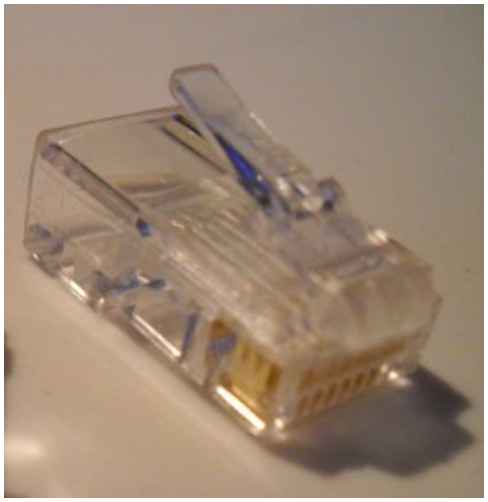
Making a Crossover Cable

March 10, 2011

Making a Crossover Network Cable

We can link two computers, hubs or switches together using a Ethernet Crossover Cable. We begin to make a Category 5e crossover cable by measuring the length from the client computer to computer, or switch to switch. Add another 25% to the length, so we can move equipment around the office without having to make a new cable. We will need Category 5e cable, two RJ45 connectors and a RJ45 Crimping tool. Most crimping tools have the ability to cut cables, strip outside insulation and crimp the connectors.

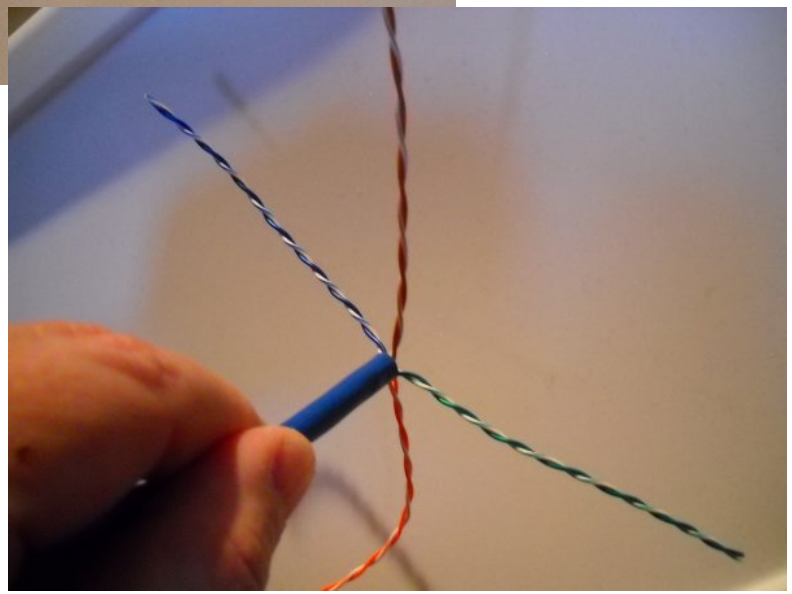


We will assemble the RJ45 connectors on each end. Then, we will test the cable and finally use it to connect to the Internet or local network.

Strip the End of the Cable

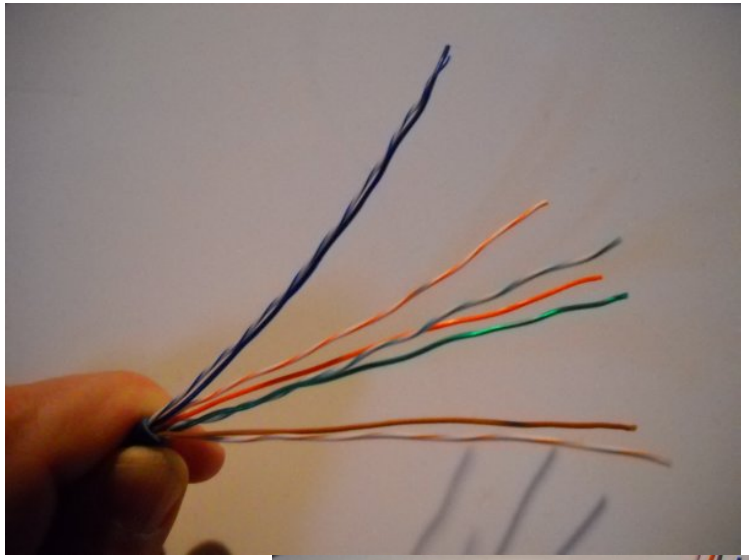
We begin making a Category 5e cable by stripping away 2 inches of the outside blue insulation. Then, we separate the four twisted pairs into a star pattern, wht-org, org to the bottom, wht-brn, brn to the top, wht-blu, blu to the left and wht-grn, grn to the right.

Color abbreviations:
Blue – blu
Green – grn
White – wht
Orange –org
Brown – brn



Placing the Colored Wires in Order

The first end is made just like a standard patch cable, so we untwist the pairs as shown at the top and then we begin to feed the wires to the left hand in a precise order for the standard network cable. The order is wht-org, org, wht-grn, blu, wht-blu, grn, wht-brn, and brn.



We can hold the cable firmly with our thumb and index finger and use our other hand to feed the colored wires in order. For those who are left handed, we reverse the order.

Order

wht-org

org

wht-grn

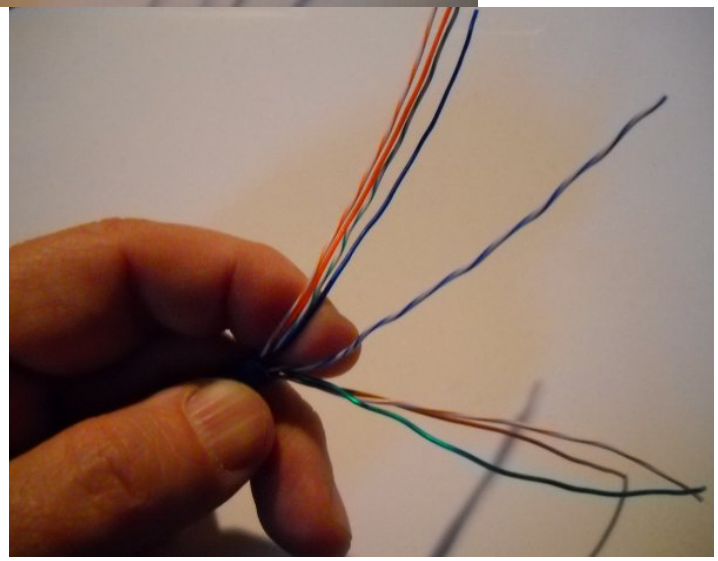
blu

wht-blu

grn

wht-brn

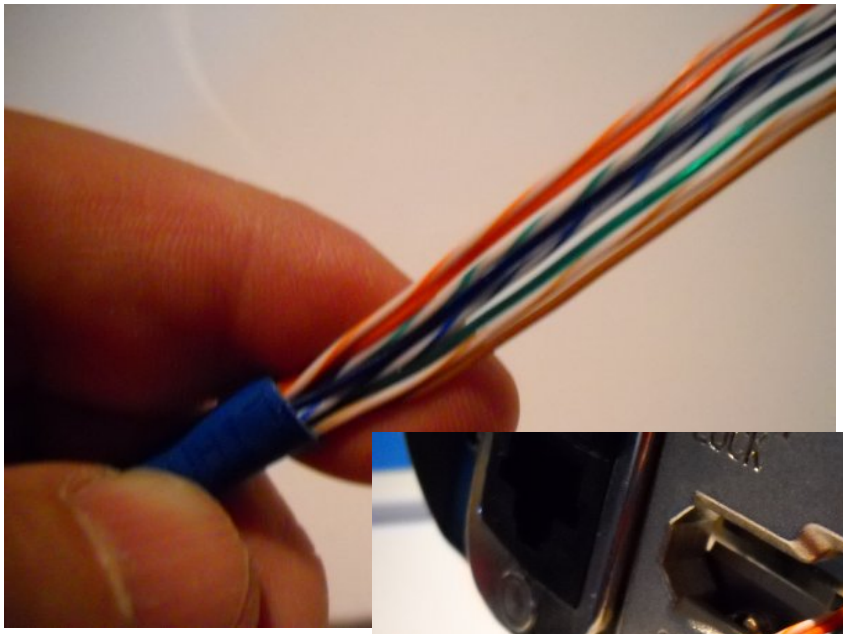
brn

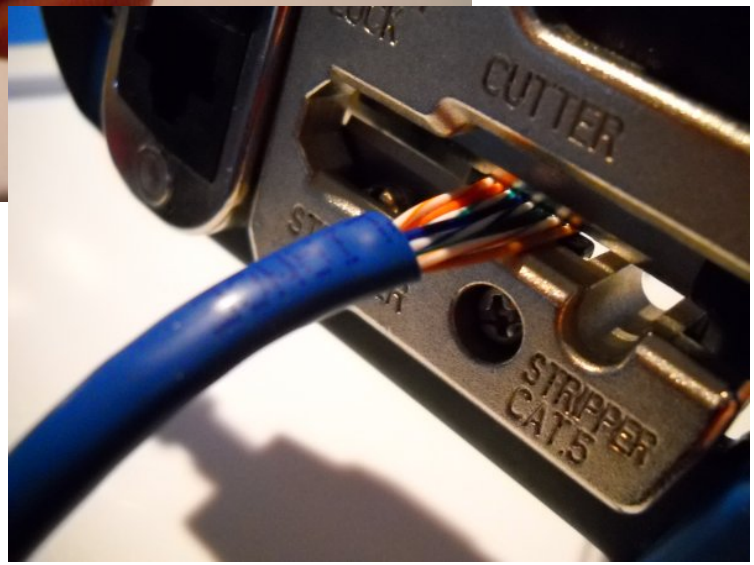


Flattening and Trimming

We can bend the copper wire easily to form a perfect ribbon as shown at the top.

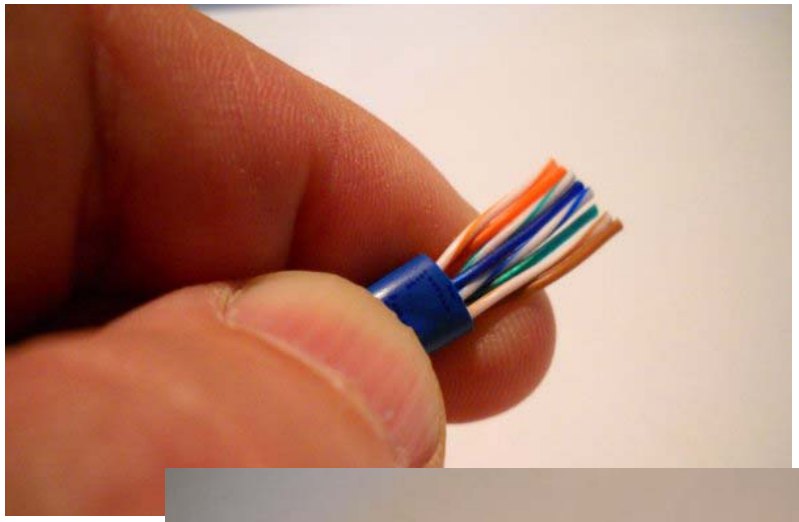
Now, we take the cable and place the ribbon in the cutter and trim the wires perpendicular to the length of the cable.



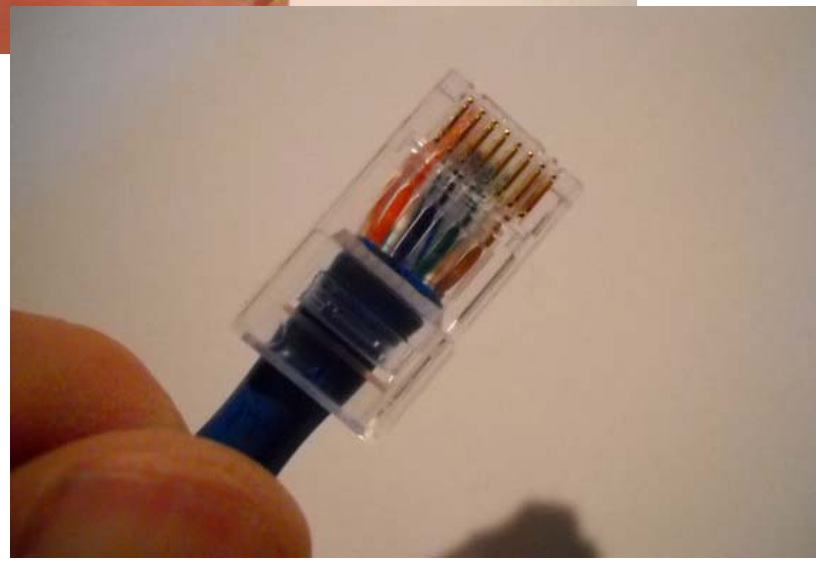


Inserting the Cable into the RJ45 Connector

After trimming the eight ribboned wires perpendicular to the length of the cable. Insert the wires into the RJ45 connector. The wires should go all the way to the end of the connector and the blue insulation should be under the stress relief bar as shown.

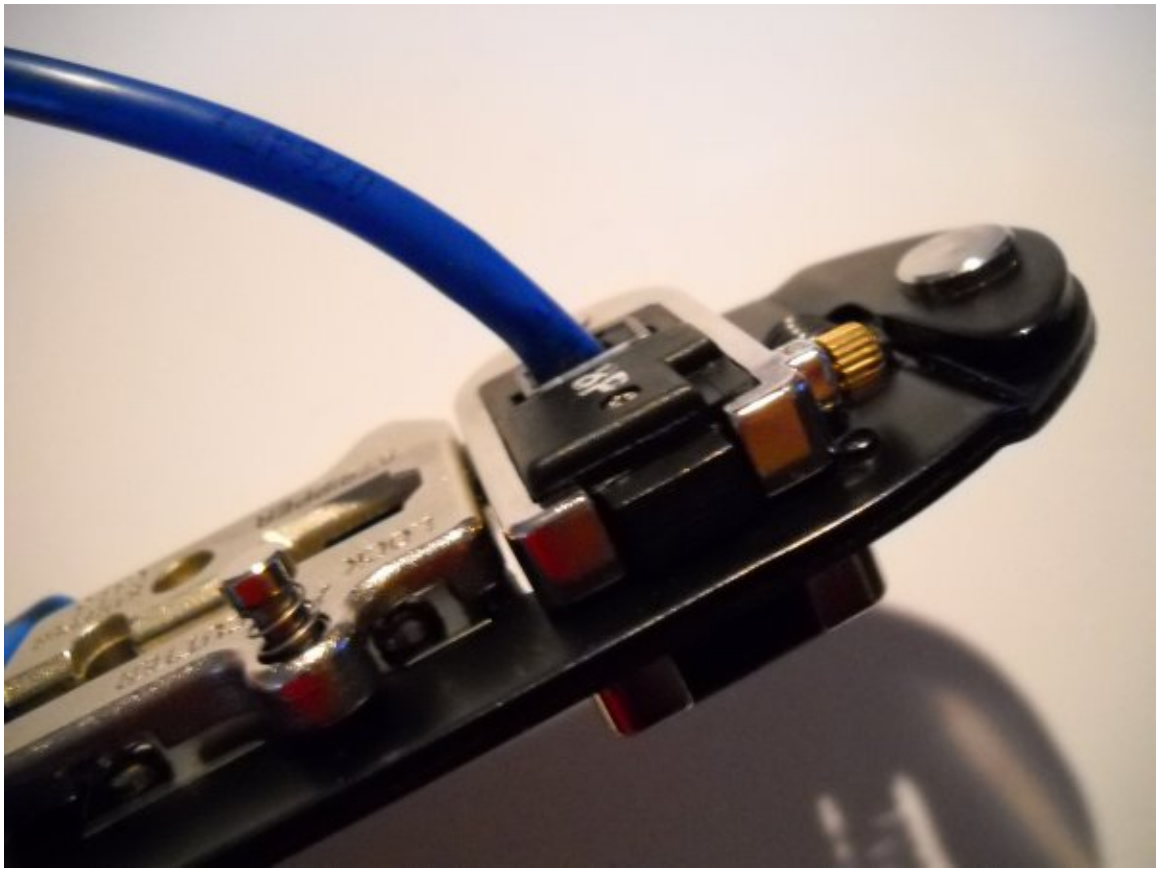


If the wires do not go all the way into the connector, the gold teeth may not cut make contact with the copper wire when we crimp the connection.



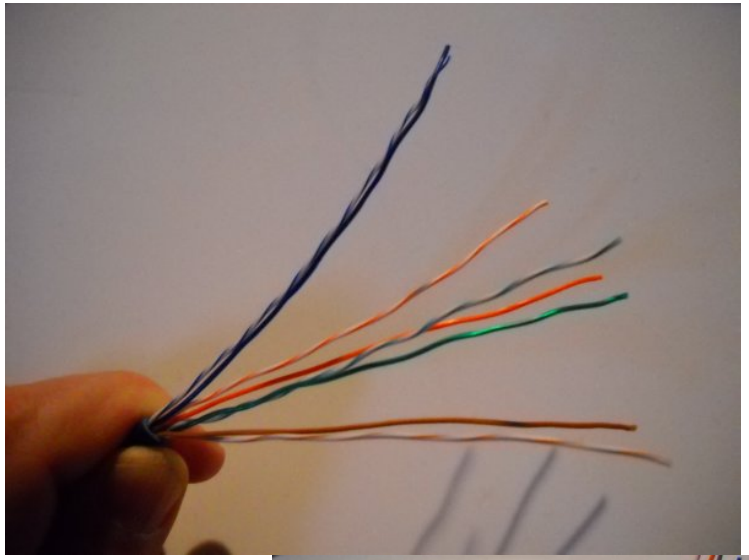
Crimping the Connection

To finish the one end, we place the RJ45 connector into the crimping die with the cable inserted. We press the tool's handles firmly together, so the gold teeth are tightly biting into the eight conductors. The stress bar will grasp the outside blue insulation.



The Crossover Connector

The second end of the crossover cable is different. The order is wht-grn, grn, wht-org, blu, wht-blu, org, wht-brn, and brn. Just like a standard patch cable, we untwist the pairs as shown at the top and then we begin to feed the wires to the left hand in a precise order for the crossover.



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Order

wht-grn

grn

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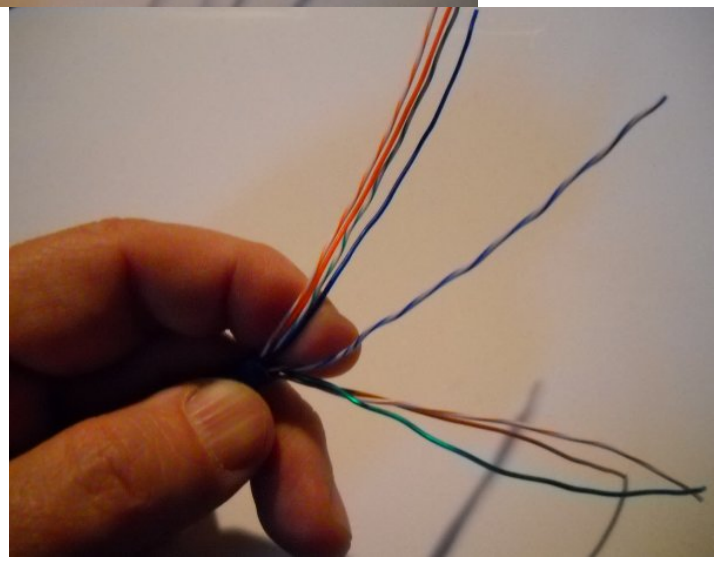
blu

wht-blu

org

wht-brn

brn



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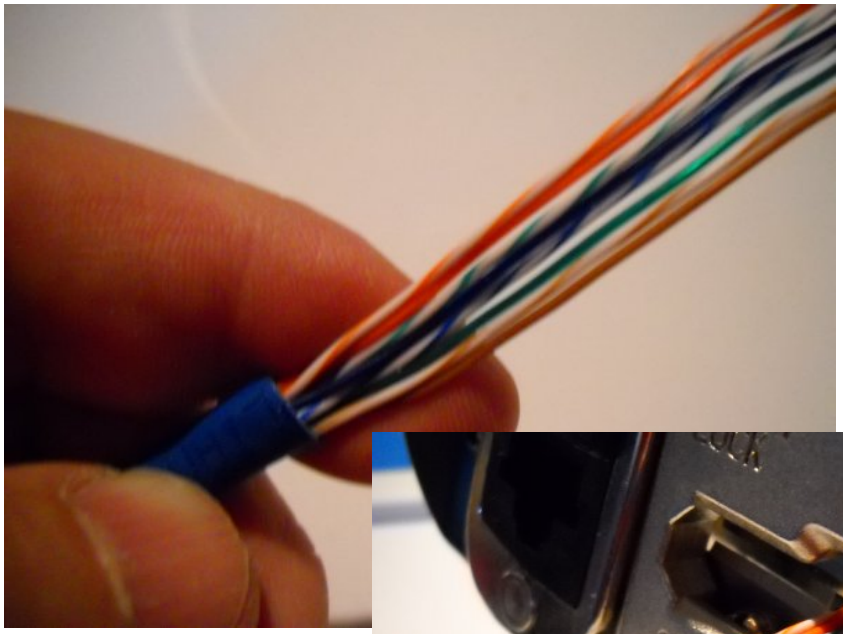

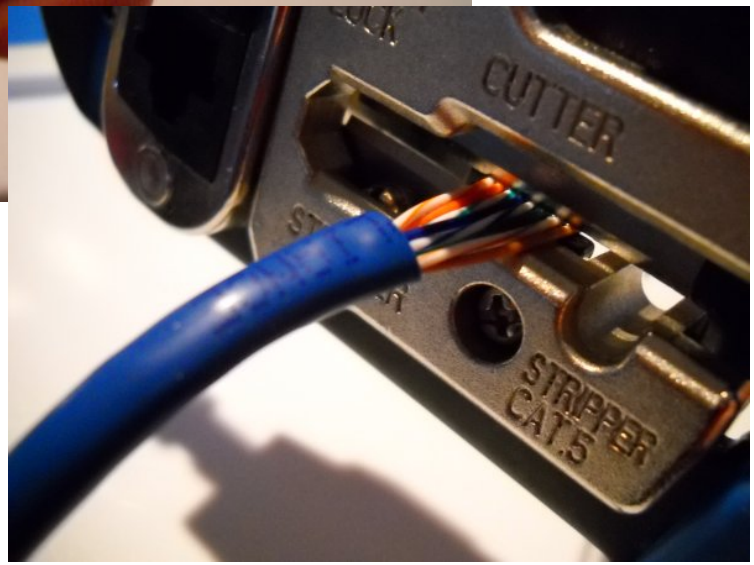

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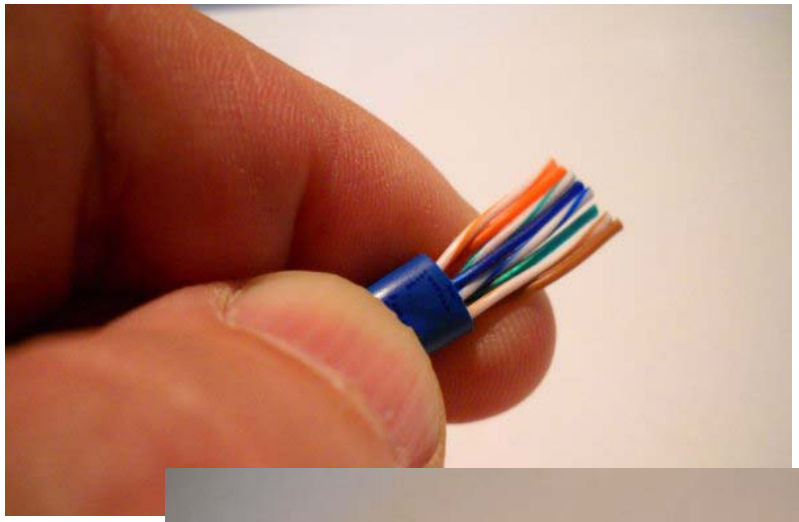

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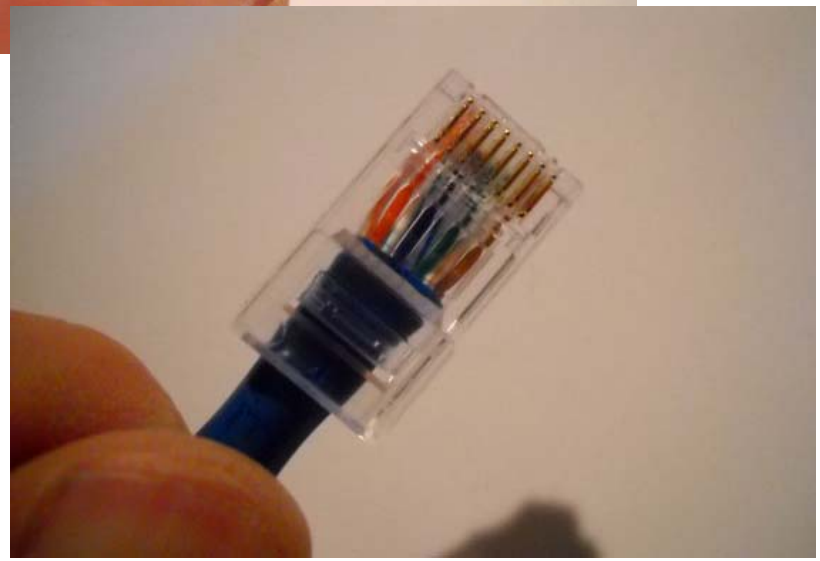
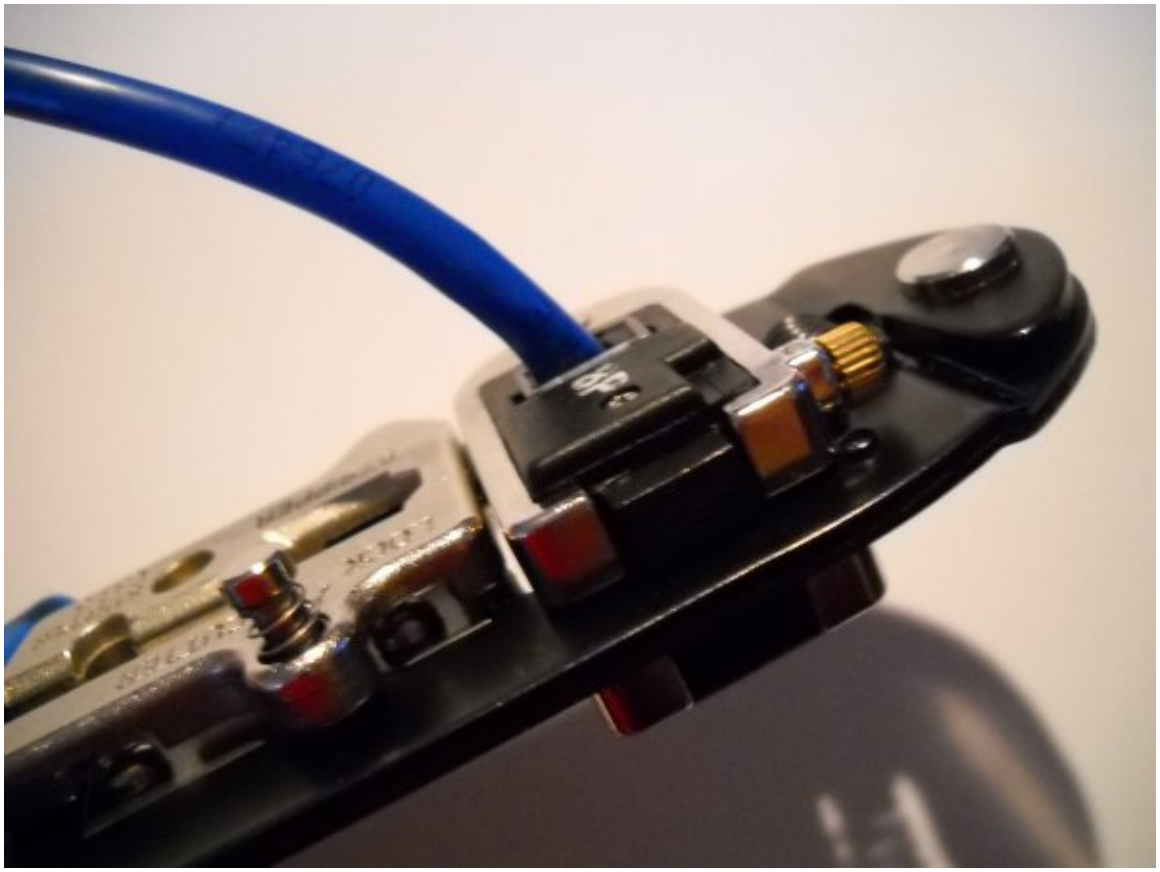


Crimping the Connection

To finish the last end, we place the RJ45 connector into the crimping die with the cable inserted. We press the tool's handles firmly together, so the gold teeth are tightly biting into the eight conductors. The stress bar will grasp the outside blue insulation.



Testing and Using the Cable

We can use a RJ45 cable tester to verify the cable is functional. Most technicians can make a crossover network cable and place it into a LAN without testing, since they possess the skill to make cables.