

# Torrenet & Onion Routing Working

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## 1 Torrent

Torrenting is a kind of peer-to-peer (P2P) file-sharing technology where a number of users can connect and share their files rather than being dependent on one single website or source for getting the content they need. Each peer acts as a mini-server, which significantly reduces the network load.

### 1.1 Working

To understand the peer-to-peer file-sharing process (or torrenting), it's essential to know a few terms.

#### 1.1.1 Peers

All users involved in sharing files through torrent P2P sharing. They are said to be peers as long as they keep sharing files on the torrenting network.

#### 1.1.2 Seeders

A user who is downloading a file from a torrent and simultaneously uploading it to be used by other users.

#### 1.1.3 Indexers

Websites that work as a search engine for the files and content to be downloaded through a torrent. Some famous indexers include The Pirate Bay.

#### 1.1.4 Trackers

Servers that act as bridges between the peers. They direct the packets from user to user and help find peers on the network for a particular download.

#### 1.1.5 Leechers

The peers who download a torrent file but restrict uploading from their server or stop the torrent as soon as their file is downloaded to prevent the upload. Their intention is not to help other peers with downloading.

### **1.1.6 Torrent Client**

One of the main requirements for torrenting is the presence of a client. Usually, uTorrent or Deluge enables the process by combining the fragments from many seeds, assembling them and managing the download.

## **2 Onion Routing**

Onion routing has been around for decades as a free, decentralized, peer-based communication technique over the world wide web. Tor, the most well-known implementation of the onion network, has also been in use since the early years of this millennium. It is one of the best ways to maintain anonymity online.

### **2.1 What is TOR?**

Tor is an open-source, decentralized privacy network that enables users to browse the web anonymously. Short for ‘The Onion Router’, it is a secure, encrypted networking protocol to ensure online privacy. It does so by using ‘onion routing’ – an anonymity technique that transmits data through a series of layered nodes, or servers, to hide the user’s IP address from not only the website or service being accessed, but also government agencies and organizations trying to monitor network traffic. It also prevents the ISP or others from snooping on the user’s online activities.

### **2.2 What is Onion Routing?**

Onion routing is a technique for anonymous communication over a computer network by using a series of random “nodes”, or servers, to relay messages. Unlike regular proxies or VPNs, which typically use a single server to route your communication, onion routing uses multiple servers. This makes it incredibly difficult for would-be eavesdroppers to trace the original sender.