

# Static & Dynamic Routing.

## Static Routes

↳ Manually configured routes

↳ Debris [edit routing options].

### - Next Hop

↳ IP address of directly connected device.

dropping packet →  
reject → ICMP  
discard → No ICMP

### - [next-hop] IP address

↳ does not perform recursive hops.

- Static routes remain in the routing table until they are either removed or become inactive.

{no-redvertise} ] → static routes

- Monitoring Static routes

↳ show route protocol state.

- Next Hop Resolution.

↳ use resolve CLI option.

- Qualified Next Hops

↳ qualified-next-hop enables independent preferences for static routes to the same destination.

# Dynamic Routing

↳ Best option for large networks

↳ Configure network interfaces

## Benefits:

- Lower administrative overhead
- Increases network availability
- Greater network scalability.

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### Dynamic Routing Protocols

- A summary of dynamic routing protocols:
  - Interior gateway protocols (IGPs) operate within a single autonomous system
    - Single network administration that provides for unique routing policy and flexible use of network resources
    - Examples include RIP, IS-IS, and OSPF

```
graph LR; subgraph AS64512 [AS 64512]; direction TB; R1(( )); R2(( )); R3(( )); end; subgraph AS64513 [AS 64513]; direction TB; R4(( )); R5(( )); R6(( )); end; subgraph AS65535 [AS 65535]; direction TB; R7(( )); R8(( )); R9(( )); end; R1 --- R2; R2 --- R3; R4 --- R5; R5 --- R6; R7 --- R8; R8 --- R9; R5 -.-> R4; R9 -.-> R6;
```

## Configuring OSPF

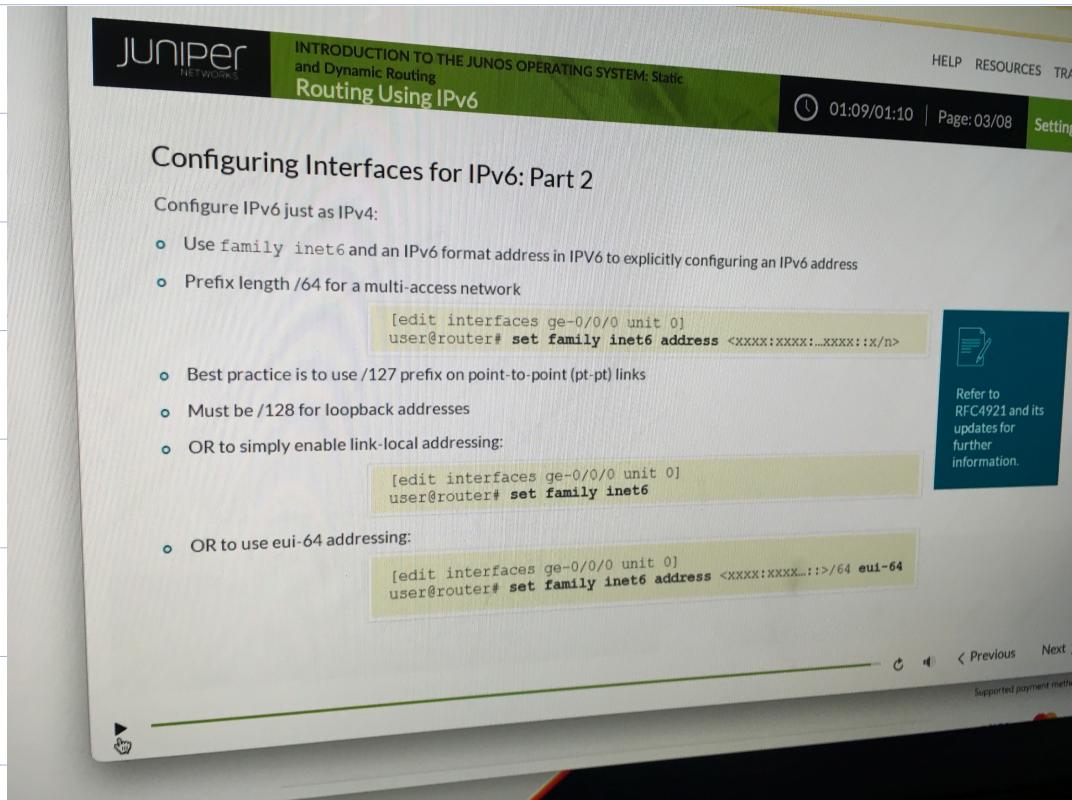
- OSPF is a link-state routing protocol designed for use within an autonomous system (AS).
  - IGP's are designed to facilitate communication of routes between nodes within the same AS.
- Link state protocols enable:
  - Faster convergence
  - Support larger inter-networks
  - Less susceptible

- Link-state interior gateway (IGP)
  - ↳ Calculates best path to each destination.
- Shortest path-first algorithm.  
(Dijkstra algo).
- Show ospf neighbor → display
  - ↳ use details or extensive
- Show route protocol ospf.

## Routing using IPv6

Enable in IPv6      ↗ Configure the  
                        interface link-local  
                        address

↳ Activates IPv6  
processing for that  
interface



Implementing OSPF 3

- Configure under `edit protocol ospf3`

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Routing Using IPv6

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Settings

Check Your Understanding

Q2

What happens when the `set family inet6` command is used while configuring interfaces for IPv6? (Choose two.)

Select the correct answers and click Submit.

- Interface ID is generated
- IPv6 routes are dynamically advertised
- IPv6 packet processing is enabled
- Link-local address is generated
- Static routes are configured

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f+ LAB !