



OSPF Router Types



OSPF Router Types

There are four types of OSPF routers. Router types are determined by a router's function and/or location within an OSPF area:

Internal (IR) – all (OSPF?)* interfaces must belong to the same OSPF area.

Backbone – at least one OSPF interface must belong to area 0 (backbone area)

Area Border Router (ABR) – at least one OSPF interface must belong to area 0 (backbone area) and at least one OSPF interface must belong to a non-backbone (area 0) area.

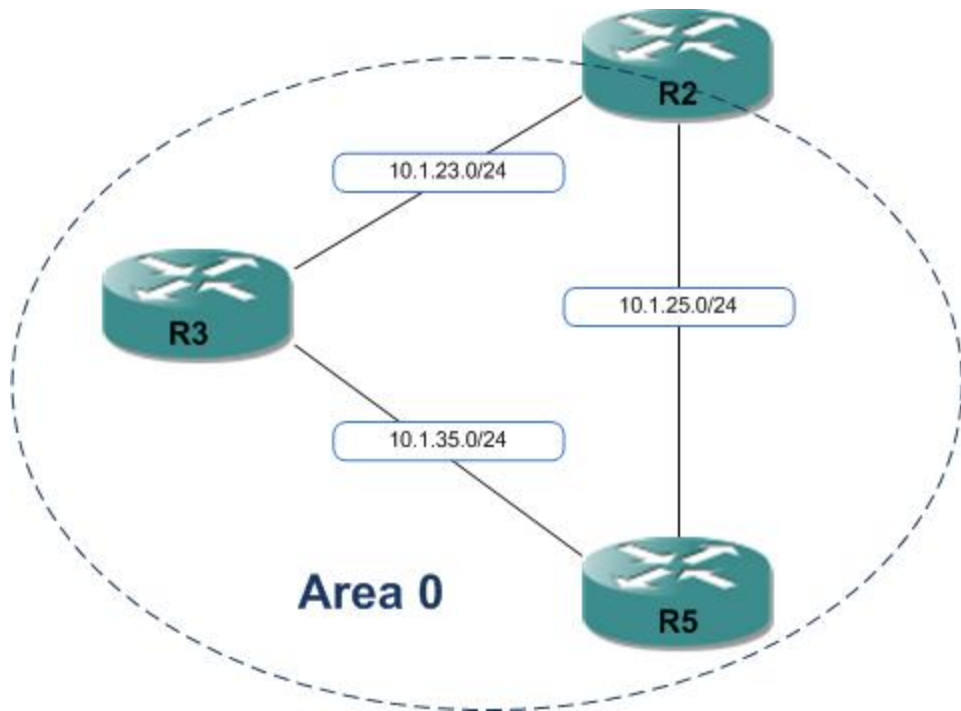
Autonomous System Boundry Router – an OSPF router that performs route injection (redistribution) from another route source (RIP, EIGRP, IS-IS, BGP, another OSPF process, etc.).

* An area is interface specific. **A router that has all of its interfaces within the same area is called an internal router (IR) – Cisco OSPF Design Guide**

http://www.cisco.com/en/US/tech/tk365/technologies_white_paper09186a0080094e9e.shtml

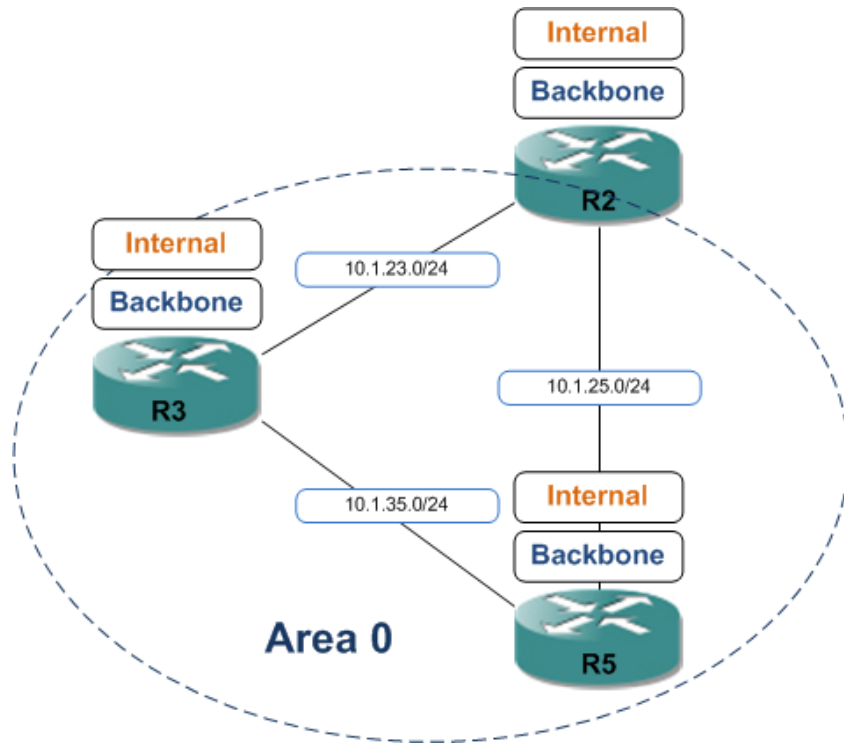


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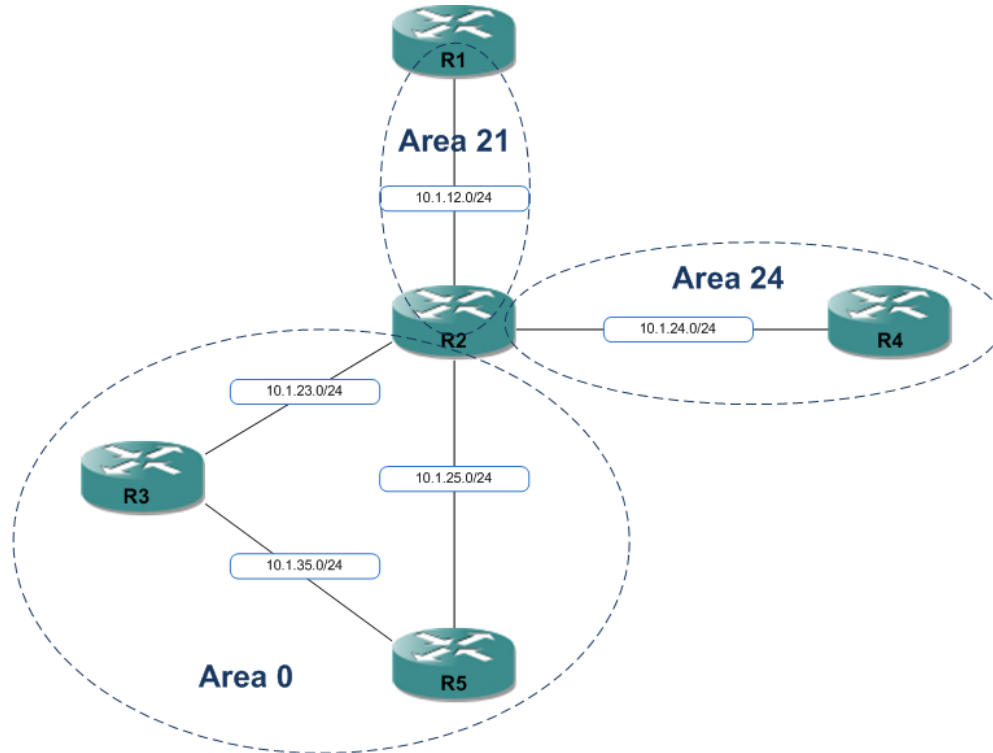


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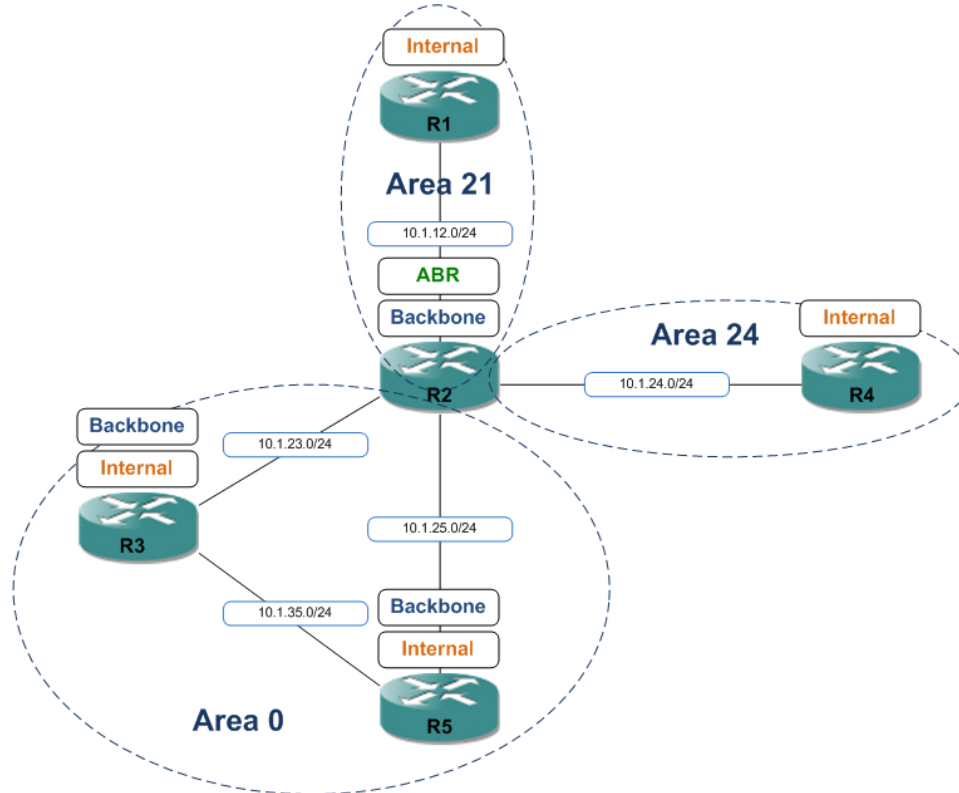


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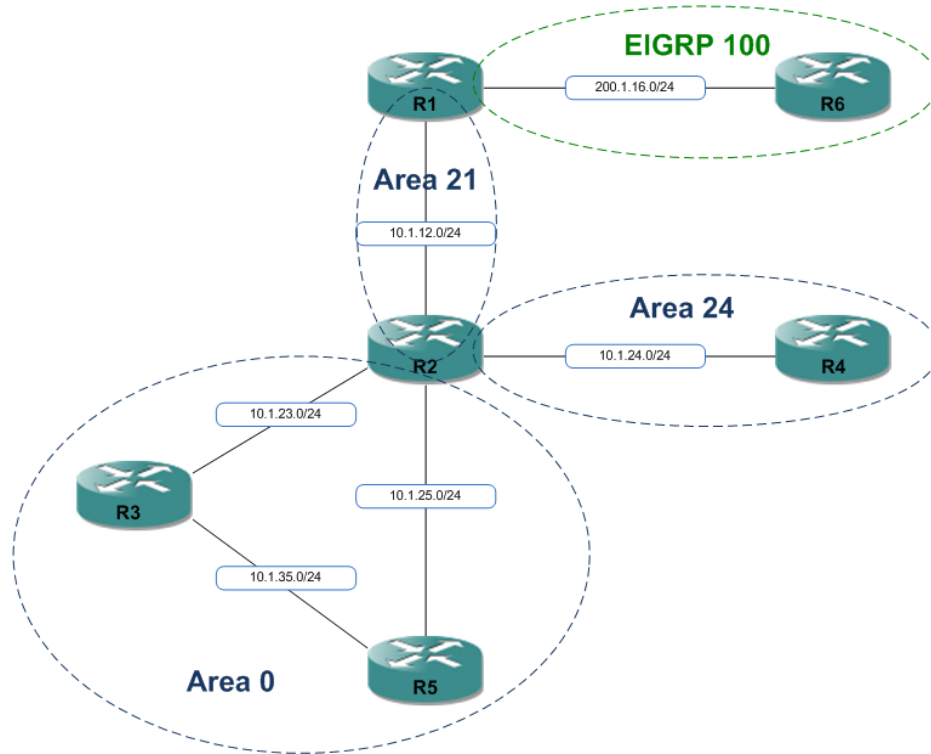


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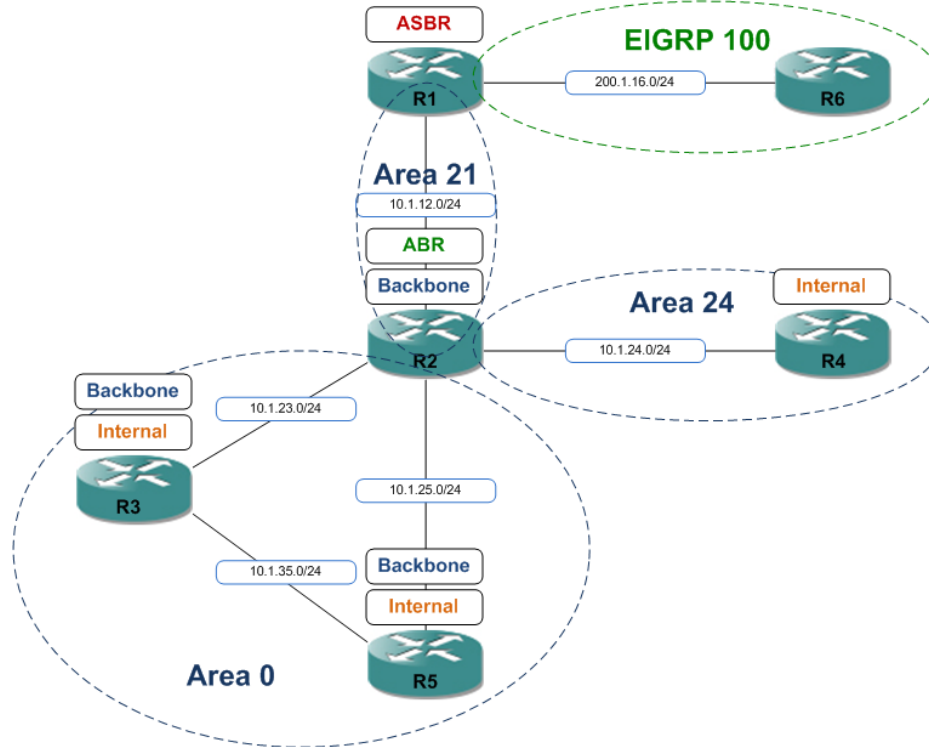


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Verification Command

To verify a device's OSPF router type, use the **show ip ospf** command. This command will tell you if an OSPF router is an Area Border Router(ABR) or an Autonomous System Boundary Router(ASBR). It will not identify Internal or Backbone routers, but if an OSPF router is not an ABR or ASBR, then it is an Internal router. If it's not an ABR or an ASBR and it's in area 0, then it's a Backbone router.

```
r2#show ip ospf
Routing Process "ospf 1" with ID 2.2.2.2
Start time: 01:16:41.316, Time elapsed: 00:08:53.116
Supports only single TOS(TOS0) routes
Supports opaque LSA
Supports Link-local Signaling (LLS)
Supports area transit capability
It is an area border router
<--- output truncated --->

r1#show ip ospf | i It is
It is an autonomous system boundary router

r2#show ip ospf | i It is
It is an area border and autonomous system boundary router
```



Summary

There are four types of OSPF routers which are determined by a router's function and/or location within an OSPF area:

Internal (IR) – all OSPF interfaces must belong to the same OSPF area.

Backbone – at least one OSPF interface must belong to area 0 (backbone area)

Area Border Router (ABR) – at least one OSPF interface must belong to area 0 (backbone area) and at least one OSPF interface must belong to a non-backbone (area 0) area.

Autonomous System Boundry Router (ASBR) – an OSPF router that performs route injection (redistribution) from another route source (RIP, EIGRP, IS-IS, BGP, another OSPF process, etc.).

You can use the **show ip ospf** EXEC command to identify which OSPF type(s) your device is currently configured as.