



# Workshop Development Notes

Needs to cover:

- 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
  - max-as-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
- 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
    - need containers on VTP for this
  - Setting up RPKI support on a router
  - Implementing route origin validation & related policies
    - 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)
- MANRS
  - conclude with summary of MANRS and what it is about

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