BGP ROUTING SECURITY

This one-day course provides an overview of the most relevant BGP routing security topics. The participant will gain insight into industry best practice and gain a high-level understanding of the most pressing BGP security concerns today. The course includes theory and hands-on exercises.

Goals

- Identify the causes of BGP incidents, their types and their impact

- Identify the recommended security measures for preventing accidental and intentional BGP routing incidents

- Identify the purpose of BGP filtering and how it can be used to improve BGP routing security

- Identify the purpose of the IRR and how it can be used to improve BGP routing security

- Identify the purpose of RPKI and how it can be used to improve BGP routing security

- Validate BGP announcements by using RPKI information (BGP OV)

Pre-Requisites

- Ability to use a CLI to configure routers

- For this course you should know about:
  - TCP/IP and IP routing
  - Classless Inter-Domain Routing (CIDR)
  - BGP protocol, BGP attributes, and BGP communities
  - BGP routing relationships: Peer, Provider, IXP peering, Customer

Course Content

- Introduction
- The Need for BGP Security
  - Is BGP Secure?
- Analyse BGP Threats and Attacks
  - Vulnerabilities of the BGP Protocol
  - Causes of BGP Incidents
- BGP Security Measures
  - Protection of BGP Sessions
  - *Exercise: Securing BGP Sessions*
  - Implementing Route Filtering
  - *Exercise: Creating BGP Prefix Filters*
  - *Exercise: Filtering AS-Path and number of prefixes*
  - Registering in the IRR System
  - *Exercise: Creating Route(6) Objects*
  - Implementing RPKI
  - *Exercise: Creating ROAs*
  - *Exercise: BGP Origin Validation with RPKI*
- Next Steps for BGP Routing Security
- Best Practices

- Training Material: **https://www.ripe.net/training-material**
- Feedback Survey: **https://www.ripe.net/feedback/bgp/**
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