

# **BGP Operations and Security Training Course**

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## **Lab Appendix**

# Introduction

## Your environment

For your convenience we have set up an environment where you can explore the theory in a practical way. All you need is a modern web browser.

You will manage the small network of an LIR, consisting of four core routers. All routers are dual-stacked (IPv4 and IPv6) and are currently running OSPF as a IGP to distribute routes internally. No BGP.

Your enterprise wants to connect to the Internet using their upstream network - **AS22** and exchange traffic using a local Internet Exchange - **AS69**.

You will also manage the routers of two customers that would like to use you as a transit provider.

Please visit the Workbench website and choose “**Routing: BGP**”.

**<http://workbench.ripe.net>**

## Passwords

The workbench environment is accessed with usernames and passwords as well as router prompts. These will be provided by the trainers before the exercises.

**Please do not reload or restart the router from the CLI!  
It will not reload and the configuration made until this point will be lost!**

## IP allocations and AS numbers

Replace **XX** with your number on the list.

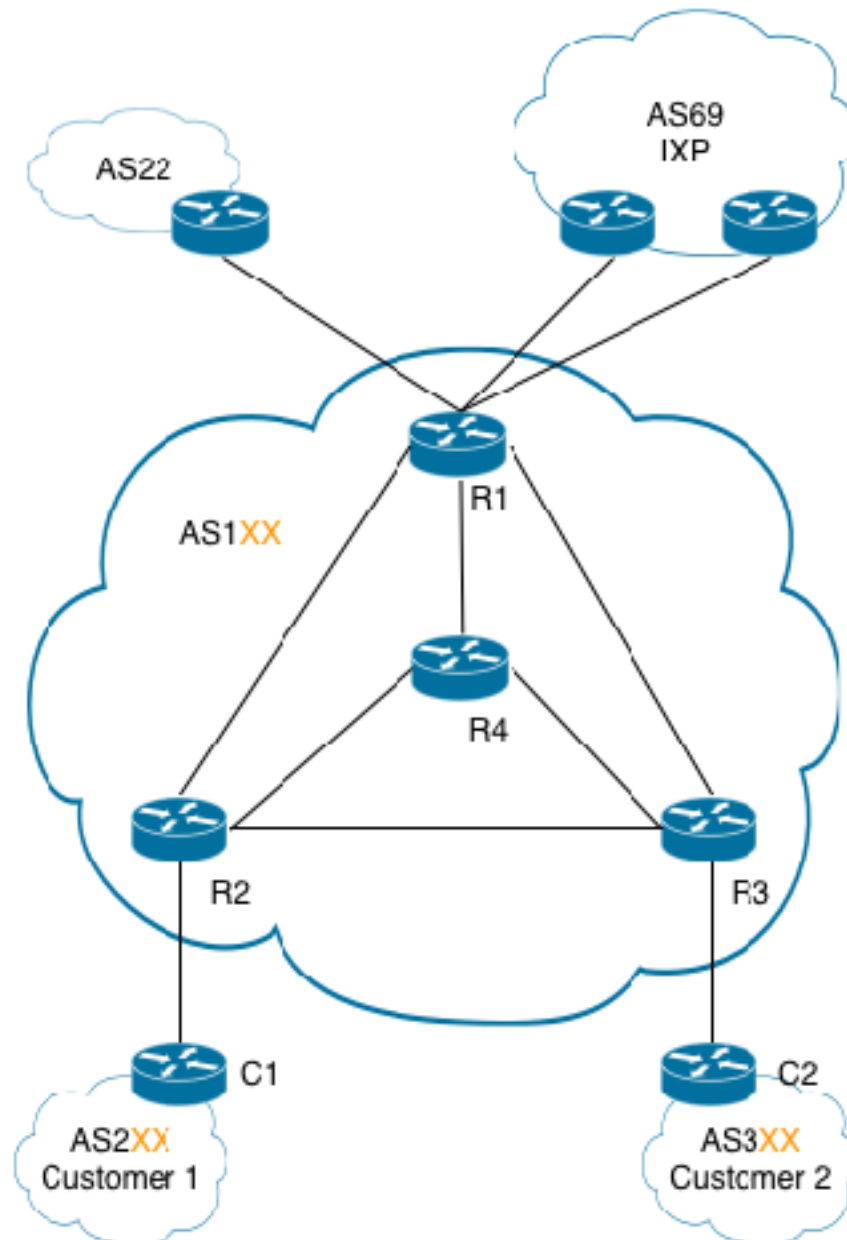
Your AS number      **100 + X**

Your IPv4 allocation    **10.X.0.0/22**

Your IPv6 allocation    **2001:ffXX::/32**

The **RIPE TEST Database Appendix** contains more information about your IP address space and AS number.

# Network Diagram



# Lab Information

## Interface IP addresses

### CORE

	R1	R2	R3	R4
lo0	172.X.255.1 2001:ffXX::1/128	172.X.255.2 2001:ffXX::2/128	172.X.255.3 2001:ffXX:3/128	172.X.255.4 2001:ffXX::4/128
e0/0	10.X.0.1/30 2001:ffXX:0:1::a/127	10.X.0.2/30 2001:ffXX:0:1::b/127	10.X.0.6/30 2001:ffXX:0:2::b/127	10.X.0.13/30 2001:ffXX:0:4::a/127
e0/1	10.X.0.5/30 2001:ffXX:0:2::a/127	10.X.0.9/30 2001:ffXX:0:3::a/127	10.X.0.10/30 2001:ffXX:0:3::b/127	10.X.0.17/30 2001:ffXX:0:5::a/127
e1/0	172.16.0.X/24 2001:ff69::X/64	10.X.0.25/30 2001:ffXX:0:ff01::b/64	10.X.0.29/30 2001:ffXX:0:ff02::b/64	10.X.0.21/30 2001:ffXX:0:6::a/127
e1/1	10.X.0.14/30 2001:ffXX:0:4::b/127	10.X.0.18/30 2001:ffXX:0:5::b/127	10.X.0.22/30 2001:ffXX:0:6::b/127	
e2/0	10.132.X.2/30 2001:ff32:0:X::b/64			

### CUSTOMERS

	C1 (Customer 1)	C2 (Customer 2)
e0/0	10.X.0.26/30 2001:ffXX:0:ff01::a/64	10.X.0.30/30 2001:ffXX:0:ff02::a/64

### UPSTREAM

	AS22	AS69
	10.132.X.1/30 2001:ff32:0:X::a/64	RS1: 172.16.0.66/24 2001:ff69::66/64 RS2: 172.16.0.99/24 2001:ff69::99/64

Replace “XX” with your number from the participant list

# Command Overview

## Routing

<b>ping</b>	<b>ping ipv6</b>
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You can use the ping command to check the destination IP address you want to reach and record the results. The ping command displays whether the destination responded and how long it took to receive a reply.

<b>tracert</b>	<b>tracert ipv6</b>
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The tracert command is used to discover the route that packets actually take when traveling to their destination.

<b>show ip route</b>	<b>show ipv6 route</b>
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This command displays the current contents of the routing table.

<b>show interfaces [summary]</b>	<b>show interfaces [summary]</b>
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This command displays statistics for all interfaces configured on the router.

<b>show ip interface [brief]</b>	<b>show ipv6 interface [brief]</b>
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This command displays a brief summary of the interfaces on a device. It's useful for quickly checking the status of the device.

<b>show ip router</b>	<b>show ipv6 router</b>
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This command shows the IP routing table for a router.

# Command Overview

## BGP

<b>show ip bgp</b>	<b>show bgp ipv6 unicast</b>
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Shows entries in the BGP routing table.

<b>show ip bgp neighbors</b>	<b>sh bgp ipv6 unicast neighbors</b>
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Shows information about BGP and TCP connections to neighbors.

<b>show ip bgp summary</b>	<b>sh bgp ipv6 unicast summary</b>
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Shows the status of all BGP connections.

<b>show ip bgp neighbors <i>peer-ip</i> advertised-routes</b>	<b>show ipv6 bgp neighbors <i>peer-ip</i> advertised-routes</b>
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Shows all routes that have been advertised to the neighbor.

<b>show ip bgp neighbors <i>peer-ip</i> routes</b>	<b>show bgp ipv6 unicast neighbors <i>peer-ip</i> routes</b>
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Shows all routes that are received and accepted.

<b>show ip bgp prefix-list <i>name</i></b>	<b>show bgp ipv6 prefix-list <i>name</i></b>
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Shows information about a prefix list or prefix list entries. Variable *name* should point to a existing named list.

<b>clear ip bgp *</b>	<b>clear bgp ipv6 unicast *</b>
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Resets all (asterisk implies all neighbors) BGP connections using hard or soft reconfiguration for address family sessions.