

IP SLA

IP SLA (Service Level Agreement) is a tool for monitoring line parameters. It monitors the status of the line leading mostly to our ISP and determines whether it corresponds to what we have agreed in the contract and paid for. Unfortunately, IP SLA cannot be configured in Packet Tracer, it has only a limited set of commands and does not implement this mechanism. So we'll use real devices.

Suppose we have the following network: two routers, one of them simulates our ISP. The both routers are interconnected via the network 209.165.200.8/30, the ISP router has other network 198.0.0.1/30 simulated by loopback.

Basic settings (rev)

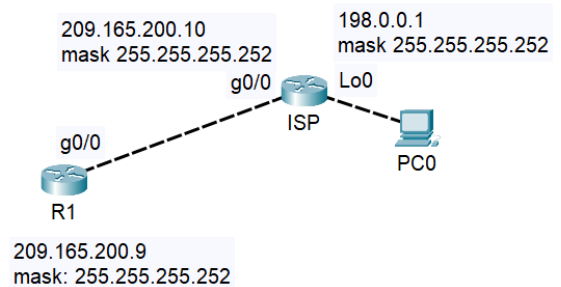
- Interconnect two routers, configure the IP addresses and hostnames. For loopback on ISP:

```
interface lo0
  ip address 198.0.0.1 255.255.255.252
```

- Configure `cisco` as the privileged exec password and as the password on the VTY lines (and enable login).
- Configure logging synchronous to prevent messages to interrupt commands.
- Configure the default route for R1 to the ISP address:

```
ip route 0.0.0.0 0.0.0.0 209.165.200.10
or
ip route 0.0.0.0 0.0.0.0 g0/0
```

- Verify that ping between routers and from R1 to loopback works.



Configuring IP SLA (new)

We will configure IP SLA to monitor link availability (R1 will periodically send ICMP Echo and wait for a response) with the following parameters:

- operation number = 10 (it identifies the IP SLA operation being configured; must be unique for the device)

```
configure terminal
ip sla 10
```

... the prompt has changed

- ICMP Echo destination = 198.0.0.1

```
icmp-echo 198.0.0.1
```

- Frequency = 25 s

```
frequency 25
```

- Schedule start = now, schedule life time = forever

```
exit
ip sla schedule 10 start-time now life forever
```

Basic show commands

We can use the following command to show the configuration and possibilities:

```
show ip sla configuration
show ip sla application
```

Testing the functionality:

The ISP router – shutting down and activating the loopback interface:

```
configure terminal
interface lo0
    shutdown

    no shutdown

end
```

The R1 router:

```
show ip sla statistics

    (look at Number of failures)
```

Stop the IP SLA configuration:

```
configure terminal
    no ip sla schedule 10
```

Possibilities of usage

Using IP SLA for ISP failover monitoring: <https://www.cisco.com/c/en/us/support/docs/ip/ip-routing/200785-ISP-Failover-with-default-routes-using-l.html>

Configuring IP SLA UDP Jitter monitoring: https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipsla/configuration/15-mt/sla-15-mt-book/sla_udp_jitter.html

Configuring IP SLA tracking for IPv4 static routes on L3 switch: <https://www.cisco.com/c/en/us/support/docs/smb/switches/cisco-550x-series-stackable-managed-switches/smb5797-configure-ip-sla-tracking-for-ipv4-static-routes-on-an-sg550.html>