL in LLC5 mode uses a VIRTEL terminal not associated with any line (see “Support of X25 non GATE terminals”, page 71). The entry point used for this type of connection can be specified:

- In the X25 call packet. The entry point is specified in the CUD (Call User Data) field of the call packet. The entry point name is in ASCII character format starting at the 5th byte of the CUD field, following the 4-byte protocol identifier.
- In the VIRTEL terminal definition (see “Parameters Of The Terminal”, page 110).
- If no entry point is specified, the default entry point is the second value of the DEFENTR parameter in the VIRTCT. If this value does not exist, the terminal is rejected.

4.1.4.3. Incoming calls on X25 lines (GATE, FastC, XOT)

The entry point to be used for an X25 connection (GATE, FastConnect, XOT) can be specified:

- By the rules of the line. If one of the rules associated with the line matches the characteristics of the call, the entry point chosen by the rule takes precedence over that specified in the call packet.
- In the X25 call packet. The entry point is specified in the CUD (Call User Data) field of the call packet. The entry point name is in ASCII character format starting at the 5th byte of the CUD field, following the 4-byte protocol identifier.
- A default entry point can be specified in the line definition (see “Parameters of the line”, page 11).
- If no entry point is specified, the default entry point is the second value of the DEFENTR parameter in the VIRTCT. If this value does not exist, the call is rejected.

4.1.4.4. Incoming calls on HTTP or SMTP lines

For an incoming call on this type of line, the entry point is chosen:

- By the rules of the line, if a rule exists which matches the characteristics of the request.
- Otherwise the default entry point specified in the definition of the HTTP or SMTP line will be used.

4.1.4.5. Outgoing calls from an X25 application via a reverse X25 line (/GATE, /FASTC, or /PCNE)

For an outgoing call from an application connected to VIRTEL via this type of line, the entry point is chosen according to the following procedure. Note that incoming calls (network to application) on this type of line are processed by the rules attached to the incoming line (X25 GATE, FASTC, XOT) and not by the rules attached to the reverse X25 line.

- The entry point defined in the terminal associated with the reverse X25 line, if specified. This value takes precedence over all other values.
- The entry point chosen by the rules of the reverse X25 line, if a rule matches the characteristics of the outgoing call from the application.

- The entry point specified in the Call User Data of the call packet sent by the application, if present.
- The default entry point defined in the reverse X25 line, if specified.
- If no entry point was specified by any of the preceding steps, the default is the second value of the DEFENTR parameter in the VIRTCT. If this value does not exist, the call is rejected.

4.2. Summary Of Existing Definitions

The entry point management application manages the entry points and their associated transactions. The first screen displayed shows a summary of existing entry points in alphanumeric order. A complete description of each field is presented in the following section.

```
LIST of ENTRY POINTS ------------------------------ Applid: SPVIRH1  14:32:34

Name     Description                                          Transactions

DEMOHTTP HTTP entry point (Examples)                          HTTP
MINITEL  Minitel Connections                                  PC
PC       PC connections without compression                   PC
PC3      PC connections with compression                      PC
SMTP     Receive messages via SMTP                            SMTP
SYSPER   General access menu                                  PC
WEB2HOST HTTP entry point (SysperTec WEB2HOST)                W2H









P1=Update            P2=Delete            P3=Return            P4=Transactions
P6=First page        P7=Previous          P8=Next              P12=Detail / Add
```

Summary of existing entry point definitions

4.2.1. Associated functions

4.2.1.1. Positioning the list

The list can be positioned in the following ways:

Search

Type the name, or the partial name, of the desired entity in the first line of the first column and press [Enter].

[PF6]

Return to the first page of the list.

[PF7]

Display the previous page of the list.

[PF8]

Display the next page of the list.

4.2.1.2. Modifying an entry point definition

To modify the definition of an entry point, enter the required information in the field then press [PF1]. Several definitions may be modified simultaneously. If the field you wish to modify does not appear on the summary screen, position the cursor on the entry and press [PF12] to display the definition detail screen.

Modifications do not take effect until you press [PF1]. Certain modifications, for instance a modification to an entry point used by a line, require a restart of VIRTEL.

4.2.1.3. Deleting an entry point definition

To delete a definition, position the cursor on the name of the entry to be deleted and press [PF2]. The line associated with the entry to be deleted will appear highlighted with the message CONFIRM DELETE. Press [PF2] again to confirm deletion. The message DELETE OK confirms successful completion of the operation. Repeat the procedure for each entry to be deleted.

4.2.1.4. Adding an entry point definition

To add a new definition, press [PF12] at the summary screen, either with the cursor on an existing definition to copy certain of its attributes, or on an empty line to create a new definition.

4.2.1.5. Displaying the list of associated transactions

To access the list of transactions associated with an entry point, position the cursor on the desired entry point and press [PF4]. The transaction management menu will then appear.

4.2.2. Contents of each field

Name

The name of the entry point.

Description

Description of the entry point.

Transaction

Prefix of the names of the transactions associated with this entry point (maximum 6 characters).

4.3. Parameters Of The Entry Point

To display the details of an entry point, position the cursor on the desired entry point in the summary screen and press [PF12].

```
ENTRY POINT DETAIL DEFINITION ---------------------- Applid: SPVIRH1  14:43:10

Name          ===> DEMOHTTP               Name this ENTRY POINT (LOGON DATA)
Description   ===> HTTP entry point (Examples)
Transactions  ===> HTTP                   Prefix for associated transactions
Last page     ===>                        Displayed at end of session
Transparency  ===>                        Server types NOT to emulate
Time out      ===> 0005       minutes     Maximum inactive time
Do if timeout ===> 0                      0=logoff  1=bip+logoff   2=anti pad
Emulation     ===> HTML                   Type of terminal:
```

```
MINITEL     :  40 or 80 columns          PC    :  Emulation done by VirtelPC
HTML        :  Web Browser               VT    :  VT 100
EBCDIC      :  not translated            X25   :  uses low level dialog
Signon program            ===> VIR0020H  Controls user name and password
Menu program              ===> VIR0021A  List of transactions
Identification scenario   ===>           eg XML identification
Type 3 compression        ===>           Discover typical screens  (Virtel/PC)
Mandatory identification  ===>                                    (PC or minitel)
3270 swap key             ===>           eg P24
Extended colors           ===>           E: extended  X: extended + DBCS

P1=Update                          P3=Return                  P4=Transactions
Enter=Add
```

Entry point detail definition screen

4.3.1. Contents of each field

Name

Represents the name of the entry point as specified in a logon sequence, or in the “Entry point” field of a terminal, line, or rule definition.

Description

Describes the entry point.

Transactions

Indicates the prefix (0 to 6 charaters) of the transactions associated with this entry point.

Last page

This field, which is used only for HTTP connections, indicates the name of the HTML page which will be displayed after the connection with the host application terminates. If blank, then the default page (whose name is equal to the entry point name) will be displayed.

For Minitel entry points, the “Last page” field is not displayed, and the “Videotex key” field is displayed instead.

Videotex key

This field, which is used only for Minitel connections, indicates the key word used to direct the request to the Minitel tree structure.

If routing is not necessary, for example for STI or JOUTEL, the keyword $NONE$ may be used.

Transparency

Indicates the type(s) of external server(s) where translation from ASCII to EBCDIC must not used.

Time Out

User inactivity timeout period (in minutes). If the user (or calling terminal) sends no messages during this period, the “Do if timeout” procedure is invoked. This timeout takes effect only for terminals using this entry point via HTTP, VIRTELPC, or X25 connections. It has no effect for 3270 connections.

Do if timeout

Action to be taken if the value specified in the “Time Out” field is exceeded.

0

Break the session.

1

Sound an alarm, the break the session if user takes no action.

2

Generate an inaudible alarm to avoid X25 PAD timeout.

While the terminal is connected to an external server application, session outage can also occur if the timeouts specified in the external server definition are exceeded.

Emulation

Indicates the type of emulation if the terminal using the entry point is not a 3270.

BORNE

For Minitels without accentuated character support.

EBCDIC

For asynchronous connections without ASCII / EBCDIC translation.

EMAIL

For SMTP connections.

HTML

For HTTP connections.

HOST4WEB or H4W

For HTTP connections. Same as HTML, except that it also allows HOST4WEB commands to be embedded in 3270 screens (for details, refer to the “Programming Interfaces” section in the VIRTEL Web Access Guide).

MINITEL

For Minitel connections in 40 or 80 column mode.

PC

For connections via VIRTEL/PC.

VT

For VT100 or VT200 type connections.

X25

For connections via Reverse-X25 or APPC2 lines.

$NONE$

For simple terminals in LUTYPE0 mode with ASCII translation. Even or odd parity, if required, can be specified at the line level.

$NONE$-E

Same as $NONE$ but without ASCII translation.

Signon program

Indicates the name of the program used to control user sign-on with the active security tool. If this field is not completed, no sign-on control is performed. Allowable values for this field are listed in section 1.4.4 117.

Menu program

Indicates the name of the program which presents the list of transactions which the user is allowed to access. Permissible values are listed in section 1.4.5 118.

Identification scenario

For emulation type MINITEL: Indicates the name of the program responsible for physical identification of Minitels connecting to VIRTEL.

For all other emulation types: Indicates the name of the presentation module containing the identification scenario for this entry point.

Scenarios are described under the heading “Presentation modules” in the VIRTEL Web Access Guide.

Type 3 compression

Indicates whether this entry point allows the use of level 3 compression. For more information on this subject, refer to “Parameters Of The Terminal”, page 110. An 'X' in this field activates support for level 3 compression.

Mandatory identification

Indicates whether connections made via VIRTEL/PC must present a physical identification of the connecting PC. Refer to the chapter VIRTEL PC/VT100 for more information on this subject. An 'X' in this field activates the PC identification process.

3270 swap key

Indicates the function key which allows the user to return from a transaction to the Multi-Session Menu. Permissible values are PF1 to PF24, PA1, PA2, PA3. If this field is blank, the swap key is specified by the SWAP parameter in the VIRTCT.

Extended colors

An 'E' in this field indicates support for 3270 extended attributes and colors. An 'X' indicates support for 3270 extended attributes and colors together with support for DBCS (Double Byte Character Set).

4.3.2. Associated functions

4.3.2.1. Updating an entry point

Type the modifications and press [PF1]. The message UPDATE OK is displayed to indicate successful completion of the operation.

4.3.2.2. Creating a new entry point

To create a new entry point, complete the fields on the screen and press [Enter]. The message CREATION OK is displayed to indicate successful completion of the operation.

4.3.2.3. Display list of associated transactions

Press [PF4] to display the list of transactions associated with the entry point

4.4. Signon Programs

The Signon Program field of the entry point indicates the name of the program used to control user sign-on. The following signon programs are supplied with VIRTEL:

VIR0020A

Standard program for sign-on processing by entry of USER/PASSWORD sequence via sign-on screen.

VIR0020B

Program used to process a logon sequence containing USER and PASSWORD. The logon sequence must conform to the following format: LOGON APPLID(ACBVIRTEL) DATA(EP USER PASSWORD) or EP (where EP is the entry point name).

VIR0020C

Program identical to VIR0020B, but without any validity check on the password.

VIR0020H

Sign-on program with WINDOWS user interface for HTTP mode.

VIR0020M

Standard sign-on program for 40-column Minitel.

VIR0020L

Standard sign-on program for 40-column Minitel by entry of USER and PASSWORD. The sign-on screen is produced with the help of a Videotex overlay whose name is the same as the entry point used. The source of this screen is in the member MAPSIGN. After changing the source, the resultant phase or load module can be placed into a separate LOADLIB concatenated to DFHRPL.

VIR0020P

Program similar to VIR0020L which allows access to public transactions (those defined with security = 0), if sign-on is rejected by the security system.

4.5. Menu Programs

The Menu Program field of the entry point indicates the name of the program which presents the list of transactions which the user is allowed to access. The following program names can be specified:

VIR0021A

Standard menu program for VIRTEL Multi-Session and HTTP.

VIR0021B

Program for connecting to a single transaction. This program only manages transactions defined in startup mode 1. The terminal is directly connected to the first transaction defined in startup mode 1.

VIR0021C

Program for connecting in Flip-Flop mode to authorized transactions. This program only manages transactions defined in startup mode 1. The user is directly connected to the first transaction defined in startup mode 1. When the user exits this application, the user is automatically connected to the next one and so on. When the last transaction in the list is reached, the user is reconnected to the first one. The use of a transaction referencing the LOGOFF subapplication allows the user to exit from VIRTEL.

VIR0021D

Program reserved for STI.

VIR0021E

Program for connecting incoming X25 calls destined for an AntiPCNE line. This program emulates the function of a VTAM logon interpret table. It reads the first message and selects the transaction whose external name matches the first 8 characters of the message. If there is no matching transaction then message VIR2151E is issued and the call is cleared.

VIR0021F

Program for connecting incoming X25 calls destined for an AntiPCNE line. This program emulates the function of a VTAM logon interpret table. It reads the first message sent by the partner (known as the pre-connexion message) and selects the transaction whose “Logon message” field matches the start of the pre-connextion message. The “Logon

message" field can contain an EBCDIC character string enclosed in apostrophes (case sensitive), or a hexadecimal string in the format X'hh...hh'. An empty string (two apostrophes) matches any message. The pre-connexion message is passed on to the application. If there is no transaction whose "Logon message" matches the pre-connexion message, then console message VIR2161E is issued and the call is cleared.

VIR0021G

Program for connecting incoming X25 calls destined for an AntiPCNE line. This program is similar to VIR0021F except that (a) the pre-connexion message is not passed on to the transaction, and (b) if the pre-connexion message does not match any transaction, the program continues to read incoming messages until a match is found. The entry point may contain additional transactions whose external name is USSMSGnn. These transactions do not participate in the matching of pre-connexion messages, but instead are used to generate responses to the terminal during the pre-connexion phase. If a transaction with external name USSMSG10 is present, the contents of its "Logon message" field are sent to the terminal upon receipt of the call packet. If a pre-connexion message arrives from the terminal which does not match any transaction, then the program looks for a transaction whose external name is USSMSG01 and sends the contents of its "Logon message" field to the terminal; if there is no transaction named USSMSG01 then message VIR2172E is issued and the call is cleared. If a transaction with external name USSMSG00 is present, the contents of its "Logon message" field are sent to the terminal immediately before the call is connected to the target application.

VIR0021J

Program for connecting to the first available transaction in a list. This program is similar to VIR0021B, but instead of connecting to the first transaction, it connects to the first transaction whose application is active. This allows VIRTEL to automatically select a backup application if the primary application is down.

VIR0021M

Standard menu program for 40-column Minitel. Identical to VIR0021A, this program is not a Multi-Session program.

VIR0021O

Program for connecting to a single transaction. Identical to VIR0021B, except that it does not disconnect the terminal when the application finishes.

5. Transactions

5.1. Introduction

A transaction is a named entity that allows access to an “application” at the host site. The term “application” may be either a VTAM application, a VIRTEL sub-application, an external server, or an HTML directory.

Each transaction is known to the user by its external name, and defines the rules of connection / disconnection of the referenced application. When a security tool is used, for example VIRTEL security, only the transactions defined as resources appearing in the profiles of a user are accessible by that user.

Each entry point has a list of associated transactions. The entry point management sub-application allows the administrator to manage the entry point and its associated transactions.

5.2. Summary Of Existing Definitions

Press [PF4] at the entry point detail screen to display the list of associated transactions:

```
LIST of TRANSACTIONS prefixed by: HTTP   ----------- Applid: SPVIRH1  15:04:32

Internal External     Description                                    Application
Name     Name
HTTP-05  DEMOHTTP Default directory = entry point name                HTMLBAS
HTTP-10  Admin    Virtel administration                               VIR0022
HTTP-15  Accueil  Logon to Virtel in HTML mode                        ACBVIRT
HTTP-20  Tso      Logon to Tso                                        TSO
HTTP-25  tran1    Logon to CICS                                       ACBCICS
HTTP-30  entrees  Entry point management                              VIR0044
HTTP-35  multi    Indirect access to menu program                     VIR0021H
HTTP-40  cvcs     CVC status                                          VIR0027
HTTP-45  DEMOSECU Demohttp with signon security                       HTMLBAS
HTTP-50  BDF0     Banque de France                                    ACBCICS
HTTP-55  SYN0     Synapse                                             ACBCICS
HTTP-60  PLUGSRCE Directory for SYSINSTALL + Pletor DLL               PLUGSRCE
HTTP-65  Activate Activation of correspondents                        VIR0041A
HTTP-70  upload   Upload HTML pages (secured by cookie)               VIR0041C
HTTP-71  uplbas   Upload HTML pages (HTMLBAS directory)               VIR0041C
HTTP-72  uplw2h   Upload HTML pages (W2H-DIR directory)               VIR0041C

P1=Update            P2=Delete            P3=Return
P6=First page        P7=Previous          P8=Next                      P12=Add
```

Summary of transactions associated with an entry point

5.2.1. Associated functions

5.2.1.1. Positioning the list

The list can be positioned in the following ways:

Search

Type the name, or the partial name, of the desired entity in the first line of the first column and press [Enter].

[PF6]

Return to the first page of the list.

[PF7]

Display the previous page of the list.

[PF8]

Display the next page of the list.

5.2.1.2. Modifying a transaction definition

To modify the details of a transaction, type the required changes in the appropriate fields and press [PF1]. You can change more than one definition at a time. To modify a field not shown on the summary screen, position the cursor on the transaction and press [PF12] to display the transaction detail screen.

Important note: Changes do not take effect until you press [PF1]. After updating a transaction definition, you must also update the entry point(s) concerned by pressing [PF3] twice (to return to the list of entry points) then [PF1] to register the change(s) to the entry point.

5.2.1.3. Deleting a transaction definition

To delete a definition, position the cursor on the name of the transaction to be deleted and press [PF2]. The line associated with the transaction to be deleted will appear highlighted with the message CONFIRM DELETE. Press [PF2] again to confirm deletion. The message DELETE OK confirms successful completion of the operation. Repeat the procedure for each transaction to be deleted.

5.2.1.4. Adding a transaction definition

To add a new definition, press [PF12] at the summary screen, either with the cursor on an existing definition to copy certain of its attributes, or on an empty line to create a new definition.

5.2.1.5. Displaying the transaction detail screen

To access the detailed transaction definition, position the cursor on the desired transaction and press [PF12]. The transaction detail definition screen will then be displayed.

5.2.2. Contents of each field

Internal name

> Indicates the internal name of the transaction as it is known to the system. If a security tool is used, this name must be defined as a resource. Only those users with the resource in one of their profiles can access this transaction. Note that on the Multi-Session Menu, these transactions appear by alphanumeric order of their internal name.

External name

> Indicates the name of the transaction as it is known to the end user. This name appears in field [10] of the Multi-Session Menu, as shown in the chapter describing Multi-Session. This is also the name by which the transaction is referenced in an HTTP request.

Description

> Caption associated with the transaction. This caption appears on the Multi-Session Menu.

Application

> Indicates the name of the application accessed via the transaction. This application can be a VTAM application, a VIRTEL sub-application, an external server, or a directory of HTML pages.

5.3. Parameters Of The Transaction

Pressing [PF12] in the transaction summary screen allows access to the transaction definition detail screen:

```
TRANSACTION DETAIL DEFINITION ---------------------- Applid: SPVIRH1  13:41:36

Internal name ===> PC-0011                To associate with an entry point name
External name ===> CICT                   Name displayed on user menu
Description   ===> Logon to CICS
Application   ===> SPCICST                Application to be called
PassTicket    ===> 0  Name ===>           0=no 1=yes 2=unsigned
Application type  ===> 1                  1=VTAM 2=VIRTEL 3=SERV 4=PAGE 5=LINE
Pseudo-terminals  ===>                    Prefix of name of partner terminals
Logmode           ===>                    Specify when LOGMODE must be changed
How started       ===> 2                  1=menu 2=sub-menu 3=auto
Security          ===>                    0=none 1=basic 2=NTLM 3=TLS 4=HTML
Translation(s)    ===>                    0=idem 1=8040 2=8080 3=4040 4=auto
```

```
Logon message      ===>

TIOA at logon      ===>

TIOA at logoff     ===>

Initial Scenario   ===>                  Final Scenario      ===>
Input Scenario     ===>                  Output Scenario     ===>

P1=Update                          P3=Return                        P12=Server
```

Transaction definition detail screen (non-HTML transaction)

```
TRANSACTION DETAIL DEFINITION ---------------------- Applid: SPVIRH1  13:42:34

Internal name ===> W2H-10                To associate with an entry point name
External name ===> Cics                  Name displayed on user menu
Description   ===> Logon to CICS
Application   ===> SPCICST               Application to be called
PassTicket    ===> 0  Name ===>          0=no 1=yes 2=unsigned
Application type   ===> 1                1=VTAM 2=VIRTEL 3=SERV 4=PAGE 5=LINE
Pseudo-terminals   ===> DEVT             Prefix of name of partner terminals
Logmode            ===>                  Specify when LOGMODE must be changed
How started        ===> 1                1=menu 2=sub-menu 3=auto
Security           ===> 0                0=none 1=basic 2=NTLM 3=TLS 4=HTML
H4W commands ?     ===>                  0=no 1=yes 2=if2VIRTEL 4=auto
Logon message      ===>

TIOA at logon      ===>

TIOA at logoff     ===>

Initial Scenario   ===>                  Final Scenario      ===>
Input Scenario     ===>                  Output Scenario     ===>

P1=Update                          P3=Return                        P12=Server
```

Transaction definition detail screen (HTML transaction)

5.3.1. Contents of each field

Internal name

The name of the transaction as it is known to the system. The first “n” characters of this name are the prefix by which the transaction is linked to one or more entry points. Transaction security is based on this internal name. It should be noted that the transactions are placed on the Multi-Session Menu in alphanumeric order of the internal name.

External name

The name of the transaction as it is presented to the user in the selection screen. This is also the name by which the transaction is referenced in an HTTP request (see “VIRTEL URL formats” in the VIRTEL Web Access Guide).

Description

The descriptive label associated with the transaction as it is presented to the user in the selection screen.

Application

The name of the application associated with the transaction. This application can be a VTAM application, a VIRTEL sub-application, an external server, a directory containing HTML pages, or the name of a VIRTEL line.

When the “Application Type” is 3 (external server), the following values have special meaning:

&L

the server name is the same as the terminal name

&R

the server name is the same as the relay name

&1

the server name is the same as the “parameter” field of the rule which matched the incoming call

=

(for incoming calls via a VIRPESIT line only) the server name is the same as the destination partner name specified in the PESIT file transfer header

For application type 3 or 4, you can press [PF12] to display the detailed definition of the external server or HTML directory.

When the “Application Type” is 5, this field contains the internal or external name of a VIRTEL line. Application type 5 is used by the SEND$ TO and SEND$ VARIABLE-TO instructions (see “VIRTEL Scenarios” in the VIRTEL Web Access Guide)

PassTicket

Indicates whether VIRTEL should generate les PassTickets for this application. Possible values are:

0

(default value) indicates that VIRTEL should not generate PassTickets for this application.

1

specifies that VIRTEL should generate a PassTicket, using the specified RACF application name, if the user has signed on to VIRTEL. The PASSTCK=YES parameter must also be specified in the VIRTCT.

2

specifies that VIRTEL should generate a PassTicket, even if the user has not signed on to VIRTEL. The PASSTCK=YES parameter must also be specified in the VIRTCT.

Note: The value 2 implies that the user has supplied the userid in some other way, for example by means of a scenario containing the COPY$ VARIABLE-TO-SYSTEM,FIELD=(NAME-OF,USER) instruction (see VIRTEL Web Access Guide)

Name

The name of the application as known to RACF for generation of PassTickets. This may be different from the VTAM application name.

Application Type

Defines the type of application described in the “Application” field. Permissible values for this field are:

1

for a VTAM application

2

for a VIRTEL sub-application

3

for an external server

4

for a directory containing HTML pages

5

for a reference to a VIRTEL line

Pseudo Terminals

Specifies the prefix of the name of the VIRTEL terminal which will be used to connect to the application.

The value $LINE$ in the “Pseudo Terminals” field indicates that this transaction is reserved for HTTP connections using non-predefined terminals (see “HTTP connections with non-predefined LU names”, page 20).

Logmode

The name of the new LOGMODE that must be used to connect to the application.

How started

Represents the desired startup mode for the transaction. Permissible values are as follows:

1

The transaction is integrated in the primary list.

If authorised after security checking, it will appear in the primary Multi-Session menu. User intervention will be required to access this application, unless menu programs VIR0021B or VIR0021C are used.

2

The transaction is integrated in the secondary list.

If authorised after security checking, it will appear in the Multi-Session sub-menu. User intervention will be required to access this application.

3

The transaction is integrated in the primary list with automatic startup when the terminal connects to VIRTEL.

If several transactions defined with automatic startup appear in the primary list, only the last one in the hierarchy is activated at connection time.

Do not confuse automatic startup in transparent mode (menu program VIR0021B + transaction startup mode 1) with automatic startup offering the possibility to return to a selection menu screen (menu program other than VIR0021B or VIR0021C + transaction startup mode 3).

Note than startup mode 4 which was present in VIRTEL prior to version 4.0 has been replaced by value 0 in the “Security” field.

Security

The type of security applied to the transaction.

0

Public transaction.

A public transaction is always available whatever security tool is used.

1

Secure transaction (Basic security).

A secure transaction is only available to a user if authorized by the active security tool. For HTTP access, the user is prompted, if necessary, for a userid and password.

2

Secure transaction (NTLM security).

For HTTP access only, security type 2 allows VIRTEL to obtain the Windows userid of the user, without prompting the user to signon again. The active security tool must recognize the userid and grant access to the transaction. This type of security should only be used on a LAN or on an encrypted session.

3

Secure transaction (Certificate security).

A transaction with type 3 security must be accessed via HTTPS (secure session), and the client browser must present a certificate recognized by the active security tool (RACF). The userid associated with the certificate must be granted permission by the security tool to access the transaction.

Type 3 security is only possible when running z/OS V1R7 or later, using a secure connection provided by AT-TLS

4

Secure transaction (HTML security).

Used with HTTP access, security type 4 allows VIRTEL to obtain the userid and password of the user from fields supplied in the HTML page. The fields must be declared by means of the DECLARE-FIELD-AS tag in the page template. For more details, refer to the section “Creating HTML and XML template pages: Signon and password management” in the VIRTEL Web Access Guide.

Translation(s)

Type(s) of translation supported for MINITEL connections. Specify one or more of the following values:

0

Same type of translation required in the sub-server node definition.

1

3270 messages are processed in 80 column format but are only displayed as 40 columns unless otherwise specified (for example, if $%80 is present in the data stream).

2

3270 messages are processed in and displayed in 80 column format unless otherwise specified (for example, if $%40 is present in the data stream).

Modes 1 and 2 are mutually exclusive.

3

3270 messages are processed in 40 column format.

This mode is used only for certain IMS applications.

4

Automatic detection of translation mode.

This mode supports applications which produce both 3270 messages and videotex messages. VIRTEL adapts the display format automatically according to the type of message being processed. For example suppose a transaction defined with translation modes 2 and 4 is accessed from a sub-server node. Messages from this application will be automatically displayed as if they were already in videotex format (mode 4) or displayed directly in 80 column format for other cases (mode 2).

This translation mode is compulsory for SRTV applications.

For transactions attached to an entry point type HTML, HOST4WEB, or H4W the field “Translation(s)” is replaced by the field “H4W commands”

H4W commands

For HTTP connections, this field indicates under what conditions HOST4WEB commands should be processed. Specify one of the following values:

0

Never process HOST4WEB commands.

1

Always process HOST4WEB commands.

2

Process HOST4WEB commands only if the first field of the message begins with the characters “2VIRTEL”.

4

Process HOST4WEB commands if either (a) the entry point specifies emulation type HOST4WEB or H4W, or (b) the entry point specifies HTML and the first field of the message begins with the characters “2VIRTEL”.

These values are meaningful only when the entry point specifies emulation type HTML, HOST4WEB, or H4W. For further details, refer to the “Programming Interfaces” section in the VIRTEL Web Access Guide.

Logon message

Application type 1: Character string sent to the application as “Logon data” at connection time. This string may also contain certain script variables and orders as described below.

Application type 3: For transactions associated with an entry point which specifies menu program VIR0021F or VIR0021G (see “Menu Programs”, page 85) this field is used to identify incoming calls.

For type 4 (HTML directory definition) transactions, the field “Logon message” is replaced by the field “Check URL Prefix”

Check URL Prefix

Application type 4: If the pathname of a URL matches the character string specified in this field, then the pathname corresponds to the VIRTEL directory whose name is specified in the “Application” field. See “How the path name corresponds to a VIRTEL directory” in the “VIRTEL URL formats” section of the VIRTEL Web Access Guide.

TIOA at logon

Application types 1-3: Script to be run at application connection time. Scripts are described under the heading “Connection – Disconnection Scripts”, page 95.

Application type 4: For type 4 (HTML directory definition) transactions having the same name as an entry point, the “TIOA at logon” field contains the default URL for the entry point. Refer to the “VIRTEL URL formats” section of the VIRTEL Web Access Guide for further details.

TIOA at logoff

Application types 1-3: Script to be run before disconnecting from the application.

Initial Scenario
Final Scenario
Input Scenario
Output Scenario

For HTML transactions, each of these fields may contain the name of an HTML presentation module. For each field which is non-blank, VIRTEL will call the corresponding scenario (INITIAL, FINAL, INPUT, or OUTPUT) in the named presentation module.

An OUTPUT scenario may also be referenced by a VIRTEL Multi-Session transaction.

Scenarios are described under the heading “Presentation modules” in the VIRTEL Web Access Guide.

5.3.1.1. Associated functions

Update a transaction

After entering the modifications press [PF1]. The message UPDATE OK indicates that the operation completed successfully.

Create a new transaction

To create a new transaction, complete all required fields and press [ENTER]. The message CREATE OK indicates that the operation completed successfully.

After adding, deleting or updating a transaction, it is essential to update the entry points used by this transaction by pressing [PF1] at the entry point summary screen.

5.4. Connection / Disconnection Scripts

When connecting to an application, it may be useful, if desired, to automatically execute certain operations to direct the user to a defined point within the application. The most commonly used operations are application signon procedures. Similarly, when the user logs off from an application, it can be useful to run various commands to release application resources. These operations are called “connection and disconnection scripts”.

Scripts are entered in the fields “TIOA at logon” and “TIOA at logoff” of a transaction, or in the “TIOA at start up” field of an external server, with the help of the language described below. A script can send data and 3270 (or Minitel) attention keys to the application, send data to the terminal, and wait for specific data from the application.

5.4.1. Script language description

A connection / disconnection script consists of a sequence of “clauses”. A clause consists of some data (which may contain embedded variables and orders) followed by a command. All commands, variables, and orders begin with the '&' character.

5.4.1.1. Transmission and filter commands

The command acts upon the data which precedes it. The commands are as follows:

Desired operation	Command
Transmit the preceding data to the application	&/A
Transmit the preceding data to the terminal	&/T
Ignore and discard the current application message	&/I
Wait until the application sends a message containing the character string specified in the preceding data	&/W
Same as &/W except that messages are still sent to the terminal while being filtered	&/F
Kill the script (connection / disconnection)	&/K

Note: Any blanks immediately following a &/ command are ignored.

For compatibility with versions of VIRTEL prior to 4.31, the / (slash) in the above commands may also be coded as the EBCDIC character whose hexadecimal value is X’4F’. In the US, Canada, and UK codepages, X’4F’ is represented by a vertical bar. In some European countries, X’4F’ appears as an exclamation point.

5.4.1.2. System variables

System variables are information known only to VIRTEL at the time of accessing an application. These variables are in the format &n where “n” represents the desired variable.

Available information	Corresponding variable
Transaction name	&T
VTAM terminal name	&L
Transaction external name	&X
Transaction description	&D
Application name	&A
Call User Data (12 bytes)	&C
Relay name	&R
User name	&U

Available information	Corresponding variable
User password	&P
Rerouting parameters	&1, &82, &83, . . ., &8F
URL parameter	&=paramn=
VIRTEL variable	&=varname=

Note 1

> System variables may also be coded in the Logon Message field.

Note 2

> The system variable &=name= is used to obtain the value of either a URL parameter or of a VIRTEL variable created by a scenario (described in the VIRTEL Web Access Guide). If both a URL parameter and a VIRTEL variable exist with the same name then the VIRTEL variable takes precedence.

5.4.1.3. Buffer address values

The transmission of data to a 3270 application requires that each of these data should be preceded by >the position it normally occupies in the 3270 screen. This position must be entered in hexadecimal using the SBA (Set Buffer Address codification system in which each position is express using the form “11LLCC”, where “11” is a constant and “ LLCC” the hexadecimal value associated with the position on the screen.

For example, the position “Line 1” “Column 1” is represented by the value “ 114040”, while the posititon “Line 19” “Column 36” is represented by the value “11D7C3”. For a full knowledge of the position for a 24 rows and 80 columns screen,refer to the following SBA translation table.

5.4.1.4. Orders

Orders may be embedded in the clause data. Orders are used to set the 3270 (or Minitel) attention key to be sent by the following &/A command, to embed hexadecimal or special values in the data, or to cause the script to wait for the first message from the application, or to process a scenario.

Information to be sent	Corresponding order
Set the AID and cursor address for a 3270 read operation (note 1)	&*xxrrcc where xx is: F1-F9=PF1-PF9, 7A-7C=PF10-PF12, C1-C9=PF13-PF21, 4A-4C=PF22-24, 7D=Enter; rrcc is the cursor address in 3270 buffer address format
Set the AID for a 3270 short read operation (note 2)	&£yy or &*yy where yy is: 6C=PA1, 6E=PA2, 6B=PA3, 6D=Clear, FD=Attn
Minitel keys in external server	&*0Dxx40 where xx is: F1=Guide, F2=Repet, F3=Somm, F4=Annul, F7=Retour, F8=Suite, F9=Copier, 7B=EndPage, 7C=Corr, 7D=Envoi, 6D=Conn/Fin
Data in hexadecimal (note 4)	&'hhhhhhhhhhh'
Ampersand character (note 4)	&&
Wait for first message (note 3)	&W
Write preceding character string to console and discard	&/M
Start of repeating script for service transaction (note 5)	&(
End of repeating script for service transaction (note 5)	&)
Execute scenario (note 6)	&/S

Information to be sent	Corresponding order
Use tab key to skip to the next available input field (note 7)	&>

Note 1

If a function key occurs in the middle of a script, the transmission sequence for the function key must be &*xxrrcc&/A. Where the function key is at the end of the script, there is no need to add &/A. If &/A or end of script occurs with no AID key specified, the default is &*7D4040 (Enter with cursor at row 1 col 1).

Note 2

Never use &/A to send PA keys or Clear to the application.

Note 3

The &W order is processed only if it appears at the start of the script; otherwise it is ignored.

Note 4

Orders &'hh...hh' and && may also be coded in the Logon Message field.

Note 5

&(and &) enclose a section of the script which will be repeated. When the script reaches the &) order, the transaction is converted into a "service transaction" and remains active waiting for similar requests from other users (see "Service transactions" in the VIRTEL Web Access Guide).

Note 6

The &/S order executes a scenario. If coded in the connexion script ("TIOA at logon"), it executes the INITIAL scenario of the presentation module named in the "Initial Scenario" field of the transaction. If coded in the disconnexion script ("TIOA at logoff"), it executes the FINAL scenario of the presentation module named in the "Final Scenario" field of the transaction (see "Presentation modules" in the VIRTEL Web Access Guide). Any data preceding the &/S order is ignored. Any blanks immediately following the &/S order are ignored.

Note 7

The &> order does not transmit anything and must be completed with a transmission order. This order can be concatenated as many times as necessary before transmission. Exemple : &>&> can be used to simulate two tab key usage.

5.4.2. Script method of operation

If present, a script is first called when the initial connection is made to the application. VIRTEL examines the start of the script to see if it begins with the order &W (wait for first message from application). If so, then no further action is taken at this time, and script processing continues after the first message is received from the application. Otherwise, the first clause of the script is actioned according to its command code, as follows:

- &/W, &/F, &/I : no further action is taken at this time, the clause will be reprocessed when the first message arrives from the application
- &/T, &/A : the data preceding the command is transmitted to the terminal or application
- &/K : the connection is scheduled for termination

Subsequently, VIRTEL processes one clause of the script each time a message arrives from the application. Each clause is actioned according to its command code, as follows:

- &/W : VIRTEL tests whether the data preceding the &/W command appears in the message. If the data is not found, then the message is discarded, and the &/W clause is processed again when the next message arrives from the application. If the data is found, then the message is discarded and the next clause in the script is immediately processed.
- &/F : VIRTEL tests whether the data preceding the &/F command appears in the message. If the data is not found, then the message is sent to the terminal, and the &/F clause is processed again when the next message arrives from

the application. If the data is found, then the message is discarded and the next clause in the script is immediately processed.

- &/I : the application message is discarded.
- &/T, &/A : the data preceding the command is transmitted to the terminal or application.
- &/K : VIRTEL will send the message and immediately disconnect the communication, without waiting for the response (asynchronous mode used with certain servers).

Data sent to the application by means of the &/A command must be constructed in the format expected by the application. In the case of a 3270 application, the message is in the form of a 3270 data stream. VIRTEL adds a standard 3-byte 3270 prefix (consisting of AID character and cursor SBA) which defaults to default is 7D4040 but may be overridden by a &* or &£ order embedded in the preceding script data. In the case of a Minitel application, VIRTEL adds the appropriate suffix (0Dxx) as indicated by an &* order embedded in the preceding script data (see table of script orders below).

Data sent to the terminal by means of the &/T command must be constructed in the same format as the application would generate. In the case of a 3270 application, the message must be in the form of a 3270 data stream prefixed by a 3270 command code and WCC. VIRTEL will translate the message to the format required by the terminal (for example, HTML or Minitel) as appropriate.

5.4.3. Examples of scripts

NOTE: In these examples, script commands are introduced by the preferred sequence &/ (ampersand slash). For compatibility with existing scripts created before version 4.31 of VIRTEL, the slash may optionally be replaced by the EBCDIC character whose hexadecimal value is X'4F'.

5.4.3.1. Connection to CICS (no sign-on) with automatic start of a transaction

In the simplest case, the CICS transaction code is entered in the field "TIOA at logon". The script below simply sends the ABC1 transaction code to CICS at connection time:

```
Internal name ===> W2H-10                To associate with an entry point name
External name ===> Cics                  Name displayed on user menu
Description   ===> Logon to CICS
Application   ===> ACBCICS                Application to be called
Application type   ===> 1                1=VTAM 2=VIRTEL 3=SERV 4=PAGE 5=LINE
Pseudo-terminals   ===> DEVT             Prefix of name of partner terminals
Security           ===> 0                0=none 1=basic 2=NTLM 3=TLS 4=HTML
Logon message      ===>
TIOA at logon      ===> ABC1
```

Connection script to start a CICS transaction

This example works only if the CICS TYPETERM definition specifies LOGONMSG(NO). If CICS is configured to send an initial message to the terminal at logon, by means of the LOGONMSG(YES) parameter, then a bracket error would occur when the above script is executed. To avoid this, the transaction code must be prefixed by &W to wait for the initial message to be delivered, as shown in the next example.

5.4.3.2. Connect to CICS and start transaction CESN with transmission of USER PASSWORD

The variables &U and &P can be used to pass the current VIRTEL userid and password to the CICS signon transaction:

```
Internal name ===> W2H-11                To associate with an entry point name
External name ===> Cics2                 Name displayed on user menu
Description   ===> Logon to CICS
Application   ===> ACBCICS2               Application to be called
Application type   ===> 1                1=VTAM 2=VIRTEL 3=SERV 4=PAGE 5=LINE
```

```
Security           ===> 1                0=none 1=basic 2=NTLM 3=TLS 4=HTML
Logon message      ===>
TIOA at logon      ===> &WCESN&/ASignon&/F&*7D4EC9&'114BE9'&U&'114CF9'&P&/A
```

Connection script with automatic signon to CICS

This script waits for the initial message from CICS, then enters the transaction code CESN. It waits for the “Signon” prompt to be displayed, then enters the userid and password in two separate fields and sends the completed screen to the host. Security=1 is specified to ensure that the user is signed on to VIRTEL. The SBA orders 11xxxx identify the position of the userid and password fields in the CESN signon panel and may vary as a function of the site.

5.4.3.3. Connection to CICS VSE with ICCF sign-on and start transaction CEMT

The following script illustrates the use of a PF key:

```
Internal name ===> W2H-12               To associate with an entry point name
External name ===> ICCF                 Name displayed on user menu
Description   ===> Logon to CICS VSE
Application   ===> DBDCCICS             Application to be called
Application type   ===> 1               1=VTAM 2=VIRTEL 3=SERV 4=PAGE 5=LINE
Security           ===> 1               0=none 1=basic 2=NTLM 3=TLS 4=HTML
Logon message      ===>
TIOA at logon      ===> REMOTE&/W&'11E35C'&U&'11E560'&P&/AEscape&/W&*F64040&/A
CEMT&/A
```

Connection script with automatic signon to ICCF

This script waits for the ICCF signon screen (recognized by the word ‘REMOTE’), then enters the userid and password in two separate fields and sends the completed screen to the host. It waits for the ICCF main menu (recognized by the word “Escape”) and presses F6. It then enters the transaction code CEMT. The SBA orders 11xxxx identify the position of the userid and password fields in the ICCF signon panel and may vary as a function of the site.

5.4.3.4. Connect to TSO with USER and PASSWORD and await start of ISPF

This is an example of an HTTP transaction which uses the “Logon Message” field to pass the userid to TSO, followed by a script to complete the TSO/ISPF logon process:

```
Internal name ===> W2H-13               To associate with an entry point name
External name ===> Tso                  Name displayed on user menu
Description   ===> Logon to Tso
Application   ===> TSO                  Application to be called
Application type   ===> 1               1=VTAM 2=VIRTEL 3=SERV 4=PAGE 5=LINE
Security           ===> 1               0=none 1=basic 2=NTLM 3=TLS 4=HTML
Logon message      ===> &U
TIOA at logon      ===> TSO/E LOGON&/W&'11C9C3'&P&/A***&/W&/Aispf&/W&/A
```

Connection script with automatic logon to TSO/ISPF

The script waits for the TSO/E LOGON panel for the specified userid, then enters the password into the appropriate field. It waits for the *** prompt to appear, and presses enter. It waits for the ISPF command to appear (this is assumed to be already in the user’s TSO/E LOGON Command field) and presses enter. Security=1 is specified to ensure that the user is already signed on to VIRTEL. The SBA order 11C9C3 identifies the password field (at row 8 col 20) in the TSO/E LOGON panel and may vary as a function of the site.

5.4.3.5. Connect to CICS and navigate a user applicaction

```
Internal name ===> W2H-14               To associate with an entry point name
External name ===> Cics4                Name displayed on user menu
```

```
Description   ===> Logon to CICS
Application   ===> ACBCICS2              Application to be called
Application type   ===> 1                1=VTAM 2=VIRTEL 3=SERV 4=PAGE 5=LINE
Security           ===> 1                0=none 1=basic 2=NTLM 3=TLS 4=HTML
Logon message      ===>
TIOA at logon      ===> &'F5C21140401D4013'&/TWELCOME&/W&*7D40C1
TIOA at logoff     ===> &#6BCESF LOGOFF&/A
```

Connection script with message to terminal

This script sends an initial 3270 message to the terminal to format the screen and position the cursor. The data in this initial message consists of a 3270 Write-Erase command (F5), a Write Control Character (C2), a Set Buffer Address order (114040), a Start Field order (1D40) and an Insert Cursor order (13). Having sent this message, the script waits for the CICS application to send a message containing the string “WELCOME”, then it sends the “Enter” key to the CICS application. When the terminal user disconnects, the logoff script sends the “Clear” key to CICS followed by CESF LOGOFF.

5.4.3.6. Connect and run service transaction

This example shows a script which connects to CICS and repeatedly issues an enquiry transaction whose parameters are supplied in the URL of an HTTP request:

```
Internal name ===> W2H-15              To associate with an entry point name
External name ===> Cics5               Name displayed on user menu
Description   ===> CICS Service Transaction
Application   ===> ACBCICS2            Application to be called
Application type   ===> 1              1=VTAM 2=VIRTEL 3=SERV 4=PAGE 5=LINE
Security           ===> 1              0=none 1=basic 2=NTLM 3=TLS 4=HTML
Logon message      ===>
TIOA at logon      ===> Signon to CICS&/W&*F34BE9&/A&(TRA1&=MYPARAM=&/A&)
```

Connection script for service transaction

The first part of this script signs on to CICS using the default CICS userid. This part of the script is executed once only when the VIRTEL transaction is called for the first time. The remainder of the script, bracketed by the &(and &) orders, is executed repeatedly. Because the script has a repeating part, this transaction is known as a “Service Transaction”. Each time an HTTP request arrives in the form http://ipaddr:port/pagename+cics5?myparam=xyz123 it is dispatched to the service transaction, if one is available, and the script executes the CICS transaction TRA1xyz123 where xyz123 is the value of the URL parameter “myparam=” specified in the HTTP request. The result of this CICS transaction is returned to the requester using pagename as a page template. The request is then terminated, but the session between VIRTEL and CICS remains connected waiting for the next request.

5.4.3.7. Connect and run CA7 application

This example shows a script which connects to CA7:

```
Internal name ===> W2H-16              To associate with an entry point name
External name ===> CA7                 Name displayed on user menu
Description   ===> Computer Associate CA7 Application
Application   ===> ACBCA7              Application to be called
Application type   ===> 1              1=VTAM 2=VIRTEL 3=SERV 4=PAGE 5=LINE
Security           ===> 1              0=none 1=basic 2=NTLM 3=TLS 4=HTML
Logon message      ===>
TIOA at logon      ===> USERID&/W&*7D4B60&'11C761'/LOGON &'11C940'&U&'114050'&P
&'114B60' &'114CF0' &'114E40' &/A
```

Connection script for CA7 application

The first part of this script waits for the sequence of characters "USERID" before transmitting the "ENTER" key. Then he expects "/LOGON" before positioning the user ID (&U) and password (&P), it finally add three spaces characters on line

10 column 17 (& '114B60'), on the line 11 column 17 (&'114CF0') and on the line 12 column 17 (&'114E40'). These three additional fields are mandatry for the script to work correctly. See below for an exact syntax of the script including the spaces characters.

```
USERID&/W&*7D4B60&'11C761'/LOGON &'11C940'&U&'114050'&P&'114B60' &'114CF0' &'114E40' &/
```

5.4.3.8. Connect and run Mainview application

This example shows a script which connects to Mainview:

```
Internal name ===> W2H-17                To associate with an entry point name
External name ===> Mainview                 Name displayed on user menu
Description   ===> Mainview Application
Application   ===> ACBMAINV                Application to be called
Application type   ===> 1                 1=VTAM 2=VIRTEL 3=SERV 4=PAGE 5=LINE
Security           ===> 1                 0=none 1=basic 2=NTLM 3=TLS 4=HTML
Logon message      ===> &U
TIOA at logon      ===> PASSWORD&/W&'11D3C6'&P&/A
```

Connection script for Mainview application

Userid is transmited at logon using the logon message fiels. The first part of this script waits for the sequence of characters "PASSWORD" before positioning and transmitting the password (&P).

5.4.3.9. Connect and run Dispatch transaction

This example shows a script which connects to DISPATCH:

```
Internal name ===> W2H-18                To associate with an entry point name
External name ===> Dispatch                 Name displayed on user menu
Description   ===> Dispatch Application
Application   ===> ACBDISPA               Application to be called
Application type   ===> 1                 1=VTAM 2=VIRTEL 3=SERV 4=PAGE 5=LINE
Security           ===> 1                 0=none 1=basic 2=NTLM 3=TLS 4=HTML
Logon message      ===>HI &U
TIOA at logon      ===> CADS&/W&'11C9C3'&P&/A
```

Connection script for Dispatch application

Logon message field is use to transmit HI and the Userid within the connection request. The first part of this script waits for the sequence of characters "CADS" before positioning and transmitting the password (&P).

6. External servers

6.1. Introduction

The external server management sub-application allows the administrator to maintain the call parameters relating to the various servers available for outgoing calls. External server definitions allow users at 3270 terminals to access Videotex servers via an X25 network. Additionally, starting with VIRTEL version 4.14, the concept of an external server is extended to handle the routing of incoming and outgoing calls to and from X25 GATE/PCNE applications such as CFT and Inter.PEL. Starting with VIRTEL version 4.42, the external server may also be used to define the parameters for outbound calls to a PESIT/IP file transfer server via a VIRPESIT line.

6.1.1. Access to the application

The external server management sub-application is accessed by pressing [PF7] in the Configuration Menu, or [PF11] in the Sub-Application Menu, or from the Multi-Session Menu via a transaction referencing module VIR0031. This sub-application allows management of the parameters associated with each external server.

6.1.2. Security

When security is active, access to external server management from the Configuration Menu or the Sub-Application Menu is controlled by the resource $$SERV$$.

When accessed by a transaction, the rules governing the management of transaction security apply.

Security management is described in chapter 4 of the VIRTEL Technical Documentation.

6.2. Summary Of Existing Definitions

The first screen displayed by the external server management sub-application shows a summary of existing definitions in alphanumeric order:

```
LIST of EXTERNAL SERVERS -------------------------- Applid: SPVIRH1  18:49:50

Server   Description                      Call number      Data         E L

AGCFT    Appels entrants /GATE vers CFT    =                =           2 X
AGPEL    Appels entrants /GATE vers PEL    =                =           2 Y
```

```
AGXOT    Appels sortants /GATE vers XOT    =               =           2 4
ANNUAIRE Annuaire Electronique             196282241       AE          2 4
APCFT1   Appels entrants /PCNE vers CFT1                               2 P
APCFT2   Appels entrants /PCNE vers CFT2                               2 P
APPEL3   Appels entrants /PCNE vers PEL3                               2 P
APPEL4   Appels entrants /PCNE vers PEL4                               2 P
AP1LU01O Appels sortants /PCNE (exemple)   123456111                   2 4
AP1LU02O Appels sortants /PCNE (exemple)   123456222                   2 4
AP1LU03O Appels sortants /PCNE (exemple)   123456333                   2 4
SIRENE   Serveur Sirene                     196282241       SIRENE      2 4
SNCF     Horaires des trains               196282241       SNCF        2 3



P1=Update                P2=Delete          P3=Return           P6=1st page
P7=Previous              P8=Next            P12=Add
```

External server list

6.2.1. Associated functions

6.2.1.1. Positioning the list

In browse, alter, or delete mode, it is possible to scroll the list of external servers under the control of VIRTEL.

Search

Type the name (or partial name) of the required entity on the first line under the heading “Service”, then press [Enter].

[PF6]

Return to the first page of the list.

[PF7]

Display the previous page.

[PF8]

Display the next page.

6.2.1.2. Modifying an external server definition

Type the desired modifications into the appropriate fields then press [PF1]. Multiple definitions can be modified at the same time. The message UPDATE OK indicates that the modifications have been accepted. If the modification affects a field not displayed on the summary screen, first position the cursor on the definition concerned, then press [PF12] to access the definition detail screen.

6.2.1.3. Deleting an external server definition

To delete a definition, position the cursor on the name of the service to be deleted and press [PF2]. The line associated with the service to be deleted will appear highlighted with the message CONFIRM DELETE. Press [PF2] again to confirm deletion. The message DELETE OK confirms successful completion of the operation. Repeat the procedure for each external server to be deleted.

6.2.1.4. Adding an external server definition

To add a new definition, press [PF12] at the summary screen, either with the cursor on an existing definition to copy its attributes, or on an empty line to create a new definition.

6.2.1.5. Displaying the external server detail screen

To access the detailed definition of an external server, position the cursor on the desired service and press [PF12]. The external server detail definition screen will then be displayed.

6.2.1.6. Return to the configuration menu

To return to the configuration menu, press [PF3] or [Clear].

6.3. Parameters Of The External Server

Pressing [PF12] in the list of external servers displays the detail definition screen for the selected service:

```
EXTERNAL SERVER DETAIL DEFINITION ------------------ Applid: SPVIRH1  11:48:48

Name          ===> ANNUAIRE               Name of this server
Description   ===> Annuaire Electronique
Number        ===> 196282241              Number to call
Data          ===> 3611                   Data to complete call packet
Line number   ===> C-XOT                  Line for OUT calls (*=auto)
Backup line   ===>                        Used when first line is unavailable
Caller        ===> 123                    Caller id number (*=auto)
Emulation     ===> 2                      0=none 1=VirtelPc 2=Minitel 3=M80
                                          4=VT100 5=3174 6=VT200 7=LECAM 8=Bull
Character set      ===> 1                 1= ASCII-7  2= ASCII-8  3= EBCDIC
Server time out    ===> 0030  seconds     Maximum inactivity time for server
User time out      ===> 0001  minutes     Maximum idle time for user
Cut off warning    ===> 2                 0=none          1=bell     2=message
Price level        ===> 1                 0 - Z : price level for this server
Secret             ===>                   1=not shown in the list
Facilities         ===>                   In hex, inserted into call packet
CUD0 (hex)         ===>                   protocol identification
TIOA at start up   ===>

P1=Update                          P3=Return                          Enter=Add
```

External server detail definition screen

6.3.1. Contents of each field

Name

Contains the name of the service as displayed to the user in the “Call External Server” screen. This name may also be referenced in the “Application” field of a type 3 transaction.

Description

Description of the service as displayed to the user in the “Call External Server” screen.

Number

For outbound calls via an X25 line:

The X25 call number required to access the service.

If the service is invoked by an X25 incoming call, the called number can be defined as "=". In this case, the called number for the outgoing call will be copied from the incoming call packet.

In the case of an external server which processes outgoing calls originating from an application linked to VIRTEL via an AntiGATE line (CFT, Pelican), the value "=" indicates that the called number will be supplied by the application.

In the case of an external server which processes outgoing calls originating from a VIRKIX application, the "Number" field must be blank, which indicates to VIRTEL that the called number and the caller number, as well as the data, facilities, and CUD0 (if applicable), will all be supplied by application. However, if the "Caller" field of the external server is non-blank, then this value will override the caller number supplied by the application. For this type of external server, the entry point must contain a transaction whose external name is "Mirror" as the first transaction.

For outbound calls via a VIRPESIT line:

The IP address of the partner in the form nnn.nnn.nnn.nnn

Data

For outbound calls via an X25 line:

User data. The contents of this field will be converted to ASCII and placed in the outgoing call packet immediately following the contents of the CUD0 field.

If the service is invoked by an X25 incoming call, the data can be defined as "=". In this case, the Call User Data for the outgoing call (Data and CUD0 fields) will be copied from the incoming call packet.

In the case of an external server invoked by an HTTP request, for example

GET /PUBLIC/WEB3270.htm+videotex+SERVICE1

the value "=" indicates that the parameter (SERVICE1 in this example) will be placed in ASCII in the outgoing call packet immediately following the CUD0 field.

For outbound calls via a VIRPESIT line:

The TCP port number of the partner.

Line number

Specifies the internal name of the line on which the outgoing call will be made. The line type may be either X25 (GATE, FASTC, XOT, AntiGATE, AntiPCNE, AntiFC) or TCP with protocol VIRPESIT. "*" indicates that the first available line will be used.

Note for users of VIRTEL prior to version 4.20:

External server definitions which were created using a version of VIRTEL prior to 4.20 refer to the line using a single character name. When processing these definitions, VIRTEL selects the first line whose internal name begins with the character specified, and VIRTEL displays the complete name of the selected line in this field on the external server definition detail screen. When the external server definition is updated for the first time under VIRTEL 4.20 or later, the single character reference is replaced in the external server definition by the complete line name.

Prior to VIRTEL version 4.20, if the "Line number" field of the external server was blank, the line selected for the outgoing call was the first line whose internal name began with the figure 1. From VIRTEL version 4.20 onwards, it will be necessary to update any such external server definitions, by specifying explicitly the full internal name of the required line.

Backup line

The internal name of the backup line which will be used for the outgoing call if the primary line is not available. Following an error on the primary line, VIRTEL uses the backup line for all subsequent calls. Similarly, following an error on the backup line, VIRTEL switches back to the primary line for all subsequent calls.

From version 4.24 onwards, if both the primary and backup lines are available and operational, both will be used for outgoing calls. For each line, VIRTEL maintains a counter of outgoing calls which have been made but which have not yet received a response. Before making each call, VIRTEL compares the counters of each of the two lines, and selects the line with the lowest number of calls awaiting response. This procedure has the effect of balancing the load between the two lines, and bypasses possible blockages caused by router errors.

The rules for specifying the backup line are the same as for the primary line.

Caller

Optional caller number to be placed in the outgoing call packet.

If the service is invoked by an X25 incoming call, the caller number can be defined as “*” or “=”. In this case, the caller number for the outgoing call will be copied from the incoming call packet.

Emulation

Type of emulation required. Possible values are:

0
no emulation (Called by FA25 API)

1
VIRTELPC emulation

2
Minitel 40 column emulation, reverse X25, or VIRPESIT

3
Minitel 80 column emulation

4
VT100 emulation

5
3174 switched node

6
VT200 emulation

7
Minitel emulation with LECAM via VIRNT

8
BULL emulation

Character set

Type of characters expected by the external server.

1
ASCII 7 bits

2
ASCII 8 bits

3
EBCDIC

Server time out

Timeout period (in seconds) for the server. VIRTEL will disconnect the call if the server sends no messages during this period. 0 indicates that there is no timeout.

User time out

Timeout period (in minutes) for the caller. VIRTEL will disconnect the call if the caller sends no messages during this period. If 0 is specified, the value of the TIMEOUT parameter in the VIRTCT is used instead.

Cut off warning

Type of message sent to the user before disconnection occurs due to user time out. Possible values are:

0

User receives no warning of disconnection

1

User is warned by an audible 'bip' 30 seconds before disconnection

2

User is warned by a message 30 seconds before disconnection or if the server does not respond

Price level

The tariff for this service. Possible values are:

0

Cost is not calculated for this service

n

(n is a value from 1 to Z), the cost of the call is calculated and presented to the user at the end of the connection. The values of n are defined in VIRTEL exit 7 (see VIRTEL Installation Guide).

Secret

1 indicates that this service will not appear in the list of servers shown to the user in the “Call External Server” screen. This value is typically used in external server definitions which are intended to be called only by a type 3 transaction.

Facilities

Optional facilities (in hexadecimal) to be placed in the X25 call packet.

If the service is invoked by an X25 incoming call, the facilities can be defined as “=”. In this case, the facilities for the outgoing call will be copied from the incoming call packet.

If neither packet size (42) nor window size (43) appears in the facilities specified here or copied from the incoming call packet, then VIRTEL will generate packet size and window size facilities fields in the outgoing call packet according to the values specified in the outbound line definition.

CUD0 (hex)

Protocol indicator (2 to 8 hexadecimal characters) to be placed in the outgoing call packet before the user data. If this field is blank, the default value is 01000000 (indicating PAD protocol).

If the value of the “Data” field is “=” then the “Data” and “CUD0” will be copied from the incoming call packet.

TIOA at start up

Contains a connection script to be run immediately after connection to the server. For more information, see “Connection – Disconnection Scripts”, page 95.

7. Terminals

7.1. Introduction

All terminals, whether physical or virtual, using the services of VIRTEL must be referenced. This chapter describes the group of functions associated with the management of the terminals as well as their existing relationship to other administration functions, for example, management of lines or entry points.

7.1.1. Access to the application

The terminal management sub-application is accessed by pressing [PF2] in the Configuration Menu, or [PF5] in the Sub Application Menu, or from the Multi-session Menu via a transaction referencing module VIR0023. This sub-application allows for the management of the parameters associated with each terminal under control of VIRTEL. This sub-application is also accessible by pressing [PF4] from the line management sub-application.

7.1.2. Security

When security is active, access to the terminal management menu from the Configuration Menu or the Sub-Application Menu is controlled by the resource $$TERM$$.

When this menu is accessed via a transaction, the rules governing the security management of transactions will apply.

Security management is described in chapter 4 of the VIRTEL Technical Documentation.

7.1.3. Objectives

This sub-application enables the definition of VIRTEL terminals either in the form of a pool, or individually. When the sub-application is started, it first presents a summary of existing terminal definitions presented in alphanumeric order.

7.1.4. Note

VIRTEL version 4.0 introduces the concepts of dynamic repetition and logical pools.

In the remainder of this chapter, the terms “entity”, “terminal entry” and “terminal” all refer to the concept of a terminal, a dynamic pool of terminals or a repeating pool of terminals.

7.2. Summary Of Existing Definitions

The first screen displayed by the terminal management sub-application shows a summary of existing definitions in alphanumeric order. A complete description of each field is given in the following paragraphs.

```
LIST of TERMINALS --------------------------------- Applid: SPVIRH1  18:12:10

Terminal  Repeated Relay     Entry        Type   I/O  Pool     2nd Relay

?***0000           RVTAM===  PC           2
DELOC000  0010                            3      3
DEVTA000  0016     *W2HPOOL               3      3
DEVTP000  0016     RHWVT000               3      3    *W2HPOOL
HTIMP000  0016     RWTIM000               2      1
HTLOC000  0016                            3      3
HTVTA000  0016     *HTTPOOL               3      3
HTVTP000  0016     RWTVT000               3      3    *HTTPOOL RWTIM000
PLIN000   0010                MAINPLUG    3      1
SMLOC000  0016                SMTP        3      3
UPLIN000  0010                MAINPLUG    3      1
XOTF0000  0004     RWOTF000               3      3




P1=Update          P2=Delete              P3=Return           P6=1st Page
P7=Page-1          P8=Page+1              P12=Details
```

Summary of terminal definitions

7.2.1. Associated functions

7.2.1.1. Positioning the list

In browse, alter, or delete mode, it is possible to scroll the list of terminals under the control of VIRTEL.

Search

Type the name (or partial name) of the required entity on the first line under the heading “Terminal”, then press [Enter].

[PF6]

Return to the first page of the list.

[PF7]

Display the previous page.

[PF8]

Display the next page.

7.2.1.2. Modifying a terminal entry

Type the desired modifications into the appropriate fields then press [PF1]. Multiple definitions can be modified at the same time. If the modification affects a field not displayed on the summary screen, first position the cursor on the definition concerned, then press [PF12] to access the definition detail screen.

Modifications are not recognized until you press the [PF1] key. Certain modifications require a restart of the VIRTEL system.

7.2.1.3. Adding a terminal entry

To add a new definition, press [PF12] at the summary screen, either with the cursor on an existing definition to copy its attributes, or on an empty line to create a new definition.

7.2.1.4. Deleting a terminal entry

Position the cursor under the name of the entry to be deleted, then press [PF2]. The line associated with the terminal to be deleted then appears highlighted, accompanied by the message CONFIRM DELETE. Then press [PF2] again to confirm deletion. The message DELETE OK confirms successful completion of the operation. Repeat the procedure for each entry to be deleted.

7.2.1.5. Exiting the terminal management sub-application

To return to the previous menu, press [PF3]. To return to the Configuration Menu, press [Clear].

7.3. Parameters Of The Terminal

Pressing [PF12] at the summary screen displays the Terminal Detail Definition screen, which allows creation of a new terminal definition, or modification of an existing definition:

```
TERMINAL DETAIL DEFINITION ------------------------ Applid: SPVIRH1  18:14:04

Terminal           ===>               ?wxyZZZZ for dynamic allocation
                                      w : Sna or Non-sna or * (category)
                                      x : 1, 2, 3, 4, 5 or *  (model)
                                      y : Colour, Monochrome or *
                                      Z : any characters
Relay              ===>               Name seen by VTAM applications
                                      = : copied from the terminal name
*Pool name         ===>               Pool where to put this terminal
Description        ===>

Entry Point        ===>               Enforced Entry Point
2nd relay          ===>               Possible 2nd relay (Printer)
Terminal type      ===>               1=LU1  2=3270  3=FC P=Printer S=Scs
Compression        ===>               0, 1, 2 or 3 : compression type
Possible Calls     ===>               0=None  1=Inbound  2=Outbound  3=Both
Write Stats to     ===>               1,4,5,6=VIRSTAT 2=VIRLOG

Repeat             ===>               Number of generated terminals

P1=Update                       P3=Return                     Enter=Add
                                                              P12=Server
```

Terminal definition detail screen

7.3.1. Contents of each field

Terminal

Maximum of 8 characters containing:

- For a 3270 terminal which logs on to the VIRTEL application: The VTAM-defined LU name of the terminal
- For an LU which connects to VIRTEL via a GATE or FASTC line: The NPSI-defined LU name, whose prefix associates the terminal with the VIRTEL GATE or FASTC line
- For all other types of terminal: An internal name whose prefix associates the terminal with a VIRTEL line.
- For a logical pool: An internal name of no significance.
- For a physical pool: A sequence of 8 characters starting with "?" (see "Physical pool of terminals", page 116).

If the "Repeat" field contains a value greater than 1, then the terminal name must contain a numeric portion which will be incremented for each occurrence of the terminal (see "Repeat" parameter below).

Relay

(Optional) The name of the relay LU associated with this terminal. The relay name corresponds to a VTAM APPL statement. The same relay cannot be shared between multiple definitions.

The "Relay" field may alternatively contain a name in the form *POOLNAM which refers to the logical pool which has the same name *POOLNAM specified in its "*Pool name" field. In this case, a relay will be assigned dynamically from the specified logical pool each time a relay is required. See "logical pool of relays", page 118.

Certain terminals (those associated with an AntiPCNE line) require the definition of an external server whose name is equal to the relay name of the terminal. In this case, you can press [PF12] to display the external server detail definition.

If the "Repeat" field contains a value greater than 1, then the relay name, if supplied, must contain a numeric portion which will be incremented for each occurrence of the terminal (see "Repeat" parameter below), or it must refer to a logical pool.

If SYSPLUS=YES is specified (see "Parameters of the VIRTCT" in the VIRTEL Installation Guide), any '+' character in the relay name will be replaced by the value of the SYSCLONE system symbol. SYSCLONE is specified in the IEASYMxx member of SYS1.PARMLIB, and identifies the particular LPAR that VIRTEL is running on in a sysplex environment.

***Pool name**

In the definition of a logical pool, this field contains the name of the pool. A logical pool name is a 7 character name preceded by an asterisk, in the form *POOLNAM, which matches the logical pool name specified in the "Relay" field of all terminals which use the logical pool. See "logical pool of relays", page 118.

For regular terminals, this field must be blank.

Description

Free-format field.

Entry Point

An optional field which may contains the name of the associated entry point. For details of how VIRTEL uses this field, see “Choosing the Entry Point”, page 78.

It is only useful to specify the entry point at the terminal level in the following cases:

- 3270 terminals
- Asynchronous terminals on X25 non-GATE lines
  Since this type of terminal is not associated with a VIRTEL line, it may be useful to specify a default entry point at the terminal level. This overrides the default defined by the DEFENTR parameter in the VIRTCT.
- Terminals on VIRNT or VIRKIX lines in APPC mode.
  If the link between the NT or CICS system and VIRTEL is of type APPC2, the terminal must specify entry point $X25$ (for a connection with VIRNT) or VAPI (for a connection with VIRKIX). It is not necessary to create entry point definitions for these special names, as they are entry points implicitly defined by VIRTEL.
- Type P or S printer terminals on HTTP lines
  This type of printer will be automatically connected to the host application defined by the first transaction under the specified entry point.

In all other cases, the “Entry Point” field in the terminal definition should be blank, as the preferred method of defining the entry point is by the rules of the line (see “Rules”, page 73). Rules have the advantage that they can be altered dynamically, while allowing more flexibility in the selection of the entry point according to the characteristics of the incoming call.

2nd Relay

Contains the name of a relay associated with an virtual printer simulated by VIRTEL. Each of these relays corresponds to an APPL statement known to VTAM. This virtual printer must be defined in VIRTEL in the form of a terminal of type 1, 2, P, or S.

This field must only be completed for type 1 or type 3 terminals.

If the “Repeat” field contains a value greater than 1, then the 2nd relay name, if supplied, must contain a numeric portion which will be incremented for each occurrence of the terminal (see “Repeat” parameter below).

Terminal type

Indicates the type of terminal. Permissible values are:

1

for an asynchronous Non Fast-Connect terminal (Minitel, PC or VT)

or a pseudo-printer of type SCS (LUTYPE1)

2

for a 3270 synchronous terminal (LUTYPE2)

or a pseudo-printer of type 3270 (LUTYPE3)

3

for all terminals other than type 1 and 2

P

for a virtual printer of type 3270 (LUTYPE3) with auto-connection to the application defined by the “Entry Point” field

S

for a virtual printer of type SCS (LUTYPE1) with auto-connection to the application defined by the “Entry Point” field

The concept of an APPC connection now being at the line level, definitions of type 6 no longer exist at the terminal level.

Compression

Indicates the optimization mode applicable during transmission of 3270 messages towards the terminal. Permissible values are:

0

no optimisation.

No message compression is performed by VIRTEL. This value is usually used at sites which only use VIRTEL Multi-Session or file-transfer terminals.

This value is only allowed for type 2 terminals.

1

simple message optimisation.

Replacement of repeated characters by Repeat-to-Address orders, allowing a throughput gain of approximately 30%. This value could for example be used for local 3270 terminals.

This value is only allowed for type 2 terminals.

2

simple message optimisation + logical compression.

Replacement of repeated characters by Repeat-to-Address orders, and VIRTEL only sends to the terminal those characters which have changed compared with the contents of the 3270 buffer. The management of the MDT bits allows a further optimization for inbound data, i.e. in the terminal to host direction. This level of compression allows a gain of 40% to 60 %.

This value is mandatory for type 1 and type 3 terminals.

3

message optimisation + logical compression + learning of screen types. (VIRTEL/PC only)

All messages destined for these terminals are subject to special processing. VIRTEL determines gradually from their frequency of use which the most commonly used screen images and automatically creates a “screen type” referenced by number and stored at the host.

When a message is to be sent to a PC type terminal, VIRTEL performs a lookup to determine whether the message to be sent can be associated with a “screen type”. If it can, then it sends a datastream representing the difference between the screen type and the final desired result. The PC automatically learns the “screen types” which it must use.

This level of compression allows a reduction of approximately 80% of the message volume. It can for example be used for PC’s connected at 1200 or 2400 Bps, thereby allowing response times approaching those of a 9600 Bps synchronous line.

This value can only be used for VIRTEL/PC connections. It is however possible to assign this value to type 2 color terminals in order to facilitate the learning of “screen types”.

Possible calls

Determines which calls can be made on this terminal. Depending on the associated line, certain values are meaningless. For example, the value 2 (outgoing calls) is not appropriate for a definition associated with an HTTP line since outgoing calls are impossible on this type of line.

In addition to being used to authorize incoming, outgoing, or both incoming and outgoing calls, this parameter also has an effect during VIRTEL startup. Any terminal which has “Possible calls” set to 0 will not be activated at VIRTEL startup. Also note the“Possible calls” field in the definition of the associated line.

Write stats to

Indicates the recording of statistics for the terminal entry.

Blank

No statistics.

1

Recording in VIRSTAT (classic format).

2
Recording in VIRLOG.

4
Recording in VIRSTAT (alternate format for X25).

5
Recording in VIRSTAT (web format, alphanumeric).

6
Recording in VIRSTAT (web format, with binary fields for the PRTSTATW program).

More than one value may be specified. For example:

12
Recording in both VIRSTAT (classic format) and VIRLOG.

24
Recording in both VIRLOG and VIRSTAT (alternate format).

124
Recording in VIRSTAT (classic and alternate formats) and VIRLOG.

VIRSTAT classic format recording is intended for use with Minitel calls on terminals associated with NPSI lines (Gate or Fast Connect).

VIRSTAT alternate format recording may be requested for terminals associated with any X25 line (GATE, FASTC, XOT).

Either of the two VIRSTAT web formats may be requested for terminals associated with HTTP lines.

VIRLOG recording may be requested for terminals associated with X25 lines (GATE, FASTC, XOT) and HTTP lines.

For terminals associated with all other line types (including /GATE, /PCNE, and /FASTC) the statistics field should be left blank.

Refer to the “Audit and Performance” chapter of the VIRTEL Messages and Operations Guide for details of the VIRSTAT and VIRLOG record formats.

Repeat

Up to 4 decimal digits indicating the number of desired repetitions of this terminal definition. See “Repeated fixed entries”, page 116 for more details and examples.

A repeat count of blank, zero, or 1 indicates definition of a single terminal.

7.4. Choosing A Definition Mode

There are various methods of connecting terminals to VIRTEL.

7.4.1. Connection in WELCOME mode

Exclusively for 3270 terminals, WELCOME mode allows 3270 terminals to connect to VIRTEL without being predefinied. There are two conditions which must be fulfilled:

- The ACCUEIL parameter in the VIRTCT must be set to YES,
- The connecting terminal must not match any existing fixed terminal definition or terminal pool definition.

In this mode, terminals not defined in VIRTEL can connect, but they cannot benefit from compression or full Multi-Session functionality. The first screen displayed depends on the characteristics of the entry point used. If no entry point is used, each terminal connecting in WELCOME mode will see the VIRTEL sign-on screen, or the Multi-Session Menu, or the Configuration Menu depending on the options specified in the VIRTCT for the SECUR and MULTI parameters.

If the Multi-Session Menu is accessible from a terminal connected in WELCOME mode, it is regarded simply as a selection screen. Thus, when an application is selected, VIRTEL connects the terminal directly to this application and relinquishes control of the terminal. In this case, VIRTEL functions somewhat like a dynamic USSTAB.

7.4.2. Connection in RELAY mode

3270 terminals can be connected in RELAY mode if a suitable definition exists in the system. The relays are defined to VTAM by means of APPL statements. Each terminal connected in this way can benefit from VIRTEL compression and/or Multi-Session functionality. Whether a sign-on screen or a Multi-Session Menu is displayed depends on the characteristics associated with the entry point used. When no entry point is used, the rules described in the previous paragraph apply.

7.4.3. Fixed entry, physical pool, or logical pool?

The definition of a terminal / relay pair can be accomplished in various ways: by means of a fixed entry; by inclusion in a physical pool (which may be dynamic or non-dynamic); or by means of a reserved entry (logical pool). A fixed entry is a definition which can only be used by one specific terminal. A physical pool is a generic definition which can be shared by several different terminals. A logical pool is a reserved definition which is used not for connecting a terminal to VIRTEL, but for connection to a VTAM application. This definition allows the same physical terminal, for example a Minitel, to be presented to applications with different relays depending on the context.

Each type of definition can be explicit or repeated.

7.4.4. Explicit fixed entries

Each terminal in the group is explicitly named within VIRTEL. This mode of definition is useful when a group of relays must be attached to a line via a common terminal name prefix, but the relay LU names do not follow a numeric pattern. The following example shows a group of terminals and corresponding relay LU names associated with a line via prefix PCN1:

```
LIST of TERMINALS --------------------------------- Applid: SPVIRH1  18:15:52

Terminal  Repeated Relay     Entry        Type   I/O  Pool     2nd Relay

PCN1TM01  0001     PARIS                  3      1
PCN1TM02  0001     ROMA                   3      1
PCN1TM03  0001     BERLIN                 3      1
PCN1TM04  0001     BRUSSEL                3      1
PCN1TM05  0001     DENHAAG                3      1
PCN1TM06  0001     KOBNHAVN               3      1
PCN1TM07  0001     LONDON                 3      1
PCN1TM08  0001     DUBLIN                 3      1









P1=Update          P2=Delete              P3=Return           P6=1st Page
P7=Page-1          P8=Page+1              P12=Details
```

Explicit fixed terminals

7.4.5. Repeated fixed entries

Only the first terminal in the list is defined. The repeat count indicates the number of terminals which VIRTEL will create. The numeric portion of the terminal name, relay name, and 2nd relay name (if supplied) are incremented for each occurrence of the terminal.

NOTE: The repetition increment takes effect from the rightmost numeric character and continues until the next non-numeric character to the left. The increment is decimal and not hexadecimal.

7.4.5.1. Examples

In the examples shown below:

- Terminal TERM0001, relay RELAY001, repetition 0016 causes the creation of 16 terminals TERM0001 to TERM0016 with relays RELAY001 to RELAY016.
- Terminal G001T001, relay RELAY200, repetition 0020 causes the creation of 20 terminals G001T001 to G001T020 with relays RELAY200 to RELAY219.
- Terminal TER00LUA, relay REL00CVA, 2nd relay FIX00CVA, repetition 0100 causes the creation of 100 terminals TER00LUA to TER99LUA with relays REL00CVA to REL99CVA and 2nd relays FIC00CVA to FIC99CVA.
- The remaining examples show invalid repetitions caused by improper definitions. In each case the size of the numeric portion of one or more of the names is insufficient to allow the generation of a unique name for each occurrence in the repeat range.

```
LIST of TERMINALS --------------------------------- Applid: SPVIRH1  18:13:49

Terminal  Repeated Relay     Entry        Type   I/O  Pool     2nd Relay

TERM0001  0016     RELAY001  PC           2      3
G001T001  0020     RELAY200               3      3
TER00LUA  0100     REL00CVA               3      3            FIC00CVA
TERX0LUB  0015     REL00CVB               3      3            FIC00CVB
TER00LUC  0015     RELX0CVC               3      3            FIC00CVC
TER00LUD  0015     REL00CVD               3      3            FICX0CVD
TER90LUE  0015     REL00CVE               3      3









P1=Update          P2=Delete              P3=Return           P6=1st Page
P7=Page-1          P8=Page+1              P12=Details
```

Repeated fixed terminals

7.4.6. Physical pools

Physical pools allow 3270 terminals to connect to VIRTEL and to be assigned a relay LU, without the need to create an individual defininition for each connecting terminal. A relay LU is assigned from the physical pool at the time the terminal connects to VIRTEL. There are two types of physical pool, dynamic and non-dynamic, as described later.

Whether or not a pool is dynamic, the definition of a physical pool is indicated by the presence of a “?” character in the first position of the terminal name. The next three characters denote the characteristics of the pool. The last four characters are free-format and serve to distinguish one definition from another.

A physical pool thus has a name in the format ?xxxyyyy.

The concept of a physical pool only applies to 3270 terminals. Other types of terminal cannot be defined by means of a physical pool.

Although a physical pool allows connection of a large number of terminals, it is sometimes necessary to restrict the connection to certain types of terminals This selection is done with the three characters represented by “x” in the name of the physical pool definition.

1st character

Tests the terminal type.

*****

No restriction on terminal type

S

SNA terminal

N

Non SNA terminal

2nd character

Tests the terminal model

*****

No restriction on model

2 to 5

Restricted to specified model

3rd character

Tests colour support

*****

No restriction on colour support

C

Colour terminal

N

Monochrome terminal

Examples:

- ?S**YZABVIRTEL tests only if the terminal is SNA.
- ?S3CYZABVIRTEL tests if the terminal is SNA model 3 colour.

7.4.6.1. Dynamic pool

In a dynamic physical pool, the associated relay is defined by a combination of alphanumeric characters and “=” signs. Each “=” sign will be dynamically replaced by the value of the corresponding character in the name of the connecting terminal.

For example, for a definition specifying VIR===== as the relay name, each terminal connecting to VIRTEL will be allocated a relay whose first three characters are VIR and whose last five characters are the last five characters of the terminal LU name. VIRTEL must be able to open a VTAM application LU for each possible relay defined in the pool. The use of the VTAM generic character “?” allows all possible relay names to be defined to VTAM by a single APPL statement, as shown in the following example:

```
VIR????? APPL  AUTH=(ACQ,PASS)
```

A single definition may be sufficient to connect all 3270 terminals in the network.

7.4.6.2. Non-dynamic pool

In a non-dynamic physical pool, the associated relay is defined by a combination of alphanumeric characters without "=" signs.

A given terminal may be assigned a different relay on each connection according to availability. Each relay in the pool must be defined to VTAM by means of an APPL statement.

It is advisable to define as many entries as there are terminals to be connected.

7.4.6.3. Examples

In the examples shown below, ?***0000 is a dynamic physical pool which allows connection of an unlimited number of terminals. ?S5CTM01 is a non-dynamic physical pool which allows connection of up to 8 terminals (of type 3270-5 SNA Colour) which will be assigned relay names VIR5LU01 to VIR5LU08.

```
LIST of TERMINALS --------------------------------- Applid: SPVIRH1  18:13:49

Terminal  Repeated Relay     Entry        Type   I/O  Pool     2nd Relay

?***0000          VIR=====  PC           2      3
?S5CTM01  0008    VIR5LU01  PC5          2      3
```

```
P1=Update          P2=Delete             P3=Return           P6=1st Page
P7=Page-1          P8=Page+1             P12=Details
```

Physical pools of terminals

7.4.7. Logical pools

A logical pool is a group of relays which are not permanently assigned to any terminal. Instead, the relays in the group are available for allocation by terminals as and when required. The logical pool is defined as a group of terminals (the definitions can be explicit or repeated) whose "*Pool name" field contains a name prefixed preceded by the character "*". The terminal name is not significant, except to distinguish it from other terminal definitions. Terminals which use the pool specify the pool name (with the "*" prefix) in their relay name field. The difference between a logical pool and a physical pool is that a relay in a physical pool is assigned when the requesting terminal connects, whereas a relay in a logical pool is assigned at the time the requesting terminal needs the relay to connect to a VTAM application.

In the example shown below, W2HTP000 is a logical pool whose pool name is *W2HPOOL. The logical pool contains 16 relay LU's named RHDVT000 to RHDVT015, with associated printer LU's named RHDIM000 to RHDIM015. The relays in

the *W2HPOOL logical pool are available for use by terminals CLVTA000-015, DEVTA000-015, and HTVTA000-015. Appropriate VTAM APPL statements must be provided for RHDVT??? And RHDIM???.

```
LIST of TERMINALS --------------------------------- Applid: SPVIRD1  18:02:53

 Terminal  Repeated Relay     Entry        Type   I/O  Pool     2nd Relay

 ?***0000           RVTAM===  PC           2
 CLLOC000  0010                            3      3
 CLVTA000  0016     *W2HPOOL               3      3
 DELOC000  0010                            3      3
 DEVTA000  0016     *W2HPOOL               3      3
 HTLOC000  0016                            3      3
 HTVTA000  0016     *W2HPOOL               3      3
 SMLOC000  0016                SMTP        3      3
 W2HIM000  0016     RHDIM000               S      1
 W2HTP000  0016     RHDVT000               3      3    *W2HPOOL RHDIM000









 P1=Update          P2=Delete              P3=Return           P6=1st Page
 P7=Page-1          P8=Page+1              P12=Details
```

Definition of a logical pool of terminals

Terminals using a logical pool are defined with a “Relay” field referencing the logical pool rather than a VTAM APPL statement.

7.4.8. Pool selection

When a 3270 terminal is defined to a physical pool, the selection of a pool is managed automatically by VIRTEL at connection time. **It starts from the end of the list of defined terminals**. When the characteristics of the terminal match those of the entry being processed, the terminal assumes an application relay.

7.4.9. Rules for opening relay ACBs

For explicit or repeated fixed entry definitions, the relay ACBs are opened at VIRTEL startup time. For terminals defined in a physical pool, the relay ACBs are opened at terminal connection time. For terminals which reference a logical pool, the relay ACB is opened only when accessing an application.

7.4.10. Use of a terminal logical pool

When a single terminal must be presented under a different name according to the applications it logs on to across the same line, a logical pool must be used.

Logical pools are **not usable on X25 Fast-Connect lines managed by NPSI**. The following examples reference type 3 (Fast-Connect) terminals, used for example on an XOT line.

As a concrete example, suppose that Minitels use an X25 line with 50 logical channels to logon to 3 distinct applications under different names according to sub-address or a specific user data value. The first two applications are accessible via the same entry point ENTRYP01, the third via entry point ENTRYP02. Applications APPLI01, APPLI02, APPLI03 must be accessed via relays with prefixes AP01R, BP02R and CP03R respectively. The first application only allows 5 simultaneous logons, the second has no limit, and the third allows 2 simultaneous logons. The set of VIRTEL definitions to resolve this problem is as follows.

7.4.10.1. Terminal definitions

The definition of the physical terminals and their association with the 3 sub-groups of logical terminals belonging to the same pool is:

```
DEFINITION OF X25 TERMINALS

Terminal  Repeat  Relay     Entry   Type   Compression   2nd Relay

XOTF0001  0050    *POOL001  Libre   3      2             Vide
```

```
DEFINITION OF 3 GROUPS OF RESERVED TERMINALS

Terminal  Repeat  Relay     Entry   Type   Compression   2nd Relay

ARESA001  0005    AP01R001  Libre   3      2             Libre
BRESA001  0050    BP02R001  Libre   3      2             Libre
CRESA001  0002    CP03R001  Libre   3      2             Libre
```

These 3 terminal groups contain the value *POOL001 under the heading “*Pool name” in their definition. When virtual printers are associated with a logical pool, they may be defined as fixed explicit or repeated entries, but they must not be placed in a logical pool.

7.4.10.2. Entry point definitions

The two entry points are assigned transactions TRPE01 and TRPE02 respectively.

```
DEFINITION OF ENTRY POINTS

Name     Description                                    Transactions

ENTRYP01 EP for APPLI01 and APPLI02                     TRPE01
ENTRYP02 EP for APPLI03                                 TRPE02
```

7.4.10.3. Transaction definitions and terminal selection

Transactions TRPE0101, TRPE0102 and TRPE0203 are defined as illustrated below.

```
DEFINITION OF THE FIRST TRANSCACTION FOR ENTRYP01

Nom interne    ===> TRPE0101     Pour l'associer a un point d'entrée
Nom externe    ===> APPLI-01     Nom affiche dans le menu utilisateur
Description    ===> Application 01 avec terminaux ARESA
Application    ===> APPLI01      Application gérant la transaction
Alias          ===>              Nom suite a CLSDST PASS
Type d'application ===> 1        1=VTAM  2=VIRTEL  3=SERVEUR  4=PAGES
Terminaux          ===> ARESA    Préfixe des terminaux associés
```

```
DEFINITION OF THE SECOND TRANSCACTION FOR ENTRYP01

Nom interne    ===> TRPE0102     Pour l'associer a un point d'entrée
Nom externe    ===> APPLI-02     Nom affiche dans le menu utilisateur
Description    ===> Application 02 avec terminaux BRESA
Application    ===> APPLI02      Application gérant la transaction
Alias          ===>              Nom suite a CLSDST PASS
Type d'application ===> 1        1=VTAM  2=VIRTEL  3=SERVEUR  4=PAGES
Terminaux          ===> BRESA    Préfixe des terminaux associés
```

```
DEFINITION OF THE FIRST TRANSCACTION FOR ENTRYP02

Nom interne    ===> TRPE0201     Pour l'associer a un point d'entrée
Nom externe    ===> APPLI-03     Nom affiche dans le menu utilisateur
Description    ===> Application 03 avec terminaux CRESA
Application    ===> APPLI03      Application gérant la transaction
Alias          ===>              Nom suite a CLSDST PASS
Type d'application ===> 1        1=VTAM  2=VIRTEL  3=SERVEUR  4=PAGES
Terminaux          ===> CRESA    Préfixe des terminaux associés
```

7.5. Example Terminal Definitions

This section presents a number of examples covering the definitions relating to terminals and details the parameters required on the VIRTEL and VTAM sides. The list is not exhaustive.

7.5.1. 3270 terminal in WELCOME mode

This mode allows any terminal to logon to VIRTEL. The ACCUEIL parameter in the VIRTCT must be set to YES. There must be no definition which allows an application relay to be assigned to the terminal.

7.5.2. 3270 terminal in RELAY mode

A VTAM APPL statement must be defined for each terminal. If there is no such definition then message VIR0005W is issued at VIRTEL startup time. Example definitions:

```
DEFINITION EXPLICITE

Terminal  Répété  Relais    Entrée  Type   Compression   2eme Relais

TERM0001  0000    RELAY001  Libre   2      Libre         Vide
TERM0002  0000    RELAY003  Libre   2      Libre         Vide
TERM0003  0000    RELAY004  Libre   2      Libre         Vide
TERM0004  0000    RELAY005  Libre   2      Libre         Vide
```

```
DEFINITION REPETEE

Terminal  Répété  Relais    Entrée  Type   Compression   2eme Relais

TERM0001  0004    RELAY001  Libre   2      Libre         Vide
```

```
DEFINITION DYNAMIQUE

Terminal  Répété  Relais    Entrée  Type   Compression   2eme Relais

?***0001  0000    RELAY===  Libre   2      Libre         Vide
```

```
DEFINITION EN POOL NON DYNAMIQUE

Terminal  Répété  Relais    Entrée  Type   Compression   2eme Relais

?***0001  0000    RELAY001  Libre   2      Libre         Vide
?***0002  0000    RELAY002  Libre   2      Libre         Vide
?***0003  0000    RELAY003  Libre   2      Libre         Vide
?***0004  0000    RELAY004  Libre   2      Libre         Vide
```

7.5.3. Asynchronous terminal on an X25 or XOT line

A VTAM APPL statement must be defined for each terminal. If there is no such definition then message VIR0005W is issued at VIRTEL startup time. Example definitions:

```
EXPLICIT DEFINITION WITHOUT PSEUDO-PRINTER

Terminal  Répété  Relais    Entrée  Type   Compression   2eme Relais

X25F0001  0000    RX25F001  Libre   3      2             Libre
X25F0002  0000    RX25F002  Libre   3      2             Libre
X25G0001  0000    RX25G001  Libre   1      2             Libre
X25G0002  0000    RX25G002  Libre   1      2             Libre
```

```
REPEATED DEFINITION WITHOUT PSEUDO-PRINTER

Terminal  Répété  Relais    Entrée  Type   Compression   2eme Relais

X25F0001  0004    RX25F001  Libre   3      2             Libre
X25G0001  0004    RX25G001  Libre   3      2             Libre
```

```
EXPLICIT DEFINITION WITH PSEUDO-PRINTER

Terminal  Répété  Relais    Entrée  Type   Compression   2eme Relais

FICTF001  0000    IMPRF001  Vide    2      0
FICTF002  0000    IMPRF002  Vide    2      0
FICTG001  0000    IMPRG001  Vide    2      0
FICTG002  0000    IMPRG002  Vide    2      0
X25F0001  0000    RX25F001  Libre   3      2             IMPRF001
X25F0002  0000    RX25F002  Libre   3      2             IMPRF002
X25G0001  0000    RX25G001  Libre   1      2             IMPRG001
X25G0002  0000    RX25G002  Libre   1      2             IMPRG002
```

```
DEFINITION REPETEE AVEC IMPRIMANTE FICTIVE

Terminal  Répété  Relais    Entrée  Type   Compression   2eme Relais

FICTF001  0002    IMPRF001  Vide    2      0
FICTG001  0002    IMPRG001  Vide    2      0
X25F0001  0002    RX25F001  Libre   3      2             IMPRF001
X25G0001  0002    RX25G001  Libre   1      2             IMPRG001
```

The value entered in the “2nd Relay” field of an X25 terminal corresponds to the value in the “Relay” field of the pseudo-printer definition. Pseudo-printer definitions are type 2 and do not correspond to any terminal known to VTAM.

7.5.4. Logical terminals

It is possible to assign a physical terminal to a relay when a transaction connects the terminal to an application, instead of when the terminal connects to VIRTEL. An example of such a definition is:

```
PHYSICAL TERMINAL DEFINITION

Terminal  Repeat  Relay     Entry   Type   Compression   2nd Relay

TERM0001  0050    *POOL001  Free    Free   2             Empty
```

```
DEFINITION OF 3 GROUPS OF RESERVED TERMINALS

Terminal  Repeat  Relay     Entry   Type   Compression   2nd Relay

TRESA001  0005    RELAYA01  Free    2 or 3 2             Free
TRESB001  0050    RELAYB01  Free    3 or 3 2             Free
TRESC001  0002    RELAYC01  Free    3 or 3 2             Free
```

The 3 groups of terminals contain the value *POOL001 under the heading “*Pool name” in their definition. When virtual printers are associated with a logical pool, they must be defined as fixed explicit or repeated entries – they cannot be placed in a logical pool.

8. Trademarks

8.1. Open Source Software

The current VIRTEL Web Access product uses the following open source software:

jQuery

> Under MIT license
> https://jquery.org/license/.

StoreJson

> Under MIT license
> https://github.com/marcuswestin/store.js/commit/baf3d41b7092f0bacd441b768a77650199c25fa7.

jQuery_UI

> Under MIT license
> http://en.wikipedia.org/wiki/JQuery_UI.

Index