

The osi model



The OSI Model NTC/360 Network & Telecommunications Concepts The OSI Model The Open Systems Interconnection Reference Model (OSI) is the accepted model that describes the how the communications for a computer network should be designed. OSI was developed as part of the Open Systems Interconnect Initiative. Basically, OSI divides the functions of a protocol in to seven layers. This makes the reasoning easy to follow and the system much more reliable. The implementation of several OSI layers is often referred to as a Stack or a TCP/IP Stack. The layers are often referenced in descending order because layer 7 is the first layer that an end user sees. A detail of each layer in descending order follows:

- Layer Seven of the OSI Model - The Application Layer of the OSI model is responsible for providing end-user services, such as file transfers, electronic messaging, e-mail, virtual terminal access, and network management. This is the layer with which the user interacts.
- Layer Six of the OSI Model - The Presentation Layer of the OSI model is responsible for defining the language that enables two network hosts to communicate. Encryption and compression should be Presentation Layer functions.
- Layer Five of the OSI Model - The Session Layer of the OSI model is responsible for establishing process-to-process communications between networked hosts.
- Layer Four of the OSI Model - The Transport Layer of the OSI model is responsible for delivering messages between networked hosts. The Transport Layer should be responsible for fragmentation and reassembly.
- Layer Three of the OSI Model - The Network Layer of the OSI model is responsible for establishing paths for data transfer through the network. Routers operate at the Network Layer.
- Layer Two of the OSI Model - The Data Link Layer of the OSI model is responsible for communications between adjacent network nodes. Hubs and switches

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operate at the Data Link Layer. · Layer One of the OSI Model - The Physical Layer of the OSI model is responsible for bit-level transmission between network nodes. The Physical Layer defines items such as: connector types, cable types, voltages, and pin-outs. The layers have the several characteristics in common. Each layer is separate and independent and each layer serves a purpose and provides support to the layers above and below it. Using the model ensures that the software and hardware work together to producing a functional and efficient experience. When two devices are communicating, each layer interacts with the same layer in the other device. When data is sent from the application on the source computer the following happens. Data in the form of a packet moves down through the layers. When it reaches the Physical Layer it is ready to be sent along the cable. At the Physical Layer the bits may be analogue or digital. The data is transmitted to the destination device. It travels up through the layers of the OSI model, reaching the user. As data moves down through the layers it is encapsulated. Additional information is added as headers or trailers. The data in the packet does not change. In short, the OSI model is an international tool that enable computer to share information. Since being released in 1984, the OSI model has been useful in defining and describing networking communications in the business world and beyond.