



## BASIC OSPF - NSSA Totally Stub

A NSSA Totally Stub is a type of stub area that can import autonomous system external routes and send them to other areas, but still cannot receive AS external routes from other areas. NSSA totally stub is an extension of the stub area feature that allows the injection of external routes in a limited fashion into the stub area.

An NSSA totally stub behaves the same as a stubby area except that ASBRs are allowed, with some trickery happening to get around the rules.

### Configuration

In an NSSA totally stub, external routes are allowed if they originate inside. The ABRs still filter out the type 5 LSAs at the border. Any ASBR within an NSSA totally stub advertises external routes as type 7 routes instead of type 5. Thus, they show up in the routing table as O N1 instead of O E1. The ABR converts the type 7 LSA into a type 5 LSA before it advertises the LSA to the backbone.

Because of the restriction on the type 5 LSAs, and the need to understand type 7 LSAs, all routers in the area need to be configured as an NSSA totally stub.

NSSA totally stub area accepts external routes redistributed into the OSPF domain as NSSA external (LSA type 7) routes that are later translated by an ABR into domain-wide external (LSA type 5) routes. In designs where the default exit from the OSPF domain (for example, Internet connection) resides in an NSSA totally stub area, a router in an NSSA totally stub area has to insert a default route into the NSSA totally stub area.

### Not So Stubby Area

```
NetStepByStep-R2 (config-router) # area X nssa no-summary
```

- Use to configure an area as a not-so-stubby totally stub area
- This command should be used in router configuration mode.
- To remove the NSSA distinction from the area, use the **no** form of this command.
- The X stands for the identifier of the area for which authentication is to be enabled.
- The identifier can be specified as either a decimal value or an IP address.

## Verification

```
show ip ospf | begin Area 2
```

- Use to Display information about the network summary LSAs in the database.
- The area stands for OSPF area and tag.
- 2 stands for the OSPF area number.

```
NetStepByStep-R2# show ip ospf | be Area 2
```

```
Area 2
```

```
Number of interfaces in this area is 1
```

```
It is a NSSA area
```

```
Perform type-7/type-5 LSA translation
```

```
Area has no authentication
```

```
SPF algorithm last executed 00:00:01.396 ago
```

```
SPF algorithm executed 14 times
```

```
Area ranges are
```

```
Number of LSA 13. Checksum Sum 0x06EE51
```

```
Number of opaque link LSA 0. Checksum Sum 0x000000
```

```
Number of DCbitless LSA 0
```

```
Number of indication LSA 0
```

```
Number of DoNotAge LSA 0
```

```
Flood list length 0
```

## Troubleshoot

```
Debug ip ospf adj
```

- Use to capture the authentication process.
- Use this command before the neighbor relationship is established.
- The output from debug privileged EXEC commands provides diagnostic information concerning a variety of internetworking events relating to protocol status and network activity in general.
- Enabling debugging can disrupt operation of the router when internetworks are experiencing high load conditions. Hence, if logging is enabled, the access server may intermittently freeze up as soon as the console port gets overloaded with log messages.
- Before you start a debug command, always consider the output that this command will generate and the amount of time this may take.

# Video Cheat Sheet

## R1

```
router ospf 1  
area 2 nssa
```

## R2

```
router ospf 2  
area 2 nssa no-summary
```