

TCP - UDP

Portnummern

0 - 1023	Well Known Ports System Ports	Server applications
1024 - 49151	Registered Ports User Ports	user processes or applications, clients
49152 - 65535	Dynamic Ports Private Ports	client applications

Offizielle Liste: iana.org/assignments/port-numbers

Beispiele für Well Known Ports

Portnummer	Protokoll	Anwendung
20, 21	TCP	FTP
22	TCP	SSH
23	TCP	Telnet
25	TCP	SMTP
53	UDP, TCP	DNS
67, 68	UDP	DHCP
69	UDP	TFTP
80	TCP	HTTP
110	TCP	POP3
143	TCP	IMAP
161, 162	UDP	SNMP
443	TCP	HTTPS
	UDP	VoiceOverIP
	UDP	Streaming Video

UDP

- No connection establishment: connectionless
- wenig Overhead: 8 Byte Header

UDP-Header

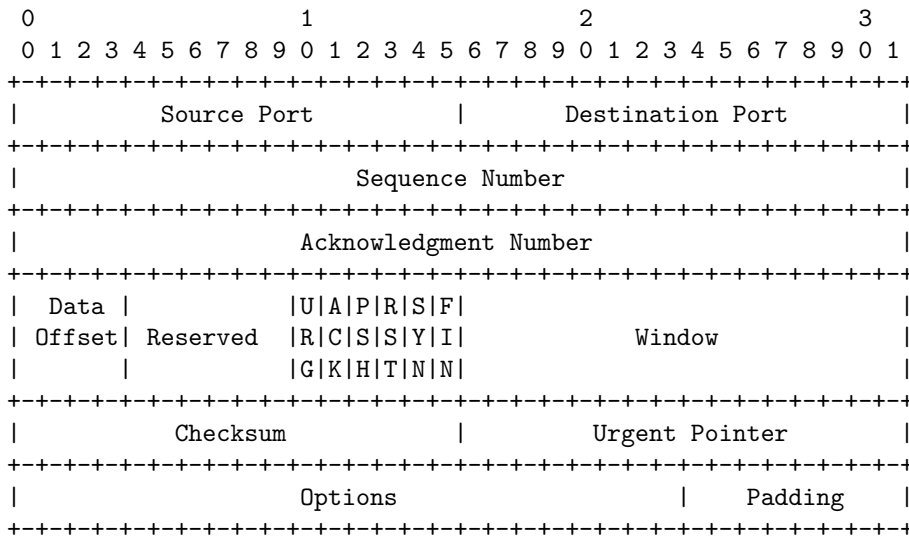
RFC 768

0	7	8	15	16	23	24	31
Source				Destination			
Port				Port			
Length				Checksum			

TCP

TCP-Header

RFC 793

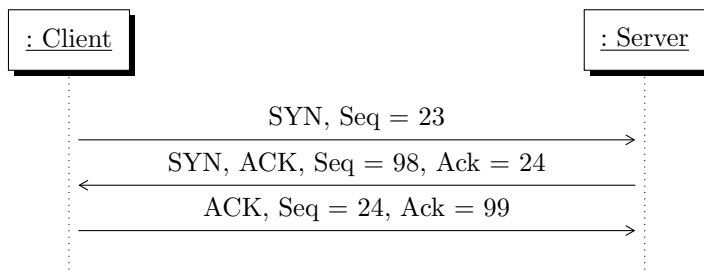


Ordered Delivery (Segment Reassembly)

Empfänger ordnet Segmente anhand der Sequence-Number

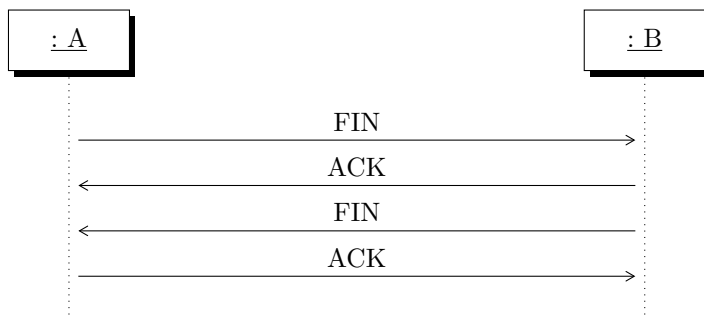
Connection Establishment (Three-Way-Handshake)

Connection-oriented: Verbindungsaufbau: Austausch der initial sequence number



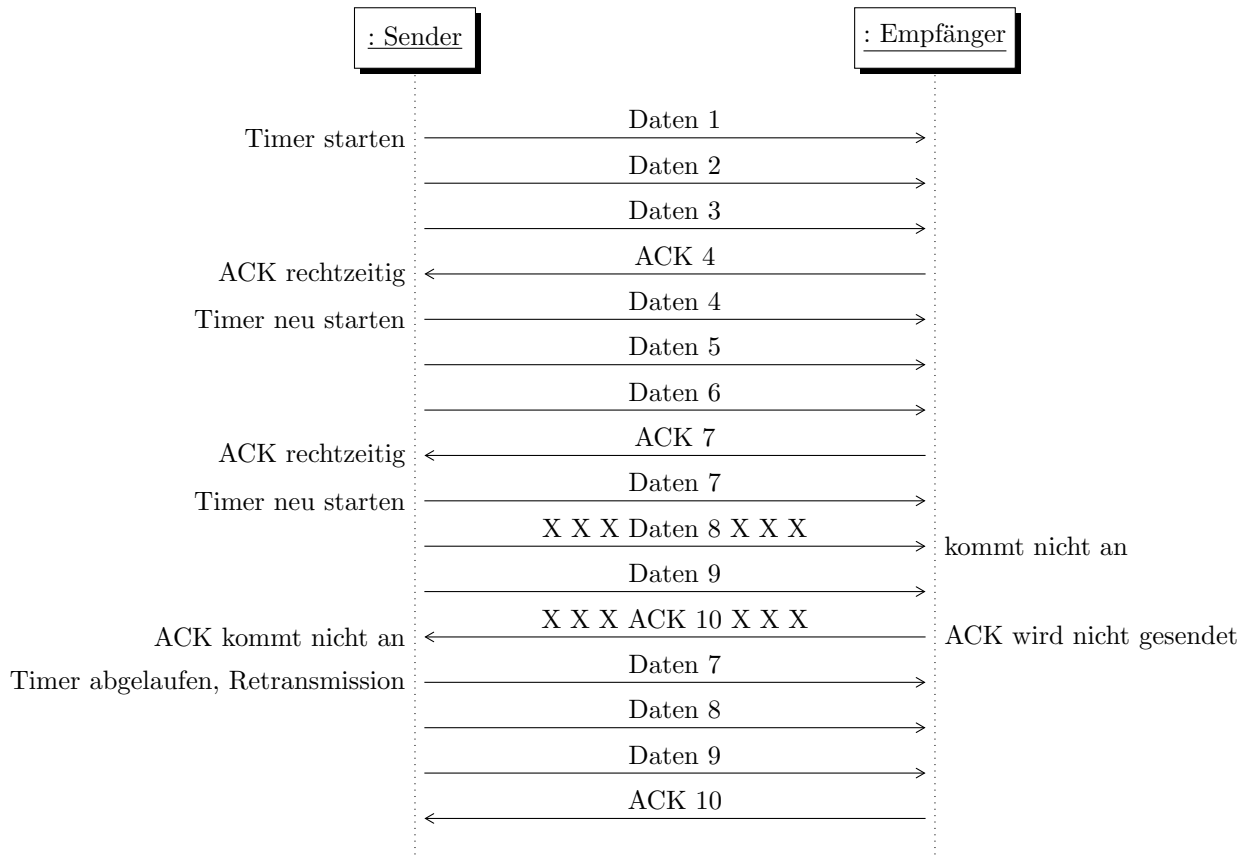
Session Termination

Beenden der Verbindung



Reliability (Zuverlässigkeit)

Zuverlässigkeit: acknowledgements (receiver), timer + retransmission (sender)
 Verlorengegangene Segmente werden nochmal gesendet.



Flow Control

Flusskontrolle, Stauvermeidung: sliding windows

- TCP-Window-Size: Anzahl der Bytes, die empfangen werden, bevor ACK geschickt werden muss.
- MSS (Maximum Segment Size): Payload eines TCP-Segments maximal 1460 Byte
- Ethernet MTU (Maximum Transmission Unit): Payload eines Ethernet-Frames maximal 1500 Byte

Error Checking

Overhead

20 Byte Header, Three-way-handshake, ACK