

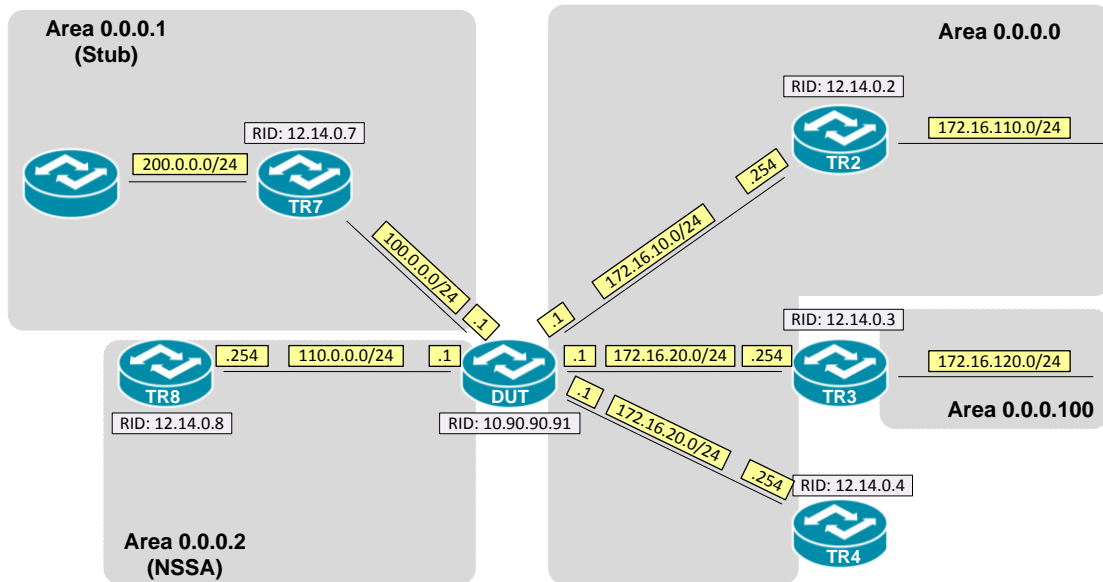
# How to use SNMP to get OSPF LS Sequence Number

Created at 2011/05/31

## Introduction

Simple Network Management Protocol (SNMP) is a widely used protocol for monitoring the health and welfare of network equipment.

## Topology



# OID

## ospfLsdbSequence

Name: ospfLsdbSequence  
Type: OBJECT-TYPE  
OID: 1.3.6.1.2.1.14.4.1.5  
Full path: iso(1).org(3).dod(6).internet(1).mgmt(2).mib-2(1).ospf(14).ospfLsdbTable(4).ospfLsdbEntry(1).ospfLsdbSequence(5)  
Module: OSPF-MIB

Parent: ospfLsdbEntry  
Prev sibling: ospfLsdbRouterId  
Next sibling: ospfLsdbAge

Numerical syntax: Integer (32 bit)  
Base syntax: Integer32  
Composed syntax: Integer32  
Status: current  
Max access: read-only

Reference: [OSPF Version 2, Section 12.1.6 IS sequence number](#)

Description: The sequence number field is a signed 32-bit integer. It is used to detect old and duplicate link state advertisements. The space of sequence numbers is linearly ordered. The larger the sequence number the more recent the advertisement.

## Step-by-Step

### I. SNMP Command

```
snmpwalk -v 2c -c private <DUT IP> 1.3.6.1.2.1.14.4.1.5.<Area ID>
```

### II. Result

```
C:\>snmpwalk -v 2c -c private -m ALL 192.168.1.91 1.3.6.1.2.1.14.4.1.5.0.0.0.0
OSPF-MIB::ospfLsdbSequence.0.0.0.0.routerLink.10.90.90.91.10.90.90.91 = INTEGER: -2147483602
OSPF-MIB::ospfLsdbSequence.0.0.0.0.routerLink.12.14.0.2.12.14.0.2 = INTEGER: -2147483607
OSPF-MIB::ospfLsdbSequence.0.0.0.0.routerLink.12.14.0.3.12.14.0.3 = INTEGER: -2147483606
OSPF-MIB::ospfLsdbSequence.0.0.0.0.routerLink.12.14.0.4.12.14.0.4 = INTEGER: -2147483605
OSPF-MIB::ospfLsdbSequence.0.0.0.0.networkLink.172.16.10.1.10.90.90.91 = INTEGER: -2147483640
OSPF-MIB::ospfLsdbSequence.0.0.0.0.networkLink.172.16.20.1.10.90.90.91 = INTEGER: -2147483640
OSPF-MIB::ospfLsdbSequence.0.0.0.0.networkLink.172.16.30.1.10.90.90.91 = INTEGER: -2147483640
OSPF-MIB::ospfLsdbSequence.0.0.0.0.summaryLink.100.0.0.0.10.90.90.91 = INTEGER: -2147483640
OSPF-MIB::ospfLsdbSequence.0.0.0.0.summaryLink.110.0.0.0.10.90.90.91 = INTEGER: -2147483640
OSPF-MIB::ospfLsdbSequence.0.0.0.0.summaryLink.172.16.120.0.12.14.0.3 = INTEGER: -2147483608
OSPF-MIB::ospfLsdbSequence.0.0.0.0.summaryLink.200.0.0.0.10.90.90.91 = INTEGER: -2147483639
```

The sequence number field is a signed 32-bit integer. Let N refer to the constant  $2^{*}31$ .  $-N + 1$  (0x80000001) is the smallest (and therefore oldest) sequence number. And the maximum value is  $N - 1$  (0x7fffffff; also referred to as MaxSequenceNumber)

We could monitor this value, if it increase frequent than usual. It might indicate this link is not stable.

- OSPF Link-State database of Backbone area

```
DGS-3627:admin#show ospf lsdb
Command: show ospf lsdb
```

| Area ID | LSDB Type | Advertising Router ID | Link State ID   | Cost | Sequence Number |
|---------|-----------|-----------------------|-----------------|------|-----------------|
| 0.0.0.0 | RTRLink   | 10.90.90.91           | 10.90.90.91/0   | *    | 0x8000002E      |
| 0.0.0.0 | RTRLink   | 12.14.0.2             | 12.14.0.2/0     | *    | 0x80000029      |
| 0.0.0.0 | RTRLink   | 12.14.0.3             | 12.14.0.3/0     | *    | 0x8000002A      |
| 0.0.0.0 | RTRLink   | 12.14.0.4             | 12.14.0.4/0     | *    | 0x8000002B      |
| 0.0.0.0 | NETLink   | 10.90.90.91           | 172.16.10.1/24  | *    | 0x80000008      |
| 0.0.0.0 | NETLink   | 10.90.90.91           | 172.16.20.1/24  | *    | 0x80000008      |
| 0.0.0.0 | NETLink   | 10.90.90.91           | 172.16.30.1/24  | *    | 0x80000008      |
| 0.0.0.0 | Summary   | 10.90.90.91           | 100.0.0.0/24    | 1    | 0x80000008      |
| 0.0.0.0 | Summary   | 10.90.90.91           | 110.0.0.0/24    | 1    | 0x80000008      |
| 0.0.0.0 | Summary   | 12.14.0.3             | 172.16.120.0/24 | 50   | 0x80000028      |
| 0.0.0.0 | Summary   | 10.90.90.91           | 200.0.0.0/24    | 251  | 0x80000009      |

## Reference

- This example is made by DGS-3600 series in firmware R 2.80.B61.
- SNMP Tools is Net-SNMP.