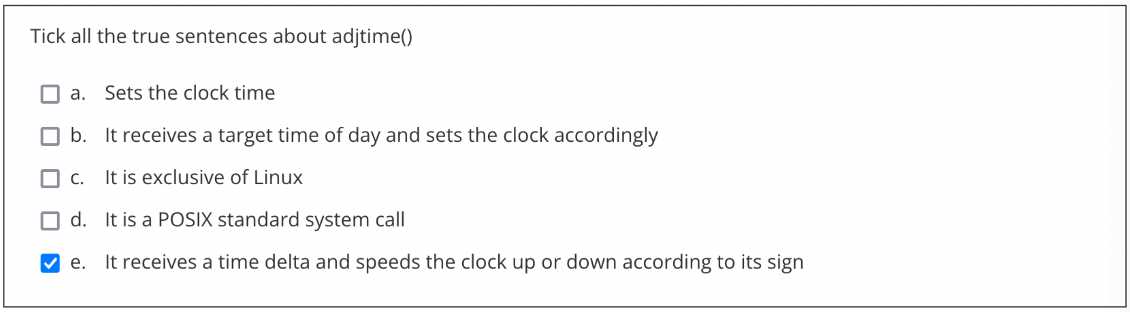


Tick all the true sentences about adjtime()

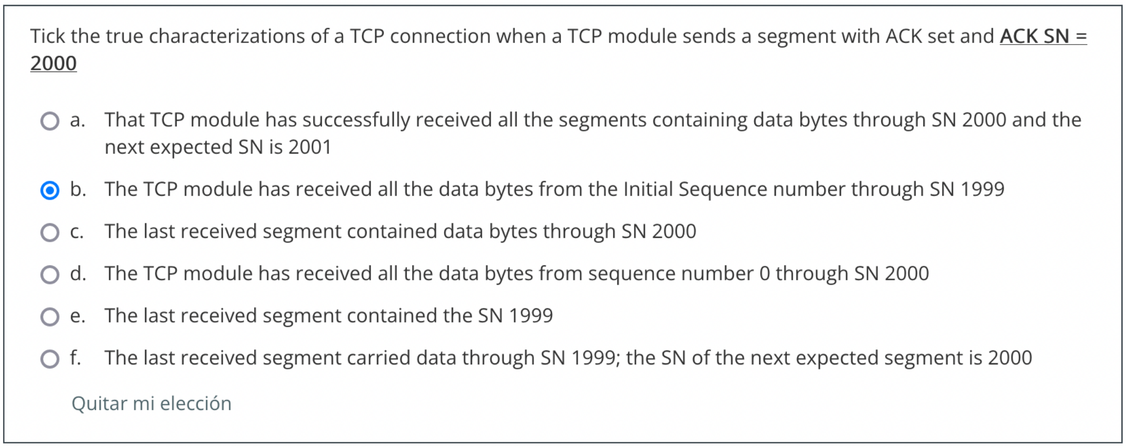
□ a. Sets the clock time

□ b. It receives a target time of day and sets the clock accordingly

□ c. It is exclusive of Linux

□ d. It is a POSIX standard system call

☑ e. It receives a time delta and speeds the clock up or down according to its sign



Tick the true characterizations of a TCP connection when a TCP module sends a segment with ACK set and ACK SN = 2000

○ a. That TCP module has successfully received all the segments containing data bytes through SN 2000 and the next expected SN is 2001

● b. The TCP module has received all the data bytes from the Initial Sequence number through SN 1999

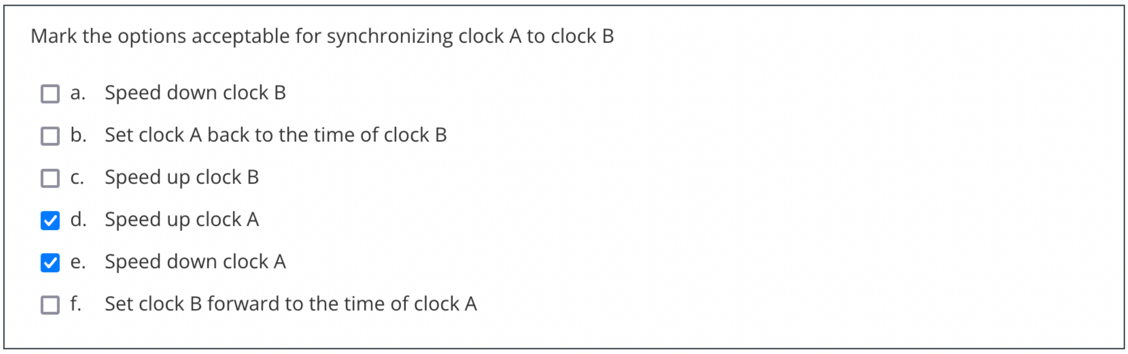
○ c. The last received segment contained data bytes through SN 2000

○ d. The TCP module has received all the data bytes from sequence number 0 through SN 2000

○ e. The last received segment contained the SN 1999

○ f. The last received segment carried data through SN 1999; the SN of the next expected segment is 2000

Quitar mi elección



Mark the options acceptable for synchronizing clock A to clock B

□ a. Speed down clock B

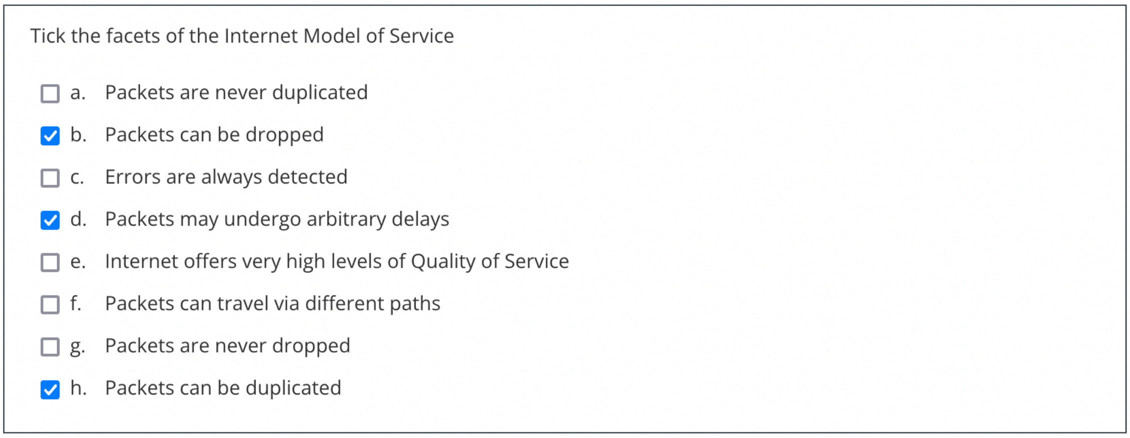
□ b. Set clock A back to the time of clock B

□ c. Speed up clock B

☑ d. Speed up clock A

☑ e. Speed down clock A

□ f. Set clock B forward to the time of clock A



Tick the facets of the Internet Model of Service

□ a. Packets are never duplicated

☑ b. Packets can be dropped

□ c. Errors are always detected

☑ d. Packets may undergo arbitrary delays

□ e. Internet offers very high levels of Quality of Service

□ f. Packets can travel via different paths

□ g. Packets are never dropped

☑ h. Packets can be duplicated

The sender of an ICMP Timestamp Request PDU (Host A) receives an ICMP Timestamp Reply. What does host A do with the Receive Timestamp and the Transmit Timestamp fields contents?

☑ a. Calculate the time the ICMP Timestamp request took to be processed by the responder (Host B)

□ b. Calculate the one-way travel time from the sender to the receiver

□ c. Calculate the Rtt

□ d. Calculate the error

□ e. Calculate the time the ICMP Timestamp request took to be processed by the sender (Host A)

A TCP receiver has received 8 full in-order segments and is responding to them by sending back 4 Acks, the second of which is dropped. Mark the true statements about what will happen next.

☑ a. The lost Ack segment needs not be retransmitted if it is a pure Ack which carries no piggybacked data

□ b. Ack segments cannot be dropped

□ c. The lost Ack segment will be retransmitted soon via RTO timer

□ d. The lost Ack segment will be retransmitted soon via 3-DUP

□ e. The lost Ack segment will be retransmitted soon via 2-DUP

A TCP receiver has received 6 full in-order segments and is responding to them by sending back 3 Acks, the second of which is dropped. Mark the true statements about what will happen next.

□ a. The lost Ack segment will be retransmitted soon via 3-DUP

□ b. The lost Ack segment will be retransmitted soon via RTO timer

□ c. Ack segments cannot be dropped

□ d. The lost Ack segment will be retransmitted soon via 2-DUP

☑ e. The lost Ack segment needs not be retransmitted if it is a pure Ack which carries no piggybacked data

A TCP receiver has received 6 full in-order segments and is responding to them by sending back 3 Acks, the last of which is dropped. Mark the true statements about what will happen next.

□ a. Ack segments cannot be dropped

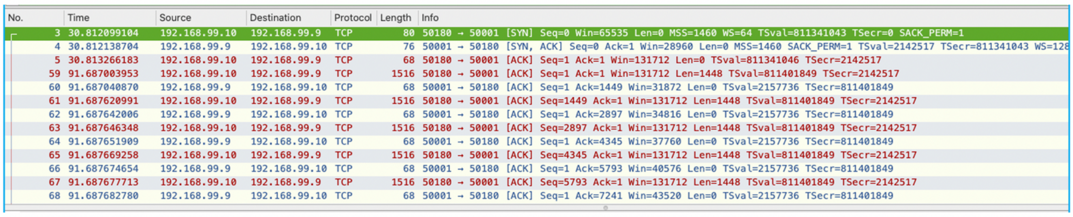
☑ b. The original data corresponding to the lost ACK will be retransmitted when RTO fires

□ c. The lost Ack segment will be retransmitted soon via RTO timer

□ d. The lost Ack segment will be retransmitted soon via 3-DUP

□ e. The lost Ack segment will be retransmitted soon via 2-DUP

What's the maximum number of bytes that can be accepted by the client in a single TCP segment?



No.	Time	Source	Destination	Protocol	Length	Info
3	30.812099104	192.168.99.10	192.168.99.9	TCP	80	50180 → 50001 [SYN] Seq=0 Win=65535 Len=0 MSS=1460 WS=64 TSval=811341043 TSecr=0 SACK_PERM=1
4	30.812138704	192.168.99.9	192.168.99.10	TCP	76	50001 → 50180 [SYN, ACK] Seq=0 Ack=1 Win=28960 Len=0 MSS=1460 SACK_PERM=1 TSval=2142517 TSecr=811341043 WS=128
5	30.813266183	192.168.99.10	192.168.99.9	TCP	68	50180 → 50001 [ACK] Seq=1 Ack=1 Win=131712 Len=0 TSval=811341046 TSecr=2142517
59	91.687003953	192.168.99.10	192.168.99.9	TCP	1516	50180 → 50001 [ACK] Seq=1 Ack=1 Win=131712 Len=1448 TSval=811401849 TSecr=2142517
60	91.687040870	192.168.99.9	192.168.99.10	TCP	68	50001 → 50180 [ACK] Seq=1 Ack=1449 Win=31872 Len=0 TSval=2157736 TSecr=811401849
61	91.687620991	192.168.99.10	192.168.99.9	TCP	1516	50180 → 50001 [ACK] Seq=1449 Ack=1 Win=131712 Len=1448 TSval=811401849 TSecr=2142517
62	91.687642006	192.168.99.9	192.168.99.10	TCP	68	50001 → 50180 [ACK] Seq=1 Ack=2897 Win=34816 Len=0 TSval=2157736 TSecr=811401849
63	91.687646348	192.168.99.10	192.168.99.9	TCP	1516	50180 → 50001 [ACK] Seq=2897 Ack=1 Win=131712 Len=1448 TSval=811401849 TSecr=2142517
64	91.687651909	192.168.99.9	192.168.99.10	TCP	68	50001 → 50180 [ACK] Seq=1 Ack=4345 Win=37760 Len=0 TSval=2157736 TSecr=811401849
65	91.687669258	192.168.99.10	192.168.99.9	TCP	1516	50180 → 50001 [ACK] Seq=4345 Ack=1 Win=131712 Len=1448 TSval=811401849 TSecr=2142517
66	91.687674654	192.168.99.9	192.168.99.10	TCP	68	50001 → 50180 [ACK] Seq=1 Ack=5793 Win=40576 Len=0 TSval=2157736 TSecr=811401849
67	91.687677713	192.168.99.10	192.168.99.9	TCP	1516	50180 → 50001 [ACK] Seq=5793 Ack=1 Win=131712 Len=1448 TSval=811401849 TSecr=2142517
68	91.687682780	192.168.99.9	192.168.99.10	TCP	68	50001 → 50180 [ACK] Seq=1 Ack=7241 Win=43520 Len=0 TSval=2157736 TSecr=811401849

○ a. 1460 bits

○ b. 28960 bits

● c. 1460 bytes

○ d. 64 bytes

○ e. 131712 bits

Quitar mi elección

A TCP transmitter which socket has the Nagle's algorithm activated has MSS + 10 Bytes in the transmission buffer. There is no pending Ack at this time. How many bytes will be included in the segment that will be transmitted next?

○ a. The full buffer will be transmitted

○ b. 1 Byte

● c. MSS Bytes

○ d. 1460 Bytes

○ e. 10 Bytes

Quitar mi elección

A TCP transmitter's socket has the Nagle's algorithm enabled and proceeds to send one MSS (1460 Bytes in this case). While the transmitter waits for the Ack, the application writes 10 bytes through the socket. How many of those 10 bytes will be immediately sent, that is, before receiving the pending Ack?

○ a. 1 Byte

○ b. Less than 1460 Bytes

○ c. 10 Bytes

○ d. 1460 Bytes

● e. 0 Bytes

Quitar mi elección

On the practice about MultiThreaded C/S, the server creates a new thread for each new delegate socket. The address of the delegate socket is passed as the last actual parameter. Observe that the variable that holds that socket is a local variable. Read the relevant code if necessary (http://paloalto.unileon.es/ds/lab/serverSolution.c). Can this passing of the address of the delegate socket create some run-time problem? Tick one answer.

☑ a. Several threads could write/read to the same variable simultaneously

☐ b. A local variable should not be used to represent the delegate socket

☐ c. The fact the the address is passed is the root cause of the problem

☐ d. The code would cause no problem at all

What's the receive buffer's RFC 793 variable name that points to the expected in-order byte

○ a. rcv.una

○ b. snd.nxt

○ c. err.nxt

○ d. snd.una

● e. rcv.nxt

Quitar mi elección

What's the RFC 793 variable that represents the transmission buffer index to the first byte that has been transmitted but not yet acknowledged?

○ a. err.una

● b. snd.una

○ c. snd.wnd

○ d. rcv.nxt

○ e. rcv.una

Quitar mi elección

How does RTO depend on Rtt?

○ a. RTO[n] = 2 * SampleRtt[n]

○ b. RTO = 2 * Rtt

● c. RTO[n] = 2 * EstRtt[n]

○ d. RTO = 2 * SampleRtt[n+1]

Quitar mi elección

What are all the components of a socket address?

○ a. An IP address

○ b. A port number

● c. An IP address and a port number

○ d. Src IP, src port, dst IP, dst port

Quitar mi elección

An ICMP Timestamp Request message is received by host B. What does host B do with the Originate Timestamp field included in the message?

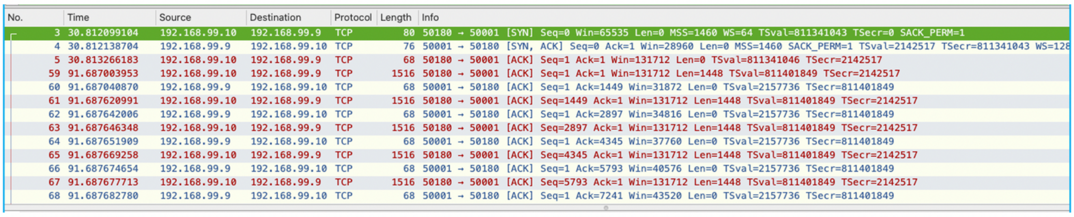
□ a. Calculate Rtt

☑ b. Copy it to the ICMP Reply message's Originate Timestamp field

□ c. Nothing

□ d. Copy it to the ICMP Reply message's Transmit Timestamp field

What's the TCP multiplexing of the connection established in the following trace?



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○ a. (192.168.1.10; 50180)

● b. (192.168.1.10; 50180; 192.168.1.9; 50001)

○ c. (192.168.1.10; 192.168.1.9)

○ d. (192.168.1.9; 50001)

Quitar mi elección

Assume that three samples of Rtt are taken along the evolution of a TCP connection at time points 0, 1 and 2. The Rtt samples are the following:

RttSample[0] = 85 ms; RttSample[1] = 100 ms and RttSample[2] = 60 ms. Calculate the length of the RTO timer scheduled after RttSample[2] is taken and which will protect the loss of the next block of segments. The initial value of EstimatedRtt is 500 ms and alpha = 0,9.

Respuesta: 386,38

Assume that three samples of Rtt are taken along the evolution of a TCP connection at time points 0, 1 and 2. The Rtt samples are the following:

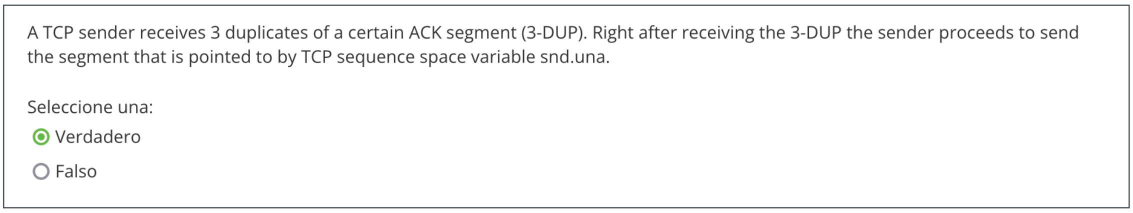
RttSample[0] = 92 ms; RttSample[1] = 45 ms and RttSample[2] = 106 ms. Calculate the length of the RTO timer scheduled after RttSample[2] is taken and which will protect the loss of the next block of segments. The initial value of EstimatedRtt is 500 ms and alpha=0,9.

Respuesta: 386,602

Assume that three samples of Rtt are taken along the evolution of a TCP connection at time points 0, 1 and 2. The Rtt samples are the following:

RttSample[0] = 50 ms; RttSample[1] = 150 ms and RttSample[2] = 95 ms. Calculate the length of the RTO timer scheduled after RttSample[2] is taken and which will protect the loss of the next block of segments. The initial value of EstimatedRtt is 250 ms and alpha=0,8.

Respuesta: 177,4

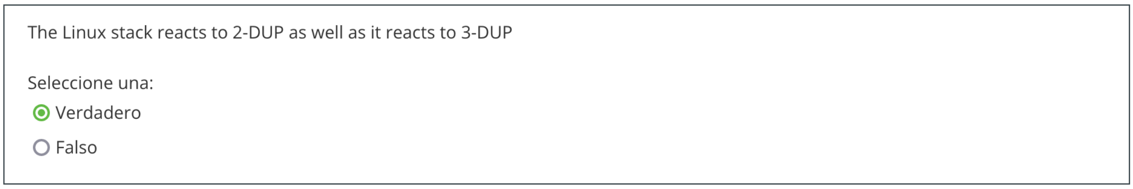


A TCP sender receives 3 duplicates of a certain ACK segment (3-DUP). Right after receiving the 3-DUP the sender proceeds to send the segment that is pointed to by TCP sequence space variable snd.una.

Seleccione una:

● Verdadero

○ Falso

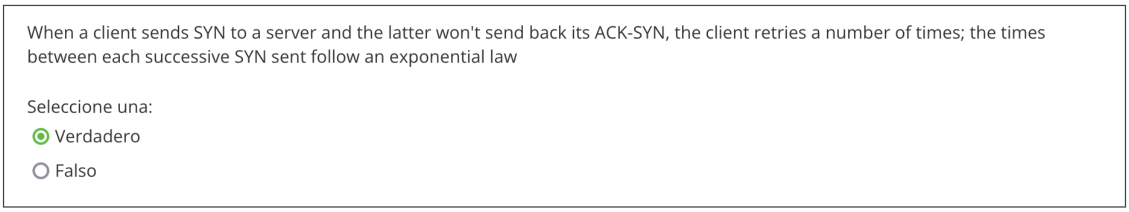


The Linux stack reacts to 2-DUP as well as it reacts to 3-DUP

Seleccione una:

● Verdadero

○ Falso

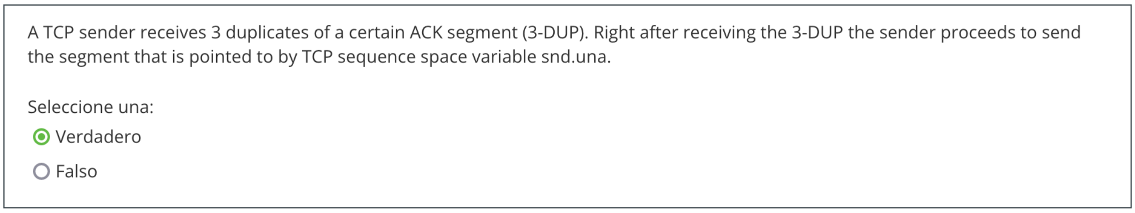


When a client sends SYN to a server and the latter won't send back its ACK-SYN, the client retries a number of times; the times between each successive SYN sent follow an exponential law

Seleccione una:

● Verdadero

○ Falso



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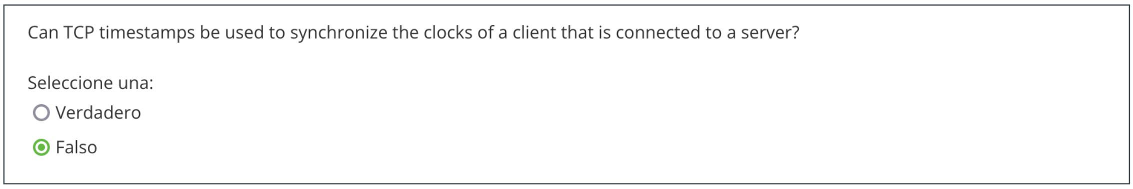
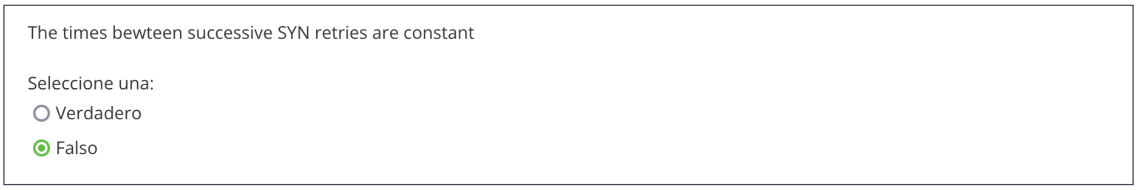


Can TCP timestamps be used to synchronize the clocks of a client that is connected to a server?

Seleccione una:

○ Verdadero

● Falso

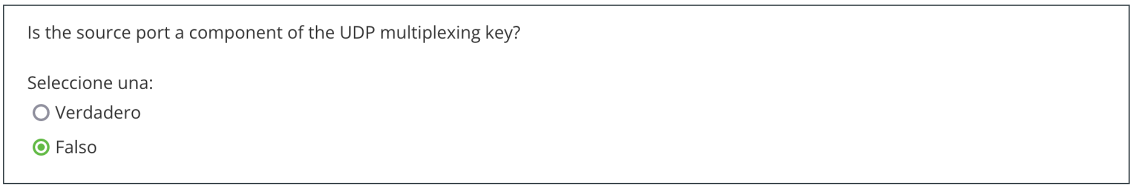


The times bewteen successive SYN retries are constant

Seleccione una:

○ Verdadero

● Falso

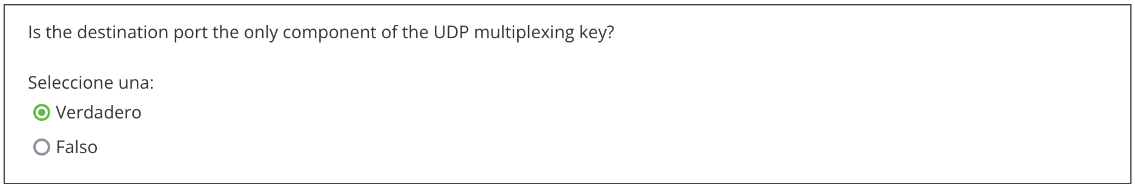


Is the source port a component of the UDP multiplexing key?

Seleccione una:

○ Verdadero

● Falso



Is the destination port the only component of the UDP multiplexing key?

Seleccione una:

● Verdadero

○ Falso