

# OSI Model

TryHackMe: OSI

## Opgaveinformation

Opgavens formål at lære omkring OSI modellen

---

## Opgave + løsning

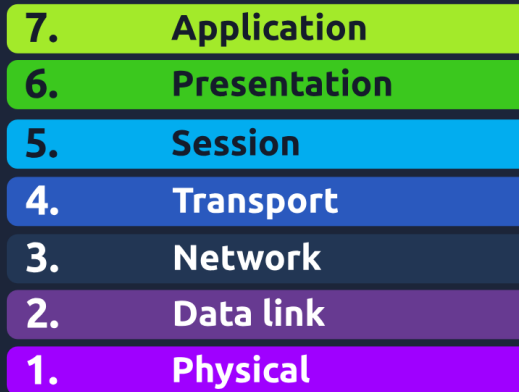
### Opgave 1 - What is The OSI Model?

The **OSI** model (or **Open Systems Interconnection Model**) is an essential model used in networking. This critical model provides a framework dictating how all networked devices will send, receive and interpret data.

One of the main benefits of the OSI model is that devices can have different functions and designs on a network while communicating with other devices. Data sent across a network that follows the uniformity of the OSI model can be understood by other devices.

The OSI model consists of seven layers which are illustrated in the diagram below. Each layer has a different set of responsibilities and is arranged from Layer 7 to Layer 1.

At every individual layer that data travels through, specific processes take place, and pieces of information are added to this data, which is what we'll come to discuss in the upcoming tasks within this room. However, for now, we only need to understand that this process is called encapsulation and what the OSI model looks like in the diagram below:



#### Answer the questions below

What does the "OSI" in "OSI Model" stand for?

Open Systems Interconnection

✓ Correct Answer

How many layers (in digits) does the OSI model have?

7

✓ Correct Answer

What is the key term for when pieces of information get added to data?

encapsulation

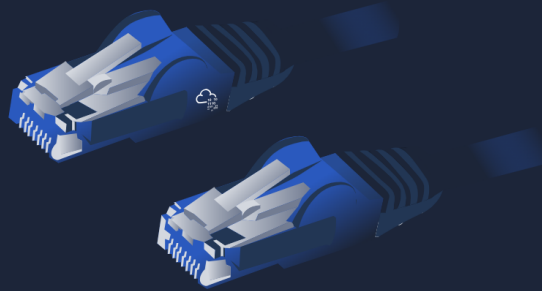
✓ Correct Answer

## Opgave 2 - Layer 1 (Physical)

### 1. Physical

This layer is one of the easiest layers to grasp. Put simply, this layer references the physical components of the hardware used in networking and is the lowest layer that you will find. Devices use electrical signals to transfer data between each other in a binary numbering system (1's and 0's).

For example, ethernet cables connecting devices, such as in the picture below:



Answer the questions below

What is the name of this Layer?

✓ Correct Answer

What is the name of the numbering system that is both 0's and 1's?

✓ Correct Answer

What is the name of the cables that are used to connect devices?

✓ Correct Answer

## Opgave 3 - Layer 2 (Data Link)

### 2. Data link

The data link layer focuses on the physical addressing of the transmission. It receives a packet from the network layer (including the IP address for the remote computer) and adds in the physical **MAC** (Media Access Control) address of the receiving endpoint. Inside every network-enabled computer is a **Network Interface Card (NIC)** which comes with a unique MAC address to identify it.

MAC addresses are set by the manufacturer and literally burnt into the card; they can't be changed – although they can be spoofed. When information is sent across a network, it's actually the physical address that is used to identify where exactly to send the information.

Additionally, it's also the job of the data link layer to present the data in a format suitable for transmission.

Answer the questions below

What is the name of this Layer?

Data Link ✓ Correct Answer

What is the name of the piece of hardware that all networked devices come with?

Network Interface Card ✓ Correct Answer ?

## Opgave 4 - Layer 3 (Network)

# 3. Network

The third layer of the OSI model (network layer) is where the magic of routing & re-assembly of data takes place (from these small chunks to the larger chunk). Firstly, routing simply determines the most optimal path in which these chunks of data should be sent.

Whilst some protocols at this layer determine exactly what is the "optimal" path that data should take to reach a device, we should only know about their existence at this stage of the networking module. Briefly, these protocols include **OSPF** (Open Shortest Path First) and **RIP** (Routing Information Protocol). The factors that decide what route is taken is decided by the following:

- What path is the shortest? I.e. has the least amount of devices that the packet needs to travel across.
- What path is the most reliable? I.e. have packets been lost on that path before?
- Which path has the faster physical connection? I.e. is one path using a copper connection (slower) or a fibre (considerably faster)?

At this layer, everything is dealt with via IP addresses such as 192.168.1.100. Devices such as routers capable of delivering packets using IP addresses are known as Layer 3 devices — because they are capable of working at the third layer of the OSI model.

Answer the questions below

What is the name of this Layer?

Network ✓ Correct Answer

Will packets take the most optimal route across a network? (Y/N)

Y ✓ Correct Answer

What does the acronym "OSPF" stand for?

Open Shortest Path First ✓ Correct Answer

What does the acronym "RIP" stand for?

Routing Information Protocol ✓ Correct Answer

What type of addresses are dealt with at this layer?

IP Addresses ✓ Correct Answer ?

## Opgave 4 - Layer 4 (Transport)

- **What is the name of this Layer?**
  - *Transport*
- **What does TCP stand for?**
  - *Transmission Control Protocol*

- **What does UDP stand for?**
    - *User Datagram Protocol*
  - **What protocol guarantees the accuracy of data?**
    - *TCP*
  - **What protocol doesn't care if data is received or not by the other device?**
    - *UDP*
  - **What protocol would an application such as an email client use?**
    - *TCP*
  - **What protocol would an application that downloads files use?**
    - *TCP*
  - **What protocol would an application that streams video use?**
    - *UDP*
- 

## Opgave 5 - Layer 5 (Session)

- **What is the name of this layer?**
    - *Session*
  - **What is the technical term for when a connection is successfully established?**
    - *Session*
- 

## Opgave 6 - Layer 6 (Presentation)

- **What is the name of this Layer?**
    - *Presentation*
  - **What is the main purpose that this Layer acts as?**
    - *Translator*
- 

## Opgave 7 - Layer 7 (Application)

- **What is the name of this Layer?**
  - *Application*

- **What is the technical term that is given to the name of the software that users interact with?**
    - *Graphical User Interface*
- 

## Practical - OSI Game

- **Escape the dungeon to retrieve the flag. What is the flag?**
    - *THM{OSI\_DUNGEON\_ESCAPED}*
- 

🕒 2026-02-19 08:13:46