Chapter 22 - Datagram Forwarding

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1. **Can extension headers and/or the payload be larger than the base header?**	Yes
2. **Can the IPv6 header have multiple headers?**	Yes, it can multiple Extension Headers
3. **Does the intermediate router addresses appear in the header?**	No
4. **Each destination in the table corresponds to a**	Network
5. **Forwarding steps of Prefix Extraction**	- Compare destination in each forwarding table entry with datagram's destination address - During comparison, only examine network prefix
6. **How does a router find next hop?**	Prefix Extraction
7. **How do you identify headers?**	- NEXT HEADER field: value specifies the type of the next item - Each transport layer protocol (e.g. UDP, TCP) is assigned a type
8. **How is the format of the header determined for an IP datagram?**	by protocol version (IPv4 or IPv6)
9. **How is the size of payload determined for an IP datagram?**	Size of payload determined by application
10. **In practice, table usually contains a _____ ____ for all destinations that are not explicitly listed**	default entry
11. **IP Datagram**	A data packet that conforms to the IP specification. - Size of payload determined by application
12. **The IP Datagram Header Format**	VERS H.LEN SERVICE TYPE TOTAL LENGTH IDENTIFICATION FLAGS FRAGMENT OFFSET TIME TO LIVE TYPE HEADER CHECKSUM SOURCE IP ADDRESS DESTINATION IP ADDRESS IP OPTIONS PADDING
13. **IPv4 Datagram Header**	- Most header fields have fixed size and position - Header specifies source, destination, and content type
14. **Longest Prefix Match**	When a datagram arrives at router, it will be routed to its longest IP address prefix match (ex. datagram with destination 200.23.1.128 has a match for 200.23.0.0/16 but its longest prefix match of 200.23.1.1/24 makes it route to the router with the 200.23.1.1/24)
15. **What actual data is kept in forwarding table?**	Contains - Destination network IP prefix - Address mask for the destination network - IP address of next hop
16. **What does the destination IP address field give in the header?**	gives the IPv4 address of the ultimate destination
17. **What does the source IP address field give in the header?**	gives the IPv4 address of the original source
18. **What is datagram forwarding?**	- Performed by initial host and each router along path - Selects next hop for the datagram - Uses a forwarding table with one entry per network
19. **What is the average header size?**	20 bytes

20.	**What is the maximum payload for an IP datagram?**	almost 64K bytes
21.	**What is the typical datagram size?**	1500 bytes