

AR系列路由器debugging ospf命令(三)

例5: 两台设备之间建立OSPF邻居, 打开OSPF LSACK报文信息调试开关

```
<ar46one>debugging ospf packet ack
*0.821351400 ar46one RM/7/RTDBG:OSPF Process 1
*0.821351460 ar46one RM/7/RTDBG:OSPF RECV 30.1.1.2(Ethernet0/0/0) -> 224.0.0.5Link State Ac
k Vers: 2 Len: 44
//从接口Ethernet0/0/0收到从30.1.1.2发来的链路状态确认报文, 版本为: 2, 长度为44bytes
*0.821351600 ar46one RM/7/RTDBG:OSPF RECV RouterID: 11.0.0.2 Area: 0.0.0.0 Checksum: 0xca58
//报文的通告路由器为11.0.0.2, 区域为0.0.0.0, 检验和为0xca58
*0.821351710 ar46one RM/7/RTDBG:OSPF RECV Auth: Type: 0 Key: 00000000.00000000
//报文不进行验证
*0.821351810 ar46one RM/7/RTDBG:OSPF RECV ASE Id: 10.0.0.0 Ad
vRtr: 4.1.1.2 Age: 1:00:00
//确认的ASE LSA Id为10.0.0.0, 通告路由器为4.1.1.2, Age为1:00:00
*0.821351940 ar46one RM/7/RTDBG:OSPF RECV Len: 36 Seq #: 800000
03 Checksum: 0x6b34
//确认的ASE LSA长度为36bytes, 序列号为80000003, 检验和为0x6b34
*0.821352050 ar46one RM/7/RTDBG:OSPF RECV Options:(DC)
//确认的ASE LSA的选项字段为: DC
*0.821352120 ar46one RM/7/RTDBG:OSPF Process 1
*0.821352180 ar46one RM/7/RTDBG:OSPF SENT 30.1.1.1(Ethernet0/0/0) -> 224.0.0.5Link State Ac
k Vers: 2 Len: 64
//从Ethernet0/0/0接口向224.0.0.5发送链路状态确认报文, 版本为2, 长度为64bytes
*0.821352320 ar46one RM/7/RTDBG:OSPF SENT RouterID: 4.1.1.2 Area: 0.0.0.0 Checksum: 0x4a9d
//报文的源路由器ID为4.1.1.2, 区域为0.0.0.0, 检验和为0x4a9d
*0.821352440 ar46one RM/7/RTDBG:OSPF SENT Auth: Type: 0 Key: 00000000.00000000
//报文不进行验证
*0.821352540 ar46one RM/7/RTDBG:OSPF SENT Router Id: 11.0.0.2 Ad
vRtr: 11.0.0.2 Age: 2
//确认的Router LSA Id为11.0.0.2, 通告路由器为11.0.0.2, Age为2
*0.821352660 ar46one RM/7/RTDBG:OSPF SENT Len: 36 Seq #: 800000
0c Checksum: 0xd31b
//确认的Router LSA 的长度为36bytes, 序列号为8000000c, 检验和为0xd31b
*0.821352770 ar46one RM/7/RTDBG:OSPF SENT Options:(DC)
//确认的Router LSA的选项字段为: DC
*0.821352840 ar46one RM/7/RTDBG:OSPF SENT Net Id: 30.1.1.2 Ad
vRtr: 11.0.0.2 Age: 1
//确认的Net LSA Id为30.1.1.2, 通告路由器为11.0.0.2, Age为1
*0.821352960 ar46one RM/7/RTDBG:OSPF SENT Len: 32 Seq #: 800000
03 Checksum: 0x5a9b
*0.821353070 ar46one RM/7/RTDBG:OSPF SENT Options:(DC)
```

举例6: 多台设备建立OSPF邻居, 在其中一台打开OSPF DD报文信息调试开关:

```
<ar46one>debugging ospf packet dd
*0.824693430 ar46one RM/7/RTDBG:OSPF Process 1
*0.824693490 ar46one RM/7/RTDBG:OSPF SENT 30.1.1.1(Ethernet0/0/0) -> 30.1.1.2 Database De
scription Vers: 2 Len: 32
//从30.1.1.1(接口Ethernet0/0/0)向30.1.1.2发送数据库描述报文, 版本为: 2, 长度为32bytes
*0.824693630 ar46one RM/7/RTDBG:OSPF SENT RouterID: 4.1.1.2 Area: 0.0.0.0 Checksum: 0x6152
//通告路由器ID是4.1.1.2, 所在区域为0.0.0.0, 检验和为0x6152
*0.824693740 ar46one RM/7/RTDBG:OSPF SENT Auth: Type: 0 Key: 00000000.00000000
//报文不进行认证
*0.824693840 ar46one RM/7/RTDBG:OSPF SENT Flags <I M MS>OSPF SENT Options: <Externals
> seq: c9575
//报文的I, M, MS标志都为1, 选项字段为Externals, 序列号为: c9575
*0.824693960 ar46one RM/7/RTDBG:OSPF Process 1
```

```
*0.824694020 ar46one RM/7/RTDBG:OSPF RECV 30.1.1.2(Ethernet0/0/0) -> 30.1.1.1 Database De
scription Vers: 2 Len: 32
*0.824694160 ar46one RM/7/RTDBG:OSPF RECV RouterID: 11.0.0.2 Area: 0.0.0.0 Checksum: 0x5
d9e
*0.824694270 ar46one RM/7/RTDBG:OSPF RECV Auth: Type: 0 Key: 00000000.00000000
*0.824694370 ar46one RM/7/RTDBG:OSPF RECV Flags <I M MS>OSPF RECV Options: <External
s> seq: c932a
*0.824694500 ar46one RM/7/RTDBG:OSPF Process 1
*0.824694560 ar46one RM/7/RTDBG:OSPF SENT 30.1.1.1(Ethernet0/0/0) -> 30.1.1.2 Database De
scription Vers: 2 Len: 172
*0.824694710 ar46one RM/7/RTDBG:OSPF SENT RouterID: 4.1.1.2 Area: 0.0.0.0 Checksum: 0xd4
4
*0.824694820 ar46one RM/7/RTDBG:OSPF SENT Auth: Type: 0 Key: 00000000.00000000
*0.824694920 ar46one RM/7/RTDBG:OSPF SENT Flags <>OSPF SENT Options: <Externals> seq:
c932a
//报文的I, M, MS标志都为0, 选项字段为Externals, 序列号为: c932a
*0.824695040 ar46one RM/7/RTDBG:OSPF SENT Router Id: 4.1.1.2 Ad
vRtr: 4.1.1.2 Age: 1
//报文描述的LSA为Router LSA, ID为4.1.1.2, 始发路由器为4.1.1.2, Age为1
*0.824695160 ar46one RM/7/RTDBG:OSPF SENT Len: 48 Seq #: 800000
06 Checksum: 0xff80
//报文描述的LSA长度为48bytes, 序列号为80000006, 检验和为0xff80
*0.824695270 ar46one RM/7/RTDBG:OSPF SENT Options:(DC)
//报文描述的LSA的选项字段为: DC
*0.824695340 ar46one RM/7/RTDBG:OSPF SENT SumNet Id: 10.1.1.0 Ad
vRtr: 4.1.1.2 Age: 1:56
*0.824695470 ar46one RM/7/RTDBG:OSPF SENT Len: 28 Seq #: 800000
01 Checksum: 0xd851
*0.824695590 ar46one RM/7/RTDBG:OSPF SENT Options:(Non DN, DC)
*0.824695670 ar46one RM/7/RTDBG:OSPF SENT SumASB Id: 192.168.5.1 Ad
vRtr: 4.1.1.2 Age: 8
*0.824695790 ar46one RM/7/RTDBG:OSPF SENT Len: 28 Seq #: 800000
02 Checksum: 0x6f55
*0.824695900 ar46one RM/7/RTDBG:OSPF SENT Options:(DC)
*0.824695970 ar46one RM/7/RTDBG:OSPF SENT ASE Id: 161.1.1.0 Ad
vRtr: 4.1.1.2 Age: 8
*0.824696090 ar46one RM/7/RTDBG:OSPF SENT Len: 36 Seq #: 800000
02 Checksum: 0xad58
*0.824696200 ar46one RM/7/RTDBG:OSPF SENT Options:(DC)
*0.824697190 ar46one RM/7/RTDBG:OSPF Process 1
*0.824697250 ar46one RM/7/RTDBG:OSPF RECV 30.1.1.2(Ethernet0/0/0) -> 30.1.1.1 Database De
scription Vers: 2 Len: 32
*0.824697390 ar46one RM/7/RTDBG:OSPF RECV RouterID: 11.0.0.2 Area: 0.0.0.0 Checksum: 0x5
d9e
*0.824697500 ar46one RM/7/RTDBG:OSPF RECV Auth: Type: 0 Key: 00000000.00000000
*0.824697610 ar46one RM/7/RTDBG:OSPF RECV Flags <I M MS>OSPF RECV Options: <External
s> seq: c932a
*0.824700420 ar46one RM/7/RTDBG:OSPF Process 1
*0.824700480 ar46one RM/7/RTDBG:OSPF RECV 30.1.1.2(Ethernet0/0/0) -> 30.1.1.1 Database De
scription Vers: 2 Len: 152
*0.824700630 ar46one RM/7/RTDBG:OSPF RECV RouterID: 11.0.0.2 Area: 0.0.0.0 Checksum: 0x4
440
*0.824700750 ar46one RM/7/RTDBG:OSPF RECV Auth: Type: 0 Key: 00000000.00000000
*0.824700850 ar46one RM/7/RTDBG:OSPF RECV Flags <MS>OSPF RECV Options: <Externals> s
eq: c932b
//收到报文的I, M标志位为0, MS标志位为1, 选项字段为Externals, 序列号为: c932b
*0.824700970 ar46one RM/7/RTDBG:OSPF RECV Router Id: 4.1.1.2 Ad
vRtr: 4.1.1.2 Age: 8:45
*0.824701100 ar46one RM/7/RTDBG:OSPF RECV Len: 36 Seq #: 800000
06 Checksum: 0xd405
*0.824701210 ar46one RM/7/RTDBG:OSPF RECV Options:(DC)
*0.824701590 ar46one RM/7/RTDBG:OSPF RECV SumNet Id: 10.1.1.0 Ad
vRtr: 4.1.1.2 Age: 6:34
*0.824701720 ar46one RM/7/RTDBG:OSPF RECV Len: 28 Seq #: 800000
```

02 Checksum: 0xd652

*0.824701840 ar46one RM/7/RTDBG:OSPF RECV Options:(Non DN, DC)

例7: 多台设备建立OSPF连接, 打开OSPF Hello报文信息调试开关:

```
<ar46one>debugging ospf packet hello
```

```
*0.913131980 ar46one RM/7/RTDBG:OSPF Process 1
```

```
*0.913132040 ar46one RM/7/RTDBG:OSPF SENT 192.168.1.1(Ethernet0/0/1) -> 224.0.0.5 Hello Vers: 2 Len: 44
```

```
//从30.1.1.1(接口Ethernet0/0/0)向组播地址224.0.0.5发送Hello报文, 版本为: 2, 长度为44bytes
```

```
*0.913132170 ar46one RM/7/RTDBG:OSPF SENT RouterID: 4.1.1.2 Area: 0.0.0.0 Checksum: 0xf79c
```

```
//通告路由器ID是4.1.1.2, 区域为0.0.0.0, 检验和为0xf79c
```

```
*0.913132280 ar46one RM/7/RTDBG:OSPF SENT Auth: Type: 0 Key: 00000000.00000000
```

```
//报文不进行认证
```

```
*0.913132380 ar46one RM/7/RTDBG:OSPF SENT Netmask: 255.255.255.0 Hello Int: 10Options: <Externals>
```

```
//网络掩码字段: 255.255.255.0, Hello间隔时间: 10s, 选项字段: Externals
```

```
*0.913132500 ar46one RM/7/RTDBG:OSPF SENT Pri: 0 DeadInt: 40 DR: 192.168.1.2
```

```
BDR: 192.168.1.2
```

```
//路由器优先级: 0, 无效时间间隔: 40s, DR: 192.168.1.2, BDR: 192.168.1.2
```

```
*0.913162700 ar46one RM/7/RTDBG:OSPF SENT Attached routers: 5.0.0.2
```

```
3.0.0.1
```

```
//邻居路由器: 5.0.0.2, 3.0.0.1
```

```
*0.913132630 ar46one RM/7/RTDBG:OSPF Process 1
```

```
*0.913132690 ar46one RM/7/RTDBG:OSPF RECV 192.168.1.2(Ethernet0/0/1) -> 224.0.0.5 Hello Vers: 2 Len: 44
```

```
//从192.168.1.2(接口Ethernet0/0/1)收到 Hello报文, 版本为: 2, 长度为44bytes
```

```
*0.913132820 ar46one RM/7/RTDBG:OSPF RECV RouterID: 5.0.0.2 Area: 0.0.0.0 Checksum: 0xf793
```

```
*0.913132930 ar46one RM/7/RTDBG:OSPF RECV Auth: Type: 0 Key: 00000000.00000000
```

```
*0.913133040 ar46one RM/7/RTDBG:OSPF RECV Netmask: 255.255.255.0 Hello Int: 10Options: <Externals>
```

```
*0.913133160 ar46one RM/7/RTDBG:OSPF RECV Pri: 10 DeadInt: 40 DR: 0.0.0.0
```

```
BDR: 0.0.0.0
```

```
在NBMA链路中的Hello报文:
```

```
[ar46one-ospf-1]
```

```
*0.914657700 ar46one RM/7/RTDBG:OSPF Process 1
```

```
*0.914657760 ar46one RM/7/RTDBG:OSPF RECV 192.168.1.2(Ethernet0/0/1) -> 192.168.1.1 Hello Vers: 2 Len: 44
```

```
//目的地址为单播地址
```

```
*0.914657890 ar46one RM/7/RTDBG:OSPF RECV RouterID: 5.0.0.2 Area: 0.0.0.0 Checksum: 0xf7a7
```

```
*0.914658000 ar46one RM/7/RTDBG:OSPF RECV Auth: Type: 0 Key: 00000000.00000000
```

```
*0.914658100 ar46one RM/7/RTDBG:OSPF RECV Netmask: 255.255.255.0 Hello Int: 30 Options: <Externals>
```

```
*0.914658220 ar46one RM/7/RTDBG:OSPF RECV Pri: 10 DeadInt: 65535 DR: 0.0.0.0
```

```
BDR: 0.0.0.0
```

例8: 两台设备建立OSPF连接, 打开OSPF Link State Request报文信息调试开关:

```
<ar46one>debugging ospf packet request
```

```
*0.951329060 ar46one RM/7/RTDBG:OSPF Process 1
```

```
*0.951329120 ar46one RM/7/RTDBG:OSPF SENT 30.1.1.1(Ethernet0/0/0) -> 30.1.1.2 Link State Request Vers: 2 Len: 48
```

```
//从30.1.1.1(接口Ethernet0/0/0)向30.1.1.2发送链路状态请求报文, 版本为: 2, 长度为48bytes
```

```
*0.951329260 ar46one RM/7/RTDBG:OSPF SENT RouterID: 4.1.1.2 Area: 0.0.0.0 Checksum: 0xa4be
```

```
//通告路由器ID是4.1.1.2, 所在区域为0.0.0.0, 检验和为0xa4be
```

```
*0.951329370 ar46one RM/7/RTDBG:OSPF SENT Auth: Type: 0 Key: 00000000.00000000
```

```
//报文不进行认证
```

```
*0.951329470 ar46one RM/7/RTDBG:OSPF SENT SumNet Id: 50.1.1.0 Ad
```

```
vRtr: 11.0.0.2
```

```
//请求的LSA的类型为SumNet, Id为50.1.1.0, 通告路由为11.0.0.2
```

```
*0.951329580 ar46one RM/7/RTDBG:OSPF SENT Router Id: 11.0.0.2 Ad
```

```
vRtr: 11.0.0.2
```

```

//请求的LSA的类型为Router, Id为11.0.0.2, 通告路由为11.0.0.2
*0.951329690 ar46one RM/7/RTDBG:OSPF Process 1
*0.951329750 ar46one RM/7/RTDBG:OSPF RECV 30.1.1.2(Ethernet0/0/0) -> 30.1.1.1 Link State Re
quest Vers: 2 Len: 84
//从30.1.1.1收到30.1.1.2发送的链路状态请求报文, 版本为: 2, 长度为84bytes
*0.951329890 ar46one RM/7/RTDBG:OSPF RECV RouterID: 11.0.0.2 Area: 0.0.0.0 Checksum: 0x6
42e
*0.951330000 ar46one RM/7/RTDBG:OSPF RECV Auth: Type: 0 Key: 00000000.00000000
*0.951330110 ar46one RM/7/RTDBG:OSPF RECV SumNet Id: 10.1.1.0 Ad
vRtr: 4.1.1.2
*0.951330220 ar46one RM/7/RTDBG:OSPF RECV Router Id: 4.1.1.2 Ad
vRtr: 4.1.1.2
*0.951330330 ar46one RM/7/RTDBG:OSPF RECV ASE Id: 110.1.1.0 Ad
vRtr: 4.1.1.2
*0.951330440 ar46one RM/7/RTDBG:OSPF RECV SumASB Id: 192.168.5.1 Ad
vRtr: 4.1.1.2
//请求的LSA类型为SumASB, Id为192.168.5.1, 通告路由为4.1.1.2
*0.951330550 ar46one RM/7/RTDBG:OSPF RECV ASE Id: 111.1.1.0 Ad
vRtr: 192.168.5.1
//请求的LSA类型为ASE, Id为111.1.1.0, 通告路由为192.168.5.1

```

例9: 两台设备建立OSPF连接, 打开OSPF Link State Update报文信息调试开关:

```

<ar46one>debugging ospf packet update
*0.952914380 ar46one RM/7/RTDBG:OSPF Process 1
*0.952914440 ar46one RM/7/RTDBG:OSPF SENT 10.1.1.1(Ethernet2/0/0) -> 224.0.0.5 Link State U
pdate Vers: 2 Len: 56
//从10.1.1.1向组播地址224.0.0.5发送链路状态更新报文, 版本为2, 长度为56
*0.952914580 ar46one RM/7/RTDBG:OSPF SENT RouterID: 4.1.1.2 Area: 0.0.0.1 Checksum: 0x62
54
//通告路由器ID为4.1.1.2, 区域为0.0.0.1. 检验和为0x6254
*0.952914690 ar46one RM/7/RTDBG:OSPF SENT Auth: Type: 0 Key: 00000000.00000000
//报文不进行认证
*0.952914790 ar46one RM/7/RTDBG:OSPF SENT Advertisement count: 1
//报文包含的LSA的数量为1
*0.952914870 ar46one RM/7/RTDBG:OSPF SENT SumNet Id: 30.1.1.0 Ad
vRtr: 4.1.1.2 Age: 1
//LSA类型为SumNet, Id: 30.1.1.0, 通告路由器: 4.1.1.2, Age:1
*0.952914990 ar46one RM/7/RTDBG:OSPF SENT Len: 28 Seq #: 800000
01 Checksum: 0xd342
//LSA的长度: 28bytes, 序列号: 80000001, 检验和: 0xd342
*0.952915100 ar46one RM/7/RTDBG:OSPF SENT Options:(Non DN, DC)
//LSA的选项: Non DN,DC
*0.952915180 ar46one RM/7/RTDBG:OSPF SENT Mask: 255.255.255.0
//网络掩码: 255.255.255.0
*0.952915260 ar46one RM/7/RTDBG:OSPF SENT Tos 0 metric: 1
//Tos:0,度量: 1
*0.952946870 ar46one RM/7/RTDBG:OSPF Process 1
*0.952946930 ar46one RM/7/RTDBG:OSPF SENT 30.1.1.1(Ethernet0/0/0) -> 30.1.1.2 Link State Up
date Vers: 2 Len: 172
*0.952947070 ar46one RM/7/RTDBG:OSPF SENT RouterID: 4.1.1.2 Area: 0.0.0.0 Checksum: 0xd4
bed
*0.952947180 ar46one RM/7/RTDBG:OSPF SENT Auth: Type: 0 Key: 00000000.00000000
*0.952947280 ar46one RM/7/RTDBG:OSPF SENT Advertisement count: 4
*0.952947360 ar46one RM/7/RTDBG:OSPF SENT Router Id: 4.1.1.2 Ad
vRtr: 4.1.1.2 Age: 33
*0.952947490 ar46one RM/7/RTDBG:OSPF SENT Len: 48 Seq #: 800000
0e Checksum: 0xef88
*0.952947600 ar46one RM/7/RTDBG:OSPF SENT Options:(DC)
*0.952947670 ar46one RM/7/RTDBG:OSPF SENT StubNet ID: 192.168.1
.0 Data: 255.255.255.0 metric: 1
*0.952947800 ar46one RM/7/RTDBG:OSPF SENT StubNet ID: 30.1.1.0
Data: 255.255.255.0 metric: 1
*0.952947940 ar46one RM/7/RTDBG:OSPF SENT Net Id: 30.1.1.2 Ad
vRtr: 11.0.0.2 Age: 15:37

```

```

*0.952948070 ar46one RM/7/RTDBG:OSPF SENT      Len: 32  Seq #: 800000
03  Checksum: 0x5a9b
*0.952948180 ar46one RM/7/RTDBG:OSPF SENT      Options:(DC)
*0.952948250 ar46one RM/7/RTDBG:OSPF SENT      Mask: 255.255.255.0
*0.952948330 ar46one RM/7/RTDBG:OSPF SENT      Attached router: 11.0.0
.2
*0.952948410 ar46one RM/7/RTDBG:OSPF SENT      Attached router: 4.1.1.
2
*0.952948490 ar46one RM/7/RTDBG:OSPF SENT      SumASB Id: 192.168.5.1  Ad
vRtr: 4.1.1.2    Age: 33
*0.952948620 ar46one RM/7/RTDBG:OSPF SENT      Len: 28  Seq #: 800000
06  Checksum: 0x6759
*0.952948730 ar46one RM/7/RTDBG:OSPF SENT      Options:(DC)
*0.952948800 ar46one RM/7/RTDBG:OSPF SENT      Tos 0 metric: 1
*0.952948880 ar46one RM/7/RTDBG:OSPF SENT      ASE  Id: 111.1.1.0    Ad
vRtr: 192.168.5.1  Age: 3:10
*0.952949010 ar46one RM/7/RTDBG:OSPF SENT      Len: 36  Seq #: 800000
03  Checksum: 0x428d
*0.952949120 ar46one RM/7/RTDBG:OSPF SENT      Options:(DC)
*0.952949190 ar46one RM/7/RTDBG:OSPF SENT      Mask: 255.255.255.0
Tos 0 metric: 1    Type: 2
*0.952949310 ar46one RM/7/RTDBG:OSPF SENT      Forwarding Address: 0.0.0.0    Tag: 1
*0.952949410 ar46one RM/7/RTDBG:OSPF Process 1
*0.952949470 ar46one RM/7/RTDBG:OSPF RECV 30.1.1.2(Ethernet0/0/0) -> 30.1.1.1 Link State Up
date  Vers: 2  Len: 64
//从30.1.1.1收到了30.1.1.2发送的链路状态更新报文, 版本为2, 长度为64bytes
*0.952949610 ar46one RM/7/RTDBG:OSPF RECV RouterID: 11.0.0.2 Area: 0.0.0.0 Checksum: 0x3
c4d
*0.952949720 ar46one RM/7/RTDBG:OSPF RECV Auth: Type: 0 Key: 00000000.00000000
*0.952949820 ar46one RM/7/RTDBG:OSPF RECV Advertisement count: 1
*0.952949910 ar46one RM/7/RTDBG:OSPF RECV      Router Id: 11.0.0.2    Ad
vRtr: 11.0.0.2    Age: 34
*0.952950040 ar46one RM/7/RTDBG:OSPF RECV      Len: 36  Seq #: 800000
08  Checksum: 0xde13
*0.952950150 ar46one RM/7/RTDBG:OSPF RECV      Options:(DC)
*0.952950220 ar46one RM/7/RTDBG:OSPF RECV      StubNet ID: 30.1.1.0
Data: 255.255.255.0  metric: 1

```

例10: 打开OSPF最小树计算信息调试开关

```

<ar46one>debugging ospf spf
[ar46one-ospf-1-area-0.0.0.1]net 10.1.1.0 255.255.255.0
*0.879797880 ar46one RM/7/RTDBG:OSPF Process 1
*0.879797940 ar46one RM/7/RTDBG:OSPF policy: route update, total 11 changed 0
//路由没有更新
*0.879800880 ar46one RM/7/RTDBG:OSPF Process 1
*0.879800940 ar46one RM/7/RTDBG:OSPF SPF Start
//SPF计算开始
*0.879801000 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.1 Scheduled: Router SumASB
//区域1中SPF计算等级为: Router SumASB
*0.879801100 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.1 running Intra
//计算区域0.0.0.1中的Intra路由
*0.879801180 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.1 running Network Summary
//计算区域0.0.0.1中的NetWork Summary路由
*0.879801270 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.1 running ASBR Summary
//计算区域1中的ASBR Summary路由
*0.879801360 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.1 running ASE
//计算区域0.0.0.1中的ASE路由
*0.879801440 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.1 running ASE, finished at 2500, 0 route
updated, partial=0
//SPF计算完成, 没有路由更新
在NSSA区域中引入静态路由, 可以看到:
*0.882407380 ar46one RM/7/RTDBG:OSPF Process 1
*0.882407440 ar46one RM/7/RTDBG:OSPF SPF Start
*0.882407500 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.0 Scheduled: Router SumASB

```

*0.882407600 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.0 running Intra
*0.882407680 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.0 running Network Summary
*0.882407770 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.0 running ASBR Summary
*0.882407860 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.0 running ASE
*0.882407940 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.0 running ASE, finished at 2500, 4 route updated, partial=0
*0.882408080 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.1 Scheduled: Net
*0.882408160 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.1 running Intra
*0.882408250 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.1 running Network Summary
*0.882408340 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.1 running ASBR Summary
*0.882408430 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.1 running NSSA
//计算区域0.0.0.1中的NSSA路由
*0.882408510 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.1 running Nssa, finished at2500, 0 route updated, partial=0
*0.882408650 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.3 Scheduled: Net
*0.882408730 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.3 running Intra
*0.882408810 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.3 running Network Summary
*0.882408900 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.3 running ASBR Summary
*0.882408990 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.3 running ASE
*0.882409070 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.3 running ASE, finished at 2500, 4 route updated, partial=0
//SPF计算完成, 有4条路由更新
*0.882409220 ar46one RM/7/RTDBG:OSPF SPF End
*0.882443380 ar46one RM/7/RTDBG:OSPF Process 1
*0.882443440 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.1 running NSSA
*0.882443520 ar46one RM/7/RTDBG:OSPF SPF Area 0.0.0.1 running Nssa, finished at2500, 4 route updated, partial=1