

Network Administrator

After examining how networks are structured and how devices communicate with one another, we can introduce a very important professional role: the **network administrator**.

A network administrator is responsible for designing, configuring, monitoring and maintaining a computer network.

Their main task is to ensure that computers, servers, printers, access points, switches, routers and other devices can communicate correctly with one another and, when necessary, with the Internet.

In a school, company or office, the network administrator is primarily responsible for the structure of the local network.

For example, they decide how the various devices should be connected, where switches should be installed, how Wi-Fi access points should be configured and how the different areas of the network should be organised.

One of the network administrator's main responsibilities is configuring network equipment.

This may include routers, switches, firewalls, access points and servers.

Each device must be configured correctly to perform its function:

- The switch must connect the devices within the LAN.
- The router must route packets between different networks.
- The firewall must apply security rules.
- The access point must allow wireless devices to connect to the network.

The network administrator is also responsible for **network addressing**.

Every connected device must have the information it needs to communicate.

Another important task is managing users and permissions.

In a school or business network, not everyone should have access to the same resources.

For example, students may have access to the Internet and certain shared folders, while teachers or administrative staff may have access to different services. The network administrator must therefore configure accounts, groups, permissions and access policies.

Security is a fundamental part of the job.

The administrator must protect the network against unauthorised access, malware, incorrect configurations and risky behaviour.

To achieve this, they may configure firewalls, secure passwords, protected Wi-Fi networks, system updates, backups, antivirus software, monitoring systems and rules that restrict access to particular services.

A network administrator must also monitor the operation of the network.

This means checking whether devices can be reached, whether the Internet connection is working, whether the network is slowing down, whether a server is failing to respond or whether an access point has too many connected devices.

Monitoring helps identify problems before they become serious and allows the administrator to respond quickly when something stops working.

When a problem occurs, the network administrator performs **troubleshooting**, meaning the diagnosis and resolution of faults.

For example, if a computer cannot access the Internet, the administrator must determine whether the problem is related to the computer, the cable, the switch, the Wi-Fi connection, the router, the firewall, the ISP connection or another component.

Solving a network problem therefore requires following a logical procedure and checking one element at a time.

The network administrator is also responsible for maintenance.

This includes updating software and firmware, replacing faulty equipment, documenting configurations, checking backups, assessing performance and planning possible network expansions.

A network is not something that is configured only once: it must be monitored and updated over time.

In some organisations, the network administrator is also responsible for dividing the network into separate areas.

For example, in a school it may be useful to separate the student network from the staff network, the administrative office network from the guest network, or the laboratory network from the server network.

This separation improves organisation, security and traffic management.

The work of a network administrator therefore requires technical expertise as well as organisational skills.

It is not enough to know how to connect cables or configure a router. The administrator must also document the decisions made, prevent problems, communicate with users and find solutions appropriate to the context.