



# Workshop Development Notes

Needs to cover the following topics.

## Setting up IS-IS

- NSAP address plan
- setting metrics, level-2, wide metrics
- selecting DIS
- multi-topology
- point-to-point ethernet
- **Notes:**
  - **all done in existing IS-IS Lab**

## Securing IS-IS (with OSPF side example)

- neighbour authentication
- no IS-IS outside ASN
- **Notes:**
  - **all done in existing IS-IS Lab**
  - **need to add OSPF footnote example**

## Setting up BGP securely

- RFC8212 - filters in and out on eBGP
- passwords on eBGP and iBGP sessions
- RIR checks on assigned address space of customers - jwhois
- RFC6890 filtering of bogons & Team Cymru bogon BGP feed
- Notes:
  - **8212 needs to be explicitly mentioned in eBGP lab**
  - **the rest all covered in BGP Best Practices slide deck**

## BGP scalability & stability features

- iBGP between loopbacks & next-hop-self
- route reflector
- deterministic-med
- BGP distance > IGP distance
- stable announcement of covering aggregates out of all eBGP peers
- **Notes:**
  - **All done in existing BGP materials & labs**

## BGP security features

- maxas-limit

- max-prefix
- ttl-security aka GTSM
- community propagated for iBGP by default, eBGP selective
- strip private ASNs
- **Notes:**
  - **Needs a new lab “Securing BGP Lab”**

### Setting up Communities for BGP scaling

- security feature → consistent policies across the ASN

### Control plane security

- setting up SSH on routers
- protecting VTYS with access filters

### uRPF

- show how to set up on access interfaces

### RTBH

- set up within an AS
- set up between ASNs
  - need to have done communities for this

### BGP SEC

- Creating ROAs (RIR dependent, but explain the process)
- Installing and operating NLnet Labs Routinator
  - **Note: need containers on VTP for this**
- Setting up RPKI support on a router
- Implementing route origin validation & related policies
  - **Note: Need address space that has been validated** - APNIC offered their blocks, but longer term we should have our own.
- propagating validation state across iBGP
  - standards which vendors aren't supporting, or DIY?

### Troubleshooting BGP Security Operations

- RouteViews: for analysis, monitoring, troubleshooting
- Looking Glasses supporting ROA/ROV
  - SEACOM
  - HE BGP Tool: [bgp.he.net](http://bgp.he.net)
- RIPE NCC: [bgpplay](http://bgpplay.ripe.net)

### MANRS

- conclude with summary of MANRS and what it is about

[Back to Home page](#)

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