ipv6地址配置实验（GNS3/ENSP）

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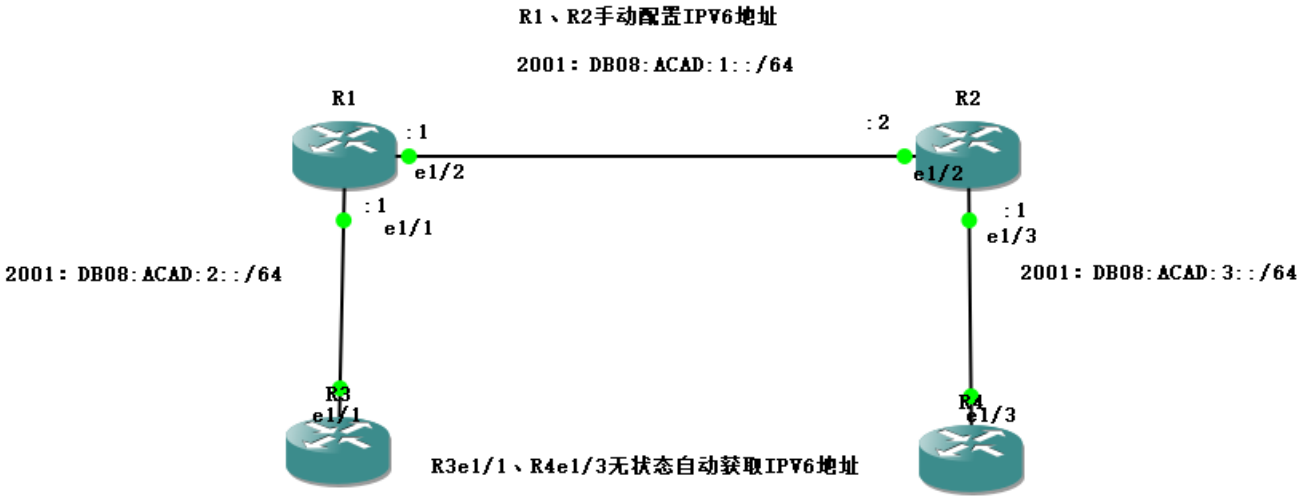
实验拓扑：



IPV6地址配置如图所示，

配置ipv6指令（以R2为例，R1类似）：

int e1/2

R2(config-if)#ipv6 address 2001:db08:acad:1::2/64

R2(config-if)#no shutdown

验证一下：

```
R2#show ipv6 interface brief
FastEthernet0/0            [administratively down/down]
    unassigned
Ethernet1/0                [administratively down/down]
    unassigned
Ethernet1/1                [administratively down/down]
    unassigned
Ethernet1/2                [up/up]
    FE80::C802:7FF:FEBC:1E
    2001:DB08:ACAD:1::2
Ethernet1/3                [up/up]
    FE80::C802:7FF:FEBC:1F
    2001:DB08:ACAD:3::1
```

验证下R1的e1/2接口

```
Ethernet1/2 is up, line protocol is up
  IPv6 is enabled, link-local address is FE80::C801:7FF:FEAD:1E
  No Virtual link-local address(es):
  Global unicast address(es):
    2001:DB08:ACAD:1::1, subnet is 2001:DB08:ACAD:1::/64
  Joined group address(es):
    FF02::1
    FF02::2
    FF02::1:FF00:1
    FF02::1:FFAD:1E
  MTU is 1500 bytes
  ICMP error messages limited to one every 100 milliseconds
  ICMP redirects are enabled
  ICMP unreachables are sent
  ND DAD is enabled, number of DAD attempts: 1
  ND reachable time is 30000 milliseconds (using 32415)
  ND advertised reachable time is 0 (unspecified)
  ND advertised retransmit interval is 0 (unspecified)
  ND router advertisements are sent every 200 seconds
  ND router advertisements live for 1800 seconds
  ND advertised default router preference is Medium
  Hosts use stateless autoconfig for addresses.
```

可以发现在配好IPV6全局单播地址的同时，它自己也会自动生成一个链路本地地址，当然我们也可以手动设置个链路本地地址

R1路由器配置类似，我们把与它相连的e1/1和e1/2也一起配好验证下

```
R1#show  ipv6 interface brief
FastEthernet0/0            [administratively down/down]
    unassigned
Ethernet1/0                [administratively down/down]
    unassigned
Ethernet1/1                [up/up]
    FE80::C801:7FF:FEAD:1D
    2001:DB08:ACAD:2::1
Ethernet1/2                [up/up]
    FE80::C801:7FF:FEAD:1E
    2001:DB08:ACAD:1::1
Ethernet1/3                [administratively down/down]
    unassigned
```

2、下面我们来试一下无状态自动获取地址试试（在R3、R4上进行），以R3为例

我们首先进入R3的e1/1

R3(config)#int e1/1

R3(config-if)#ipv6 enable //接口上使能IPv6功能。
R3(config-if)#ipv6 address autoconfig //使它能无状态自动生成IPv6全局地址功能。

然后我们验证一下行不行

```
R3#show ipv6 interface brief
FastEthernet0/0            [administratively down/down]
    unassigned
Ethernet1/0                [administratively down/down]
    unassigned
Ethernet1/1                [up/up]
    FE80::C803:7FF:FECC:1D
```

发现并没有获取到全局单播地址，为什么呢？因为我们没在与之相连的R1路由器上没有配置ipv6 unicast-routing

它的作用好像是关于那个SLAAC进程的，就像那个RA/RS的消息，上课的内容可以去看看PPT

R1配置了ipv6 unicast-routing再验证一遍

```
R3#show ipv6 interface brief
FastEthernet0/0            [administratively down/down]
    unassigned
Ethernet1/0                [administratively down/down]
    unassigned
Ethernet1/1                [up/up]
    FE80::C803:7FF:FECC:1D
    2001:DB08:ACAD:2:C803:7FF:FECC:1D
```

地址出来了

3、我们做一下ping测试

```
R1#ping 2001:db08:acad:1::2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 2001:DB08:ACAD:1::2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 8/24/68 ms
```

R1 ping R2

我们尝试用R1跟R3做一下联通测试

```
R1#ping 2001:db08:acad:2:c803:7ff:fecc:1d

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 2001:DB08:ACAD:2:C803:7FF:FECC:1D, timeout is
2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 12/24/60 ms
```

还行吧，R4应该也是差不多的了。

```
R2#ping 2001:db08:acad:3:c804:7ff:fedb:1f    R4 e1/3接口地址

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 2001:DB08:ACAD:3:C804:7FF:FEDB:1F, timeout is
2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 12/25/64 ms
```

另外链路本地地址好像也可以手动配置的，当然让他自动获取也可以

ipv6 address fe80::1 link-local

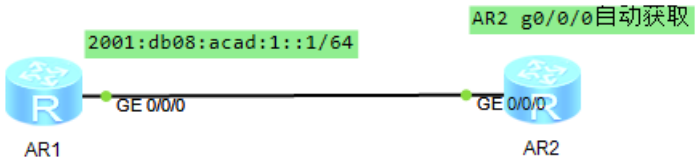
如果要删除多余的ipv6地址（例子）：

R2(config-if)#no ipv6 address 2001:db08:adad:3::1/64

---------- 帅帅分割线----------

下面我们用华为的ensp简单做一下这个实验

1、实验拓扑



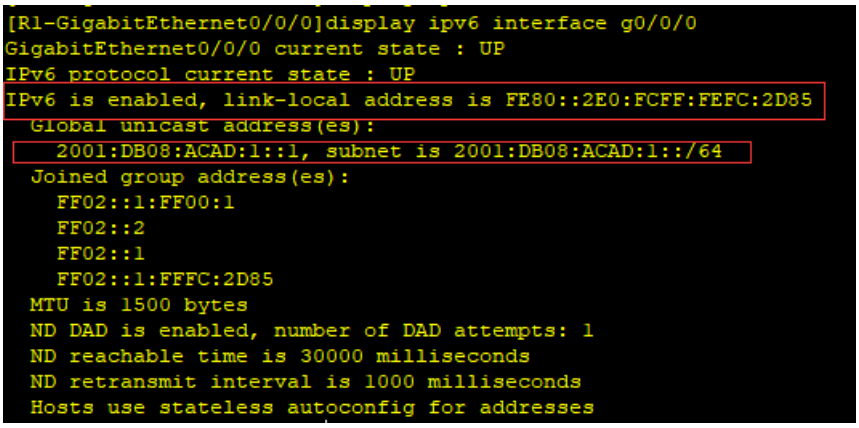
2、AR1配置

AR1

```
The device is running!

<Huawei>sys
Enter system view, return user view with Ctrl+Z.
[Huawei]sysn
[Huawei]sysname R1
[R1]ipv
[R1]ipv6
[R1]int g0/0/0
[R1-GigabitEthernet0/0/0]ipv
[R1-GigabitEthernet0/0/0]ipv6 en
[R1-GigabitEthernet0/0/0]ipv6 enable
[R1-GigabitEthernet0/0/0]ipv
[R1-GigabitEthernet0/0/0]ipv6 ad
[R1-GigabitEthernet0/0/0]ipv6 address 2001:db08:acad:1::1/64
[R1-GigabitEthernet0/0/0]
Mar  9 2019 11:35:21-08:00 R1 IPV6/2/IF_IPV6CHANGE:OID 16777216.50331648.1006632
96.16777216.33554432.16777216.922746880.33554432.0.16777216 The status of the IP
v6 Interface changed. (IfIndex=50331648, IfDescr=HUAWEI, AR Series, GigabitEther
net0/0/0 Interface, IfOperStatus=16777216, IfAdminStatus=16777216)
```

3、AR1验证



[R1-GigabitEthernet0/0/0]undo ipv6 nd ra halt　/*使用这个命令能使系统发布RA报文

3、AR2配置及其验证

---------- 帅帅的结束分割线----------

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