

**Skill 15.01 Exercise 1**

What does UDP stand for?

What problems does UDP handle, that IP does not?

**Skill 15.02 Exercise 2**

Consider the incomplete UDP segment of an IP packet.

Field	Value
Source port number	00010101 00001001
Destination port number	00010101 00001001
Length	
Checksum	
Data	

Consider the message: CODE

How might Length, Checksum, and Data be encoded? Refer to the ASCII table here (<https://www.ascii-code.com/>) to determine the values of C, O, D, and E.

The recipient receives the message and performs a checksum and gets the following result,

1000011100010100

Did the data arrive uncorrupted?

**Skill 15.03 Exercise 1**

What does TCP stand for?

What problem does TCP handle, that IP does not?

**Skill 15.03 Exercise 2**

The following table compares two data transport protocols from the suite of protocols powering the Internet.

Can it handle...	Protocol 1	Protocol 2
...corrupt packets?	Yes	Yes
...lost packets?	No	Yes
...out of order packets?	No	Yes

What are the identities of Protocol 1 and Protocol 2?

**Skill 15.03 Exercise 3**

Which of these is an accurate description of how the TCP/IP protocols send data around the internet?

- (a) Computers split messages into packets and send them through routers to their final destination. The destination computer acknowledges the receipt of each packet, so that the sending computer can ensure every packet is delivered.
- (b) Computers split messages into packets. Routers continually send those packets to their final destination. The sending computer does not wait for a response from the receiver, so that it can send packets quickly.
- (c) Computers split messages into metadata and data, then send the metadata in a separate packet before sending the data packet. Routers send each packet to the receiving computer.
- (d) Computers split messages into packets, and come up with a routing path for the message. Routers send the message along that path until it reaches its final destination.

**Skill 15.03 Exercise 4**

Computer A wants to send data to Computer B using the TCP/IP protocols.



What's the best description of how Computer A sends the data?

- (a) Computer A splits the message into packets. It sends each packet to Computer B as fast as it can, and then closes the connection.
- (b) Computer A creates two packets, one with the data, and the other with the metadata. Computer A first sends along the metadata and then sends along the actual data.
- (c) Computer A splits the data into packets. It looks up the best routing path in a routing table, records the path in the packet, and sends it to the first router in the path. The packet follows the path until it gets to the final destination.
- (d) Computer A splits the data into packets. It does a three-way handshake with Computer B to establish the connection, then sends each packet to the nearest router. If it detects packet loss, it re-sends the missing packets.