Mechanism	Explanation	Comments	Problems
Timer	To **retransmit lost** packets	Trigger retransmission	Number of Timers. Timer interval. When to start timer. When to stop timer.
Sequence Number	Make sure arrived packets are **in order**	Act with Ack to detect 'gaps' (Replace the function of Negative Ack)	Range of sequence number How to chose initial sequence number.
Ack	A packet has been **received correctly**	Transmission Feedback	Ack which packet, current one or the cumulative one.
Cumulative Ack	A **chunk** of packets have been **received correctly**	Ack those in order packets	null
Negative Ack	A packet **hasn't been received**	Detect 'gaps'	null
Retransmission	**Retransmit lost** packets	null	Retransmit one packet or a bunch of packets.
Sliding Window	**Flow control, Pipelining**	Not overwhelming the receiver. Maximizing link utilization	Window size of sender and receiver respectively.
Checksum	Check **bit errors**	null	null

Reliable Data Transfer Mechanism

Mechanism	Stop-and-Wait	Go-Back-N	Selective-repeat
Timer	**#Timers:** 1 **Start:** Sent one packet/ Timeout **Stop:** Receive one packet	**#Timers:** 1 **Start:** Receive Ack/ Timeout **Stop:** All outstanding packets Acked	**#Timers:** Equal to window size N **Start:** Associated packet sent/Timeout **Stop:** Associated packet Ack
Sequence Number	1bit, (0 or 1)	[0 - M]	[0 - M]
Ack	Ack received one	Cumulative Ack	Ack received packets and **buffer** them
Cumulative Ack	No	Yes	No
Negative Ack	null	null	null
Retransmition	Retransmit one packet	Retransmit all not yet Ack packets	Retransmit all not yet Ack(not been buffered) packets
Sliding Window	(Sender:Receiver)=(1:1)	(Sender, Receiver)=(N:1)	(Sender:Receiver)=(N:N)
Checksum	CRC	CRC	CRC

Note: N is the window size, M is the range of the sequence number, they are specified by administrators.