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Welcome

To

Network for you

OSPF Authenticaiton



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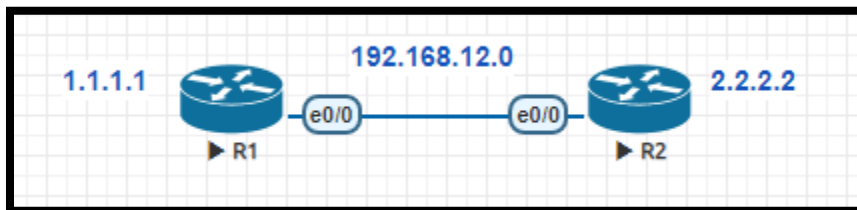
Securing Routing Protocols:

- By default, all, the routing information is visible to all interested parties.
- By default, routing information is not encrypted therefore open to an attack.
- Routing protocols can be configured to prevent receiving false routing updates.
- Routing Protocol Authentication is a security mechanism prevents such attacks.
- To prevent router from accepting unauthorized or malicious routing updates.
- Routing protocols RIP, EIGRP and OSPF can be secure by putting an authentication
- Two options for authentication are Plain text authentication & MD5 authentication.

Authentication on OSPF:

- OSPF Dynamic Routing protocols can authenticate every OSPF message to protect.
- This is basically to prevent a rogue Router from injecting false routing information.
- This is also to prevent the Denial-of-Service (DoS) attack on Cisco Devices as well.
- Two types of authentication can be used one of them is Plain text authentication.
- Second is MD5 authentication, MD5 type of Authentication is stronger and secure.
- There are all together three types of OSPF authentication Type 1, Type 2 and Type 3.
- Type 1 – No Authentication, Type 2 – Clear Text & Type 3 – Cryptographic (MD5 or SHA).
- OSPF Authentication can be configured on a per area or per interface on OSPF Protocols.
- But any OSPF authentication passwords have to be configured on the interface only.
- OSPF authentication type 1 means no authentication and is the default on any link.
- OSPF Authentication type 2 First enable authentication & create password on interface.

Lab:



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R1 Configuration	R2 Configuration
<pre>en config t hostname R1 Int e0/0 ip add 192.168.12.1 255.255.255.0 no sh int lo 0 ip add 1.1.1.1 255.0.0.0 router ospf 1 router-id 1.1.1.1 int e0/0 ip ospf 1 area 0 int lo 0 ip ospf 1 area 0</pre>	<pre>en config t hostname R2 Int e0/0 ip add 192.168.12.2 255.255.255.0 no sh int lo 0 ip add 2.2.2.2 255.0.0.0 router ospf 1 router-id 2.2.2.2 int e0/0 ip ospf 1 area 0 int lo 0 ip ospf 1 area 0</pre>
OSPF Plain Test Authentication in R1 and R2	OSPF MD5 Authentication in R1 and R2
<pre>key chain cisco key 1 key-string cisco1 int e0/0 ip ospf authentication ip ospf authentication-key cisco1 int lo 0 ip ospf authentication ip ospf authentication-key cisco1</pre>	<pre>key chain cisco key 1 key-string cisco1 int e0/0 ip ospf authentication message-digest ip ospf message-digest-key 1 md5 cisco1 int lo 0 ip ospf authentication message-digest ip ospf message-digest-key 1 md5 cisco1</pre>

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```
R1#sh ip route ospf
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2
i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
ia - IS-IS inter area, * - candidate default, U - per-user static route
o - ODR, P - periodic downloaded static route, H - NHRP, l - LISP
a - application route
+ - replicated route, % - next hop override

Gateway of last resort is not set

    2.0.0.0/32 is subnetted, 1 subnets
O       2.2.2.2 [110/11] via 192.168.12.2, 00:00:57, Ethernet0/0
```

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