

Development and Demonstration of Waste Electrical & Electronic Equipment (WEEE) Prevention and Reuse Paradigms

Action B.6- Promoting and Supporting WEEE Prevention Culture in Greece

Deliverable B6.2 Quick Repair Guide for Electronic Appliances

-Part 1-

LIFE Environment and Resource Efficiency-LIFE14 ENV/GR/000858



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7. Network Router- Wi-Fi Router

7.1. General-Operation Principles

A router is a networking device that forwards data between computer networks. The router, sends and receives data among one or more servers or/and other routers along multiple networks following a process by which the exchange of data into a network is selected (routing). The routing occurs based on several criteria and in the end one routing is selected among several possible options.

The routers belong to the 3rd layer of the OSI (Open System Interactions) model, the Network Layer. Every router uses one or more routing protocols. Based on these protocols the router determines which servers or routers are the most suitable at any time and routes the data towards them.

With regard to the forwarding process of the Internet Protocol (IP), the router is constructed in such a way that minimizes the information status of every data pack. The router's main scope is to connect multiple networks and to forward data packs to its own or different networks. A router is considered to be a Layer 3 device of the OSI protocol because its primary forwarding command is based on information of the IP Layer 3 packet. This process is known as routing. When a router receives a data pack, it searches through the routing table, in order to make the best fit among the IP destination address and one of the network addresses that router table contains. After this process is complete, the pack is stored and delivered to the OSI Layer 2 for forwarding.

A router does not check the data's correctness, but only the Layer 3 addresses so as to select routing option for forwarding data. Besides the Layer 3 addresses the router may check some of the information of the title of the data pack, such as the Quality of Service (QoS).

7.2. Indications of Malfunction-Possible Damages

The most common malfunction indications and possible damages of a router, that may be home-repaired, are cited in the table below:

Table 7 Malfunction Indications & Possible Damages of a Router

Malfunction		Possible Damage	
No	Indication	No	Possible Cause
1	Incapacity to Connect to the Internet	1	Malfunction of a UTP port connecting the router to the telephone network
		2	Malfunction of an ethernet port connecting the router to the computer's network card
		3	Malfunction of the computer's network card ethernet port

7.3. Repair Steps

For every single damage that is referred in Table 7, a number of repair steps are mentioned. Every repair step is accompanied with infographic material (photos) in order to provide the user with an overview of the repair process.

In order to home-repair the device, the personal protection equipment required is the following:

- Safety gloves in order to protect the hands from edgy or sharp elements of the construction parts.
- Face mask (preferably reusable) in order to protect the respiratory system preventing any dust or residues entering the body.
- Safety goggles

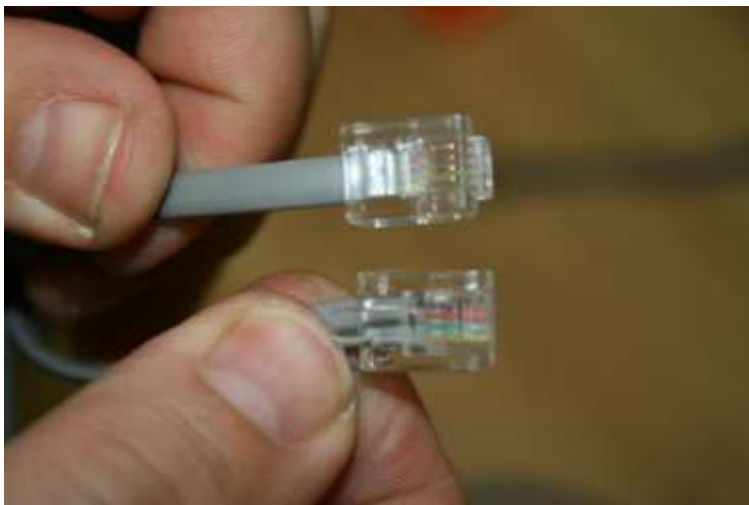
7.3.1 Repairing Incapacity to connect to the internet (connection to the telephone network)

In order to repair damage No 1, the required equipment includes:

- Spare cable with UTP port type terminals that connects the router with the telephone network
- New cable with UTP port type terminals that connects the router with the telephone network

Malfunction: Incapacity to connect to the internet, possibly caused by a malfunction of the terminal of the UTP port connection wiring to the telephone network.

Step 1: Disconnect the UTP cable from the router and the telephone network.



Step 2: Connect the router and the telephone network with the spare UTP cable.



Step 3: Get a new UTP cable to connect the router with the telephone network.

Step 4: Dispose of the damaged component(s) at the WEEE Sorting Center (SC), or at a collection point of the APPLIANCES RECYCLING S.A.

7.3.2 Repairing Incapacity to connect to the internet (connection to the computer's network card)

In order to repair damage No 2 the following equipment is required:

- Spare Ethernet cable to connect the router to the computer's network card.
- New Ethernet cable to connect the router to the computer's network card.

Malfunction: Incapacity to connect to the internet, possibly caused by a malfunction of the ethernet cable terminal connecting to the network card of the computer.

Step 1: Disconnect the ethernet cable from the router port and the computer port connecting it to the network card.



Step 2: Connect the router and the network card of the computer, using the spare Ethernet cable.



Step 3: Get a new Ethernet cable to connect the router to the computer's network card.

Step 4: Dispose of the damaged component(s) at the WEEE Sorting Center (SC), or at a collection point of the APPLIANCES RECYCLING S.A.

7.3.3 Repairing Incapacity to connect to the internet (network card)

In order to repair damage No 3 the following equipment is required:

- Screwdriver
- New network card of the same technical specifications as the damaged one.

Malfunction: Incapacity to connect to the internet, possibly caused by a malfunction of the computer's network card.

Step 1: Disconnect all the cables from the rear part of the computer and switch off the power supply.



Step 2: Disassemble the external metallic protective case of the computer.

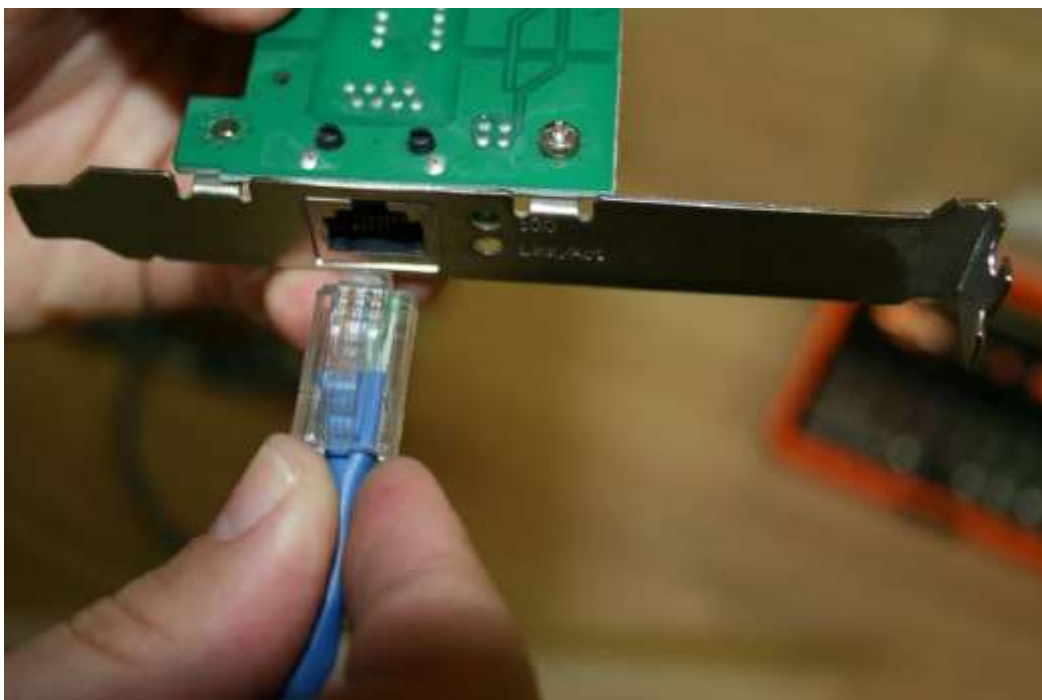


Step 3: Disconnect the damaged network card from the rear frame-skeleton of the computer.

Step 4: Disconnect the damaged network card from the motherboard.



Step 5: Connect the new network card to the motherboard.



Step 6: Connect the new network card to the according input port at the rear part of the computer frame.

Step 7: Reassemble the external metallic protective case of the computer.



Step 8: Connect all the cables to the rear part of the computer and switch on the power supply.



Step 9: Dispose of the damaged component(s) at the WEEE Sorting Center (SC), or at a collection point of the APPLIANCES RECYCLING S.A.



In case the incapacity to connect to the Internet persist, the malfunction isn't caused by the above referred possible damages. To repair the issue address a specialized certified technician.