



SHL AB

IPv6 BGP config for "small" ISP
with Hurricane Electric peering

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Objective

- To get our RIPE assigned IPv6 running even if our internet provider is not providing IPv6
- BGP IPv6 Peering with HE
- OSPFv3 internal

Think FIRST!

- Google Authenticator for RIPE and HE account
- Resource Certification at RIPE
- Route Origin Authorisations (ROAs)
- Route Object

BGP Peering HE

- Get an account with HE first
- Edit or add 'admin-c' in RIPE database
- Edit or add 'tech-c' in RIPE database
- Send e-mail to ipv6@he.net
- Create BGP Tunnel

BGP Peering HE



HURRICANE ELECTRIC
INTERNET SERVICES

Create New BGP Tunnel

You currently have 1 of 5 tunnels configured.

Through this interface you can request a static, IPv6 BGP tunnel that will receive full transit routes from AS6939 and be able to announce your RIR allocated IPv6 space. To minimize any issues or delays in turnup please note the following:

- Your ASN must be allocated from a RIR. (Public ASNs only)
- We must be able to validate that this is your ASN/address space (SWIP entries or a LoA will do)
- We will prefix-filter your BGP session. If you are adding new announcements, please let us know via an email to ipv6@he.net.
- We do not filter traffic. However, we do reserve the right to filter at our sole discretion as needed.
- If this is your first tunnel for this ASN, you should receive a message to your account's email address. Please follow the instructions in the email to complete the verification process. During this period the tunnel and BGP session will be unavailable. If you have not heard from us within 48 hours then please email ipv6@he.net.

IPv4 Endpoint (Your side):

Your ASN:

Prefixes announced:

Available Tunnel Servers:

Asia

Hong Kong, HK 216.218.221.2

Europe

Frankfurt, DE 216.66.84.54

London, UK 216.66.84.50

North America

Ashburn, VA, US 216.218.229.118

Fremont, CA, US 64.71.128.26

Miami, FL, US 216.66.70.2

Let's do it live

- This is done to my home router not to HE
- No extra tunnel to HE as I already have the main one running.

Setup the 6to4 tunnel

Interface <6to4-tunnel1>

General | Status | Traffic

Name: 6to4-tunnel1

Type: 6to4 Tunnel

MTU: 1480

L2 MTU: 65535

Local Address: 91. [REDACTED]

Remote Address: 216.66.84.54 ▲

IPsec Secret: ▼

Keepalive: ▼

OK

Cancel

Apply

Disable

Comment

Copy

Remove

Torch

enabled | running | slave

Setup the BGP instance

BGP Instance <satellithuset>

Name: satellithuset

AS: 44

Router ID: 91.2

Redistribute Connected

Redistribute Static

Redistribute RIP

Redistribute OSPF

Redistribute Other BGP

Out Filter: BGP-ut

Confederation:

Confederation Peers:

Cluster ID:

Routing Table:

Client To Client Reflection

Ignore AS Path Length

enabled

OK

Cancel

Apply

Disable

Comment

Copy

Remove

Setup the BGP peer

The screenshot shows a configuration window titled "BGP Peer <HE1>". It has three tabs: "General", "Advanced", and "Status". The "General" tab is active. The configuration fields are as follows:

- Name: HE1
- Instance: satellithuset
- Remote Address: 2001: [redacted]
- Remote Port: [dropdown menu]
- Remote AS: 6939
- TCP MD5 Key: [dropdown menu]
- Nexthop Choice: default
 - Multihop
 - Route Reflect
- Hold Time: 180 s
- Keepalive Time: [dropdown menu]
- TTL: default
- Max Prefix Limit: [dropdown menu]
- Max Prefix Restart Time: [dropdown menu]
- In Filter: [dropdown menu]
- Out Filter: [dropdown menu]
- AllowAS In: [dropdown menu]
 - Remove Private AS
 - AS Override
- Default Originate: never
 - Passive
 - Use BFD

At the bottom of the window, there are two status indicators: "enabled" and "established".

On the right side of the window, there is a vertical column of buttons: OK, Cancel, Apply, Disable, Comment, Copy, Remove, Refresh, Refresh All, Resend, and Resend All.

Setup the BGP peer

The screenshot shows a configuration window titled "BGP Peer <HE1>". It has three tabs: "General", "Advanced", and "Status". The "General" tab is active. The configuration options are:

- Address Families: ip ipv6 l2vpn vpn4 l2vpn-cisco
- Update Source: 2001: [redacted]
- Cisco VPLS NLRI Length Format: auto bits

On the right side, there is a vertical stack of buttons: OK, Cancel, Apply, Disable, Comment, Copy, Remove, Refresh, Refresh All, Resend, and Resend All.

At the bottom of the window, there are two status indicators: "enabled" on the left and "established" on the right.

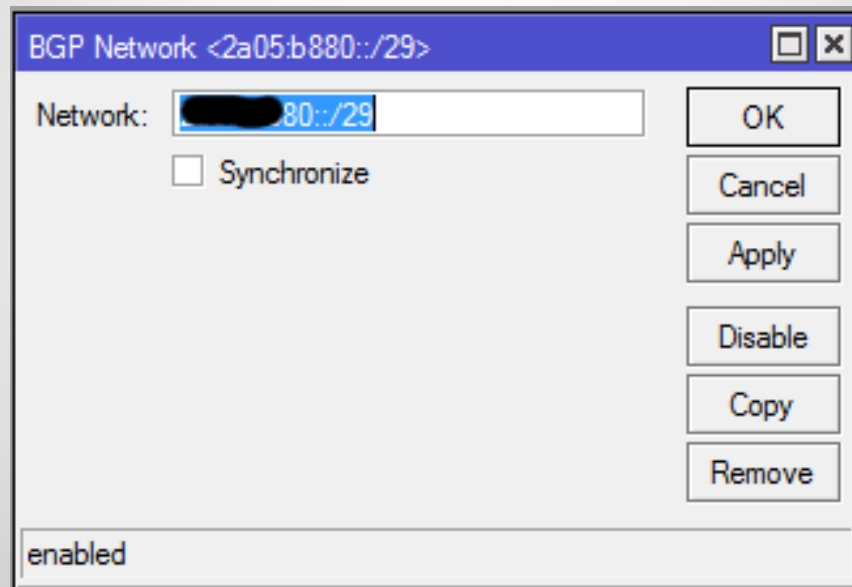
Setup the BGP peer

The screenshot shows a configuration window titled "BGP Peer <HE1>". It has three tabs: "General", "Advanced", and "Status". The "General" tab is active. The window contains several input fields and checkboxes. On the right side, there is a vertical column of buttons: OK, Cancel, Apply, Disable, Comment, Copy, Remove, Refresh, Refresh All, Resend, and Resend All. At the bottom of the window, there are two status indicators: "enabled" and "established".

Field	Value
Remote ID	72.52.92.150
Local Address	2001: [REDACTED]
Uptime	3d 05:14:30
Prefix Count	26275
Updates Sent	1
Updates Received	114 542
Withdrawn Sent	
Withdrawn Received	12 073
Remote Hold Time	180 s
Used Hold Time	180 s
Used Keepalive Time	60 s
Refresh Capability	<input checked="" type="checkbox"/>
AS4 Capability	<input type="checkbox"/>

enabled | established

BGP Networks



The image shows a dialog box titled "BGP Network <2a05:b880::/29>". The dialog box has a blue title bar with standard window controls (minimize, maximize, close). The main area contains a "Network:" label followed by a text input field containing "2a05:b880::/29". Below the input field is a checkbox labeled "Synchronize" which is currently unchecked. On the right side of the dialog, there is a vertical stack of buttons: "OK", "Cancel", "Apply", "Disable", "Copy", and "Remove". At the bottom left of the dialog, the text "enabled" is displayed.

BGP Network <2a05:b880::/29>

Network: 2a05:b880::/29

Synchronize

OK

Cancel

Apply

Disable

Copy

Remove

enabled

BGP Aggregates

BGP Aggregate <2a05:b880::/29>

Instance: satellithuset

Prefix: ██████████80::/29

Summary Only
 Inherit Attributes
 Include IGP

Attribute Filter:

Suppress Filter:

Advertise Filter:

Routes Used Count: 6

enabled

OK
Cancel
Apply
Disable
Copy
Remove

OSPFv3

- Quick Start-up
- Interface settings
- Instance settings
- No need for public IPv6 addresses on routing interfaces

OSPF instances

OSPFv3 Instance <default>

General Metrics Status

Name: default

Router ID: 0.0.0.0

Redistribute Default Route: always (as type 1) ▾

Redistribute Connected Routes: as type 1 ▾

Redistribute Static Routes: no ▾

Redistribute RIP Routes: no ▾

Redistribute BGP Routes: no ▾

Redistribute Other OSPF Routes: no ▾

enabled default

OK
Cancel
Apply
Disable
Comment
Copy
Remove

OSPF Interface

The screenshot shows a configuration window titled "OSPFv3 <ether10>". It has two tabs: "General" and "Status". The "General" tab is active. The configuration fields are as follows:

- Area: backbone
- Interface: ether10
- Cost: 10
- Priority: 1
- Network Type: default
- Instance ID: 0
- Passive
- Use BFD
- Retransmit Interval: 5 s
- Transmit Delay: 1 s
- Hello Interval: 10 s
- Router Dead Interval: 40 s

On the right side of the window, there are buttons for "OK", "Cancel", "Apply", "Disable", "Copy", and "Remove". At the bottom of the window, there are four buttons: "enabled", "passive", "inactive", and "State: designated router".



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