HANDS ON #2

With a partner, wire a patch cable: Students: John Wilson & Timothy Platt

Submit answers to the following questions:

1. Why is stranded rather than solid cable used for patch cables?

   The reason that stranded cables are preferred over a solid cable are for a couple of reasons:
   a. Stranded wire is more malleable than solid wire. This is so you can pull the wire around corners with out breaking the strands. Think of a coat hanger (solid) versus a rope (stranded). You would have trouble pulling a coat hanger around the corner but could pull the rope around the corner with ease.
   b. Stranded wire can withstand damage from scratching or nicking.
   c. And most important the attenuation is higher in stranded cables than their solid cable counterpart.
   d. Stranded cables are easier to install (Solid vs Stranded Patch Cable, n.d.).

2. Why is it critical not to score the jacket too deeply when stripping the cable?

   From an electrical current standpoint, if you score the jacket deeper than you are allowed it could damage the stranded wires inside the jacket. The damage to the wires could result in the individual wires not having the ability to carry the signal. Therefore, you will have a faulty cable.

3. Why is it recommended to expose more than .5 inches of the wire pairs?

   There are a couple of reason for the recommendation:
   a. This is so when you push the wires through the RJ-45 connector you can observe the correct color scheme is being installed prior to cutting and crimping.
   b. It makes the untwisting and identification of the wire colors easier.
   c. Exposing it at least .5 inches makes it easier to manipulate the individual wires to fit properly inside the connector.

4. Why is it critical to use the proper pin colors in order?

   There is a couple of reasons to use proper pin colors:

   a. This is so that the signals will only traverse on the same-colored lines.
   b. It is also easy to identify a problem in a faulty wire if you know what color wire is assigned to a pin number on the connector. For instance, if you have a faulty wire on pin 2 and the color assigned is orange then you can easily identify you need to only fix the orange-colored wire. Imagine if all the wires were the same color (like white or gray) and you had to figure out which one was the faulty one. According to this class the proper wire color order is: White Orange, Orange, White Green, Blue, White Blue, Green, White Brown, Brown.

5. Why is it critical to cut the wire pairs off .5 inches or less before inserting into the connector?

   This is to limit the damage to the wire prior to inserting into the RJ-45 connector. If the wires are too long and the jacket does not seat inside the housing, the wires will become brittle and could easily break. If too short, then you cannot connect the wires properly into the connector.

6. Why is it critical to make sure that all of the wires are pushed to the end of the connector?

   This is to make sure that the wires will make a solid connection with the pins inside the connector. If you do not do this than you run the risk of a faulty connection.

7. Why is it recommended to double check the wire order and make sure the wires are to the end before crimping?

   You would double check the wire order to make sure that the signals will traverse through the same wire. If you do not do this, then the signals will be crossed. In addition, if you do not make sure the wires are at the end of the connector it has the potential to not have a solid signal transmission.

8. How is a continuity tester different from a certification tester?

   A continuity tester is used to check for proper signal or current making sure that the current will flow freely from one end to the other (What Is Cable Testing. How Is Cable Testing Done | Carelabz.com, 2018).

   A certification tester tests cables for them to meet the minimum standards set forth by the TIA-568 standard (Method of Testing & Commissioning of Structured Cabling System, 2019). This certifies the cable can work with confidence on any network it is utilized.

References

Method of Testing & Commissioning of Structured Cabling System. (2019, September 21). Safeworkmethodofstatement.com. https://safeworkmethodofstatement.com/method-of-testing-commissioning-of-structured-cabling-system/#:~:text=Thus%2C%20a%20%E2%80%9Ccertification%20tester%E2%80%9D%20or%20%E2%80%9Ccertifier%E2%80%9D%20is%20an

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