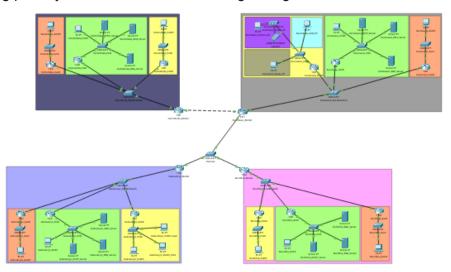
Dokumen Spesifikasi Sybau Labubu Tracer

1. Desain Topologi Jaringan

1.1. Gambaran Umum

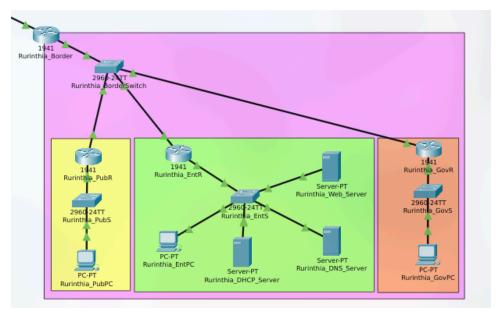
Topologi ini terdiri dari empat jaringan negara yang saling terhubung. Tiga negara (Gokouloryn, Rurinthia, Kuronexus) terhubung ke jaringan eksternal bersama melalui sebuah switch utama. Yamindralia memiliki koneksi eksklusif ke Kuronexus dan bergantung padanya untuk berkomunikasi dengan negara lain.



Gambar 1.1. Topologi Jaringan

1.2. Struktur Internal Negara

Setiap negara memiliki arsitektur internal yang seragam, dirancang untuk segmentasi dan efisiensi.



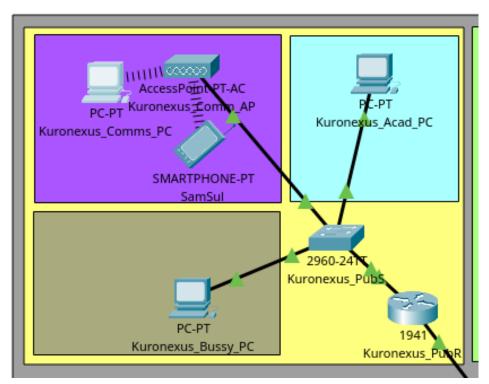
Gambar 1.2. Struktur Internal Negara

- Border Router: Setiap negara memiliki satu border router sebagai gerbang utama ke jaringan eksternal. Router ini menangani semua lalu lintas masuk dan keluar negara.
- **Zona Internal**: Di belakang *border router*, jaringan internal dibagi menjadi tiga zona utama, yang masing-masing diwakili oleh sebuah router:
 - 1. **Government Zone (Zona Pemerintahan)**: Jaringan untuk keperluan pemerintahan.
 - 2. **Enterprise Zone (Zona Perusahaan)**: Jaringan yang menampung layanan-layanan komersial dan publik, termasuk server-server penting.
 - 3. Public Zone (Zona Publik): Jaringan untuk akses publik umum.
- **Konektivitas Zona**: Ketiga router zona ini terhubung ke *border router* melalui sebuah *border switch*, yang berfungsi sebagai tulang punggung (backbone) jaringan internal negara.

1.3. Perangkat di Setiap Zona

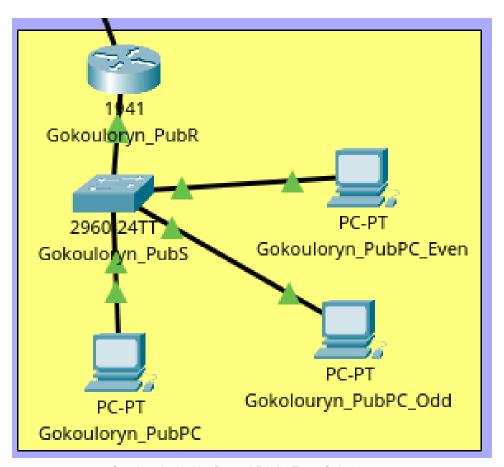
- **Government & Public Zone**: Masing-masing zona ini secara default memiliki satu switch yang terhubung ke satu PC.
- Enterprise Zone: Zona ini lebih kompleks, berisi:
 - Satu PC untuk pengguna korporat.
 - o Web Server: Menyediakan layanan web untuk negara tersebut.
 - o **DNS Server**: Mengelola resolusi nama domain.
 - DHCP Server: Mengalokasikan alamat IP secara dinamis ke perangkat di seluruh negara.

1.4. Konfigurasi Khusus



Gambar 1.4.1. Konfigurasi Public Zone Kuronexus

- **Public Zone Kuronexus**: Zona ini diimplementasikan dengan segmentasi jaringan menggunakan VLAN dan menyediakan akses nirkabel.
 - VLAN: Terdapat tiga VLAN: VLAN 30 (Academy), VLAN 40 (Business), dan VLAN 50 (Communal).
 - Wireless Network: VLAN 50 diimplementasikan sebagai jaringan nirkabel dengan sebuah Access Point, yang melayani satu smartphone dan satu PC nirkabel.



Gambar 1.4.2. Konfigurasi Public Zone Gokouloryn

 Public Zone Gokouloryn: Untuk keperluan pengujian NAT, zona ini memiliki dua PC tambahan dengan alamat IP statis (satu dengan oktet terakhir genap, satu ganjil).

2. Implementasi Layanan Jaringan

2.1. Internal Routing (OSPF Multi-Area)

Routing di dalam setiap negara dikelola menggunakan **OSPF** (**Open Shortest Path First**) dengan konfigurasi *Multi-Area* untuk skalabilitas dan efisiensi.

- Area 0 (Backbone Area): Subnet yang menghubungkan border router dengan ketiga router zona (melalui border switch) ditetapkan sebagai Area 0. Ini adalah area inti yang menghubungkan semua area lainnya.
- **Area Lain**: Masing-masing zona ditetapkan ke areanya sendiri:
 - Area 1: Government Zone
 - o Area 2: Enterprise Zone
 - Area 3: Public Zone (Untuk Kuronexus, setiap VLAN di-assign ke areanya sendiri: Area 30, 40, dan 50).

Contoh Konfigurasi OSPF pada Router Zona (misal: Gokouloryn_GovR):

```
router ospf 1
network 11.70.0.0 0.0.0.7 area 0 // Mengiklankan jaringan backbone
network 11.70.13.0 0.0.0.255 area 1 // Mengiklankan jaringan internal zona
```

2.2. DHCP (Dynamic Host Configuration Protocol)

Alokasi alamat IP untuk perangkat pengguna (PC dan *smartphone*) dilakukan secara dinamis menggunakan DHCP.

- **Server**: DHCP Server terpusat di Enterprise Zone setiap negara.
- **DHCP Pools**: Dibuat *pool* terpisah untuk setiap subnet (setiap zona dan setiap VLAN di Kuronexus) untuk memastikan alokasi IP yang tepat.
- **IP Helper**: Karena server DHCP tidak berada di subnet yang sama dengan klien, perintah ip helper-address dikonfigurasikan pada interface router di setiap zona untuk meneruskan permintaan DHCP ke server yang benar.

Contoh Konfigurasi IP Helper pada Router Zona (misal: Gokouloryn_GovR):

```
interface GigabitEthernet0/0
ip helper-address 11.70.14.2 // Alamat IP DHCP Server Gokouloryn
```

2.3. External Routing (BGP)

Routing antar negara (antar Autonomous System) diimplementasikan menggunakan

BGP (Border Gateway Protocol).

- Autonomous System (AS): Setiap negara memiliki nomor AS yang unik.
- **Peering**: Border router dari negara-negara yang terhubung secara langsung membentuk sesi peering BGP untuk bertukar informasi routing.
- **Redistribusi**: Rute yang dipelajari melalui OSPF (rute internal) didistribusikan kembali ke dalam BGP agar dapat diiklankan ke negara lain, dan sebaliknya. Ini memungkinkan komunikasi *end-to-end* di seluruh topologi.

Contoh Konfigurasi BGP pada Border Router (misal: Gokouloryn_Border):

```
router bgp 69
no synchronization
neighbor 49.64.99.2 remote-as 420 // Peering dengan Rurinthia
neighbor 49.64.99.3 remote-as 4646 // Peering dengan Kuronexus
network 11.70.0.0 mask 255.255.0.0 // Mengiklankan jaringan
Gokouloryn
!
router ospf 1
redistribute bgp 69 subnets
```

2.4. DNS (Domain Name System)

Setiap negara memiliki DNS Server sendiri untuk resolusi nama domain.

• TLD (Top-Level Domain):

Gokouloryn: .gkRurinthia: .rrKuronexus: .krYamindralia: .ym

• **Fungsi**: Server DNS mengelola *record* untuk domain lokalnya (misal: web.gk) dan meneruskan (*forward*) *query* untuk domain negara lain ke DNS server yang sesuai. Ini menciptakan sistem DNS terdistribusi.

Contoh Konfigurasi DNS Record di Gokouloryn:

- A Record: web.gk -> 11.70.14.69 (IP Web Server Gokouloryn)
- **NS Record**: kr -> kuronexus (Mendelegasikan domain .kr ke server Kuronexus)
- A Record: kuronexus -> 44.14.47.11 (Alamat IP DNS Server Kuronexus)

2.5. Keamanan: ACL (Access Control List)

ACL diimplementasikan untuk mengontrol lalu lintas dan meningkatkan keamanan jaringan.

- **Government Zone**: Diterapkan *extended ACL* yang:
 - 1. Mengizinkan akses dari Government Zone negara lain.

- 2. Memblokir akses masuk dari jaringan non-pemerintah lainnya.
- 3. Mengizinkan lalu lintas keluar dari zona pemerintah dan lalu lintas balasan yang terkait (established), memungkinkan koneksi yang diinisiasi dari dalam.
- Enterprise Zone: Diterapkan extended ACL yang:
 - 1. Memberikan akses penuh kepada Government Zone dari negara yang sama.
 - 2. Membatasi akses dari jaringan lain hanya ke layanan yang diizinkan: HTTPS (port 443), DNS (port 53), dan DHCP (port 67/68).
 - 3. Aturan tambahan ditambahkan untuk memastikan protokol routing (OSPF) dan ICMP (untuk *troubleshooting*) tetap berfungsi dengan baik.

Contoh ACL pada Government Router (misal: Gokouloryn_GovR):

```
access-list 100 permit ip 22.89.22.0 0.0.0.255 11.70.13.0 0.0.0.255 //
Izinkan dari Gov Rurinthia
access-list 100 permit tcp any 11.70.13.0 0.0.0.255 established //
Izinkan koneksi balasan
! Aturan lain untuk Gov Kuronexus & Yamindralia, OSPF, DHCP, DNS, dll.
!
interface GigabitEthernet0/1
ip access-group 100 in
```

2.6. NAT (Network Address Translation)

PAT (Port Address Translation) atau NAT Overload diimplementasikan pada *border router* Gokouloryn.

- **Fungsi**: Menerjemahkan alamat IP privat dari jaringan internal Gokouloryn ke satu alamat IP publik (*overload* pada interface eksternal router).
- **Kondisi**: Translasi ini hanya berlaku untuk alamat IP sumber dengan oktet terakhir genap, sesuai dengan kebutuhan pengujian.

Contoh Konfigurasi NAT pada Gokouloryn_Border:

```
access-list 1 permit 11.70.0.0 0.0.255.254 // ACL untuk mencocokkan IP
genap
!
ip nat inside source list 1 interface GigabitEthernet0/1 overload
!
interface GigabitEthernet0/0
  ip nat inside
!
interface GigabitEthernet0/1
  ip nat outside
```

2.7. Akses Remote (SSH & Telnet)

Seluruh border router dikonfigurasi untuk dapat diakses secara remote.

- **SSH**: Menyediakan akses *command-line* yang aman dan terenkripsi.
- **Telnet**: Menyediakan akses *command-line* yang tidak terenkripsi.
- **Kredensial**: Setiap router memiliki kredensial login yang unik.
- Akses via Domain: Entri DNS ditambahkan (border.tld) agar akses remote dapat dilakukan menggunakan nama domain, bukan hanya alamat IP.

Negara	Perintah SSH	Password SSH	Perintah Telnet	Password Telnet	Password Enable
Gokouloryn	ssh -l admin border.gk	aman101	telnet border.gk	gakaman101	akuGK
Rurinthia	ssh -l admin border.rr	cingcai101	telnet border.rr	kachung101	akuRR
Kuronexus	ssh -l admin border.kr	himitsu101	telnet border.kr	mitsuhi101	akuKR
Yamindralia	ssh -l admin border.ym	secure101	telnet border.ym	insecure101	akuYM

2.8. Implementasi IPv6

Negara Rurinthia dan Yamindralia di-upgrade menjadi jaringan *dual-stack*, mendukung IPv4 dan IPv6 secara bersamaan.

- **Pengalamatan**: Seluruh perangkat dan interface di kedua negara diberikan alamat IPv6 unik.
- Routing IPv6: Routing dinamis untuk IPv6 diimplementasikan menggunakan OSPFv3.
- **DHCPv6**: Alokasi alamat IPv6 untuk klien dilakukan secara dinamis melalui DHCPv6 yang dikonfigurasi pada router zona.
- IPv6 Tunneling: Untuk memungkinkan komunikasi IPv6 antara Rurinthia dan Yamindralia melalui jaringan eksternal yang masih berbasis IPv4, sebuah *tunnel* GRE (Generic Routing Encapsulation) dikonfigurasi antara kedua *border router* mereka.

Contoh Konfigurasi Tunnel pada Rurinthia_Border:

```
interface Tunnel0
  ipv6 address 3000::1/64
  tunnel source GigabitEthernet0/1
  tunnel destination 50.98.28.2 // IP eksternal Yamindralia_Border
  tunnel mode ipv6ip
!
  ipv6 route 2001:fd32:1987::/48 3000::2 // Rute statis ke jaringan IPv6
  Yamindralia via tunnel
```

3. Lampiran

Berikut adalah lampiran untuk seluruh konfigurasi yang digunakan dalam membangun Sybau Labubu Tracer

Router IP Config

```
Gokouloryn_Border(config)#int g0/0
Gokouloryn_Border(config-if)#ip add 11.70.0.1 255.255.255.248
Gokouloryn_Border(config-if)#no shutdown
Gokouloryn_Border(config-if)#ex
Gokouloryn_Border(config)#int g0/1
Gokouloryn_Border(config-if)#ip add 49.64.99.1 255.255.255.0
Gokouloryn_Border(config-if)#no shutdown
Gokouloryn_Border(config-if)#ex
Gokouloryn_GovR(config)#in g0/1
Gokouloryn_GovR(config-if)#ip add 11.70.0.2 255.255.255.248
Gokouloryn_GovR(config-if)#no sh
Gokouloryn_GovR(config-if)#ex
Gokouloryn_GovR(config)#in g0/0
Gokouloryn_GovR(config-if)#ip add 11.70.13.1 255.255.255.0
Gokouloryn_GovR(config-if)#no sh
Gokouloryn_GovR(config-if)#ex
Gokoulorvn EntR(config)#in g0/1
Gokouloryn_EntR(config-if)#ip add 11.70.0.3 255.255.255.248
Gokouloryn_EntR(config-if)#no sh
Gokouloryn_EntR(config-if)#ex
Gokouloryn_EntR(config)#in g0/0
Gokouloryn_EntR(config-if)#ip add 11.70.14.1 255.255.255.0
Gokouloryn_EntR(config-if)#no sh
Gokouloryn_EntR(config-if)#ex
Gokouloryn_PubR(config)#in g0/1
Gokouloryn_PubR(config-if)#ip add 11.70.0.4 255.255.255.248
Gokouloryn_PubR(config-if)#no sh
Gokouloryn_PubR(config-if)#ex
Gokouloryn_PubR(config)#in g0/0
Gokouloryn_PubR(config-if)#ip add 11.70.15.1 255.255.25.0
Gokouloryn_PubR(config-if)#no sh
Gokouloryn_PubR(config-if)#ex
Rurinthia_Border(config)#in g0/0
Rurinthia_Border(config-if)#ip add 22.89.0.1 255.255.255.248
Rurinthia_Border(config-if)#no shutdown
Rurinthia_Border(config-if)#ex
Rurinthia Border(config)#in g0/1
Rurinthia_Border(config-if)#ip add 49.64.99.2 255.255.255.0
Rurinthia_Border(config-if)#no sh
```

```
Rurinthia_Border(config-if)#ex
Rurinthia_GovR(config)#in g0/1
Rurinthia_GovR(config-if)#ip add 22.89.0.2 255.255.255.248
Rurinthia_GovR(config-if)#no sh
Rurinthia_GovR(config-if)#ex
Rurinthia_GovR(config)#in g0/0
Rurinthia_GovR(config-if)#ip add 22.89.22.1 255.255.255.0
Rurinthia_GovR(config-if)#no sh
Rurinthia_GovR(config-if)#ex
Rurinthia EntR(config)#in g0/1
Rurinthia_EntR(config-if)#ip add 22.89.0.3 255.255.255.248
Rurinthia_EntR(config-if)#no sh
Rurinthia_EntR(config-if)#ex
Rurinthia_EntR(config)#in g0/0
Rurinthia_EntR(config-if)#ip add 22.89.23.1 255.255.255.0
Rurinthia_EntR(config-if)#no sh
Rurinthia_EntR(config-if)#ex
Rurinthia_PubR(config)#in g0/1
Rurinthia_PubR(config-if)#ip add 22.89.0.4 255.255.255.248
Rurinthia PubR(config-if)#no sh
Rurinthia_PubR(config-if)#ex
Rurinthia_PubR(config)#in g0/0
Rurinthia_PubR(config-if)#ip add 22.89.24.1 255.255.255.0
Rurinthia_PubR(config-if)#no sh
Rurinthia_PubR(config-if)#ex
Kuronexus_Border(config)#in g0/0
Kuronexus_Border(config-if)#ip add 44.14.0.1 255.255.255.248
Kuronexus_Border(config-if)#no sh
Kuronexus_Border(config-if)#ex
Kuronexus Border(confia)#in a0/1
Kuronexus_Border(config-if)#ip add 46.64.99.3 255.255.255.0
Kuronexus_Border(config-if)#no sh
Kuronexus_Border(config-if)#in q0/2
Kuronexus_Border(config-if)#ip add 50.98.28.1 255.255.25.0
Kuronexus_Border(config-if)#no sh
Kuronexus_Border(config-if)#ex
Kuronexus_GovR(config)#in g0/1
Kuronexus_GovR(config-if)#ip add 44.14.0.2 255.255.255.248
Kuronexus_GovR(config-if)#no sh
Kuronexus_GovR(config-if)#ex
Kuronexus_GovR(config)#in g0/0
Kuronexus_GovR(config-if)#ip add 44.14.46.1 255.255.255.0
Kuronexus_GovR(config-if)#no sh
Kuronexus_GovR(config-if)#ex
Kuronexus_EntR(config)#in g0/1
Kuronexus_EntR(config-if)#ip add 44.14.0.3 255.255.255.248
Kuronexus_EntR(config-if)#no sh
```

```
Kuronexus_EntR(config-if)#ex
Kuronexus_EntR(config)#in g0/0
Kuronexus_EntR(config-if)#ip add 44.14.47.1 255.255.255.0
Kuronexus_EntR(config-if)#no sh
Kuronexus_EntR(config-if)#ex
Kuronexus_PubR(config)#in g0/1
Kuronexus_PubR(config-if)#ip add 44.14.0.4 255.255.255.248
Kuronexus_PubR(config-if)#no sh
Kuronexus_PubR(config-if)#ex
Kuronexus_PubR(config)#in g0/0
Kuronexus PubR(config-if)#no sh
Kuronexus_PubR(config-if)#in g0/0.30
Kuronexus_PubR(config-subif)#en dot 30
Kuronexus_PubR(config-subif)#ip add 44.14.30.1 255.255.255.0
Kuronexus_PubR(config-subif)#in g0/0.40
Kuronexus_PubR(config-subif)#en dot 40
Kuronexus_PubR(config-subif)#ip add 44.14.40.1 255.255.255.0
Kuronexus_PubR(config-subif)#in g0/0.50
Kuronexus_PubR(config-subif)#en dot 50
Kuronexus_PubR(config-subif)#ip add 44.14.50.1 255.255.255.0
Kuronexus_PubR(config-subif)#ex
Yamindralia_Border(config)#in g0/0
Yamindralia_Border(config-if)#ip add 37.59.0.1 255.255.255.248
Yamindralia_Border(config-if)#no sh
Yamindralia_Border(config-if)#ex
Yamindralia_Border(config)#in g0/1
Yamindralia_Border(config-if)#ip add 50.98.28.2 255.255.25.0
Yamindralia_Border(config-if)#no sh
Yamindralia_Border(config-if)#ex
Yamindralia_GovR(config)#in g0/1
Yamindralia_GovR(config-if)#ip add 37.59.0.1 255.255.255.248
Yamindralia_GovR(config-if)#no sh
Yamindralia_GovR(config-if)#ex
Yamindralia_GovR(config)#in g0/0
Yamindralia_GovR(config-if)#ip add 37.59.52.1 255.255.25.0
Yamindralia_GovR(config-if)#no sh
Yamindralia_GovR(config-if)#ex
Yamindralia_EntR(config)#in g0/1
Yamindralia_EntR(config-if)#ip add 37.59.0.3 255.255.255.248
Yamindralia_EntR(config-if)#no sh
Yamindralia_EntR(config-if)#ex
Yamindralia_EntR(config)#in g0/0
Yamindralia_EntR(config-if)#ip add 37.59.53.1 255.255.25.0
Yamindralia_EntR(config-if)#no sh
Yamindralia_EntR(config-if)#ex
Yamindralia_PubR(config)#in g0/1
Yamindralia_PubR(config-if)#ip add 37.59.0.4 255.255.255.248
Yamindralia_PubR(config-if)#no sh
```

```
Yamindralia_PubR(config-if)#ex
Yamindralia_PubR(config)#in g0/0
Yamindralia_PubR(config-if)#ip add 37.59.54.1 255.255.255.0
Yamindralia_PubR(config-if)#no sh
Yamindralia_PubR(config-if)#ex
```

Area 0 Switch VLAN Config

```
Gokouloryn_BorderSwitch(config)#vlan 10
Gokouloryn_BorderSwitch(config-vlan)#name OSPF_AREA_0
Gokouloryn_BorderSwitch(config-vlan)#ex
Gokoulorvn BorderSwitch(config)#in r fa0/1-4
Gokouloryn_BorderSwitch(config-if-range)#sw mod acc
Gokouloryn_BorderSwitch(config-if-range)#sw acc vlan 10
Gokouloryn_BorderSwitch(config-if-range)#ex
Rurinthia_BorderSwitch(config)#vlan 10
Rurinthia_BorderSwitch(config-vlan)#name OSPF_AREA_0
Rurinthia_BorderSwitch(config-vlan)#ex
Rurinthia_BorderSwitch(config)#in r fa0/1-4
Rurinthia_BorderSwitch(config-if-range)#sw mod acc
Rurinthia_BorderSwitch(config-if-range)#sw acc vlan 10
Rurinthia_BorderSwitch(config-if-range)#ex
Kuronexus_BorderSwitch(config)#vlan 10
Kuronexus_BorderSwitch(config-vlan)#name OSPF_AREA_0
Kuronexus_BorderSwitch(config-vlan)#ex
Kuronexus_BorderSwitch(config)#in r fa0/1-4
Kuronexus_BorderSwitch(config-if-range)#sw mod acc
Kuronexus_BorderSwitch(config-if-range)#sw acc vlan 10
Kuronexus_BorderSwitch(config-if-range)#ex
Yamindralia_BorderSwitch(config)#vlan 10
Yamindralia BorderSwitch(config-vlan)#name OSPF AREA 0
Yamindralia_BorderSwitch(config-vlan)#ex
Yamindralia_BorderSwitch(config)#in r fa0/1-4
Yamindralia_BorderSwitch(config-if-range)#sw mod acc
Yamindralia_BorderSwitch(config-if-range)#sw acc vlan 10
Yamindralia_BorderSwitch(config-if-range)#ex
```

Area 0 OSPF Config

```
Gokouloryn_Border(config)#r ospf 1
Gokouloryn_Border(config-router)#net 11.70.0.0 0.0.0.7 area 0
Gokouloryn_Border(config-router)#ex

Gokouloryn_GovR(config)#r ospf 1
Gokouloryn_GovR(config-router)#net 11.70.0.0 0.0.0.7 area 0
Gokouloryn_GovR(config-router)#ex

Gokouloryn_EntR(config)#r ospf 1
Gokouloryn_EntR(config-router)#net 11.70.0.0 0.0.0.7 area 0
Gokouloryn_EntR(config-router)#ex
```

```
Gokouloryn_PubR(config)#r ospf 1
Gokouloryn_PubR(config-router)#net 11.70.0.0 0.0.0.7 area 0
Gokouloryn_PubR(config-router)#ex
Rurinthia_Border(config)#r ospf 1
Rurinthia_Border(config-router)#net 22.89.0.0 0.0.0.7 area 0
Rurinthia_Border(config-router)#ex
Rurinthia_GovR(config)#r ospf 1
Rurinthia_GovR(config-router)#net 22.89.0.0 0.0.0.7 area 0
Rurinthia_GovR(config-router)#ex
Rurinthia_PubR(config)#r ospf 1
Rurinthia_PubR(config-router)#net 22.89.0.0 0.0.0.7 area 0
Rurinthia_PubR(config-router)#ex
Rurinthia EntR(config)#r ospf 1
Rurinthia_EntR(config-router)#net 22.89.0.0 0.0.0.7 area 0
Rurinthia_EntR(config-router)#ex
Kuronexus_Border(config)#r ospf 1
Kuronexus Border(config-router)#net 44.14.0.0 0.0.0.7 area 0
Kuronexus_Border(config-router)#ex
Kuronexus_GovR(config)#r ospf 1
Kuronexus_GovR(config-router)#net 44.14.0.0 0.0.0.7 area 0
Kuronexus_GovR(config-router)#ex
Kuronexus EntR(confia)#r ospf 1
Kuronexus_EntR(config-router)#ro 44.14.0.4
Kuronexus_EntR(config-router)#net 44.14.0.0 0.0.0.7 area 0
Kuronexus_EntR(config-router)#ex
Kuronexus PubR(config)#r ospf 1
Kuronexus_PubR(config-router)#net 44.14.0.0 0.0.0.7 area 0
Kuronexus_PubR(config-router)#ex
Yamindralia_Border(config)#r ospf 1
Yamindralia_Border(config-router)#net 37.59.0.0 0.0.0.7 area 0
Yamindralia_Border(config-router)#ex
Yamindralia_GovR(config)#r ospf 1
Yamindralia_GovR(config-router)#net 37.59.0.0 0.0.0.7 area 0
Yamindralia_GovR(config-router)#ex
Yamindralia_EntR(config)#r ospf 1
Yamindralia_EntR(config-router)#net 37.59.0.0 0.0.0.7 area 0
Yamindralia_EntR(config-router)#ex
Yamindralia_PubR(config)#r ospf 1
Yamindralia_PubR(config-router)#net 37.59.0.0 0.0.0.7 area 0
Yamindralia_PubR(config-router)#ex
```

Area 1 (Government Zone) OSPF Config

```
Gokouloryn_GovR(config)#r ospf 1
Gokouloryn_GovR(config-router)#net 11.70.13.0 0.0.0.255 area 1
Gokouloryn_GovR(config-router)#ex

Rurinthia_GovR(config)#r ospf 1
Rurinthia_GovR(config-router)#net 22.89.22.0 0.0.0.255 area 1
Rurinthia_GovR(config-router)#ex

Kuronexus_GovR(config)#r ospf 1
Kuronexus_GovR(config-router)#net 44.14.46.0 0.0.0.255 area 1
Kuronexus_GovR(config-router)#ex

Yamindralia_GovR(config)#r ospf 1
Yamindralia_GovR(config-router)#net 37.59.52.0 0.0.0.255 area 1
Yamindralia_GovR(config-router)#ex
```

Area 2 (Enterprise Zone) OSPF Config

```
Gokouloryn_EntR(config)#r ospf 1
Gokouloryn_EntR(config-router)#net 11.70.14.0 0.0.0.255 area 2
Gokouloryn_EntR(config-router)#ex

Rurinthia_EntR(config)#r ospf 1
Rurinthia_EntR(config-router)#net 22.89.23.0 0.0.0.255 area 2
Rurinthia_EntR(config-router)#ex

Kuronexus_EntR(config)#r ospf 1
Kuronexus_EntR(config-router)#net 44.14.47.0 0.0.0.255 area 2
Kuronexus_EntR(config-router)#ex

Yamindralia_EntR(config)#r ospf 1
Yamindralia_EntR(config-router)#net 37.59.53.0 0.0.0.255 area 2
Yamindralia_EntR(config-router)#ex
```

Area 3 (Public Zone) OSPF Config

```
Gokouloryn_PubR(config)#r ospf 1
Gokouloryn_PubR(config-router)#net 11.70.15.0 0.0.0.255 area 3
Gokouloryn_PubR(config-router)#ex

Rurinthia_PubR(config)#r ospf 1
Rurinthia_PubR(config-router)#net 22.89.24.0 0.0.0.255 area 3
Rurinthia_PubR(config-router)#ex

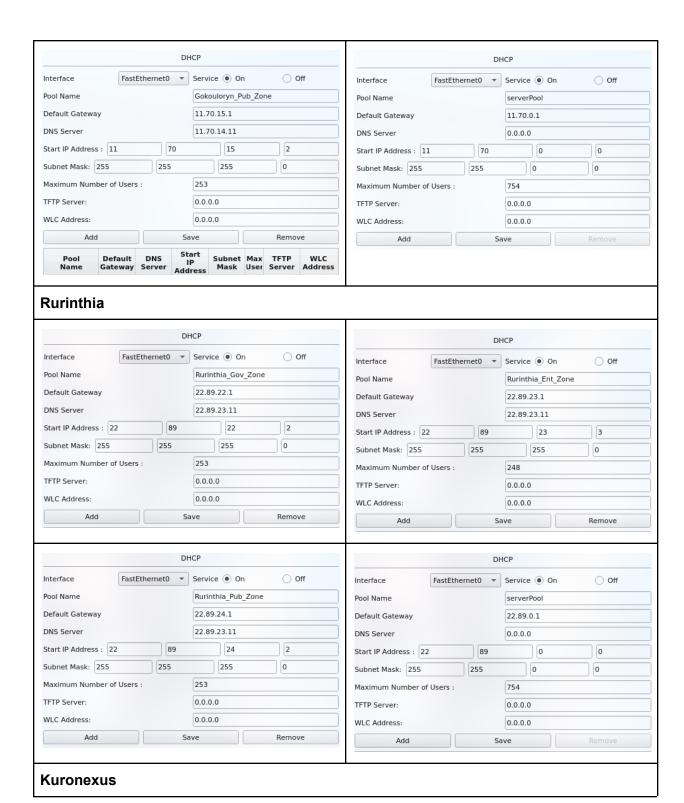
Kuronexus_PubR(config)#r ospf 1
Kuronexus_PubR(config-router)#net 44.14.30.0 0.0.0.255 area 30
Kuronexus_PubR(config-router)#net 44.14.40.0 0.0.0.255 area 40
Kuronexus_PubR(config-router)#net 44.14.50.0 0.0.0.255 area 50
Kuronexus_PubR(config-router)#net 44.14.50.0 0.0.0.255 area 50
Kuronexus_PubR(config-router)#ex
```

Yamindralia_PubR(config)#r ospf 1 Yamindralia_PubR(config-router)#net 37.59.54.0 0.0.0.255 area 3 Yamindralia_PubR(config-router)#ex

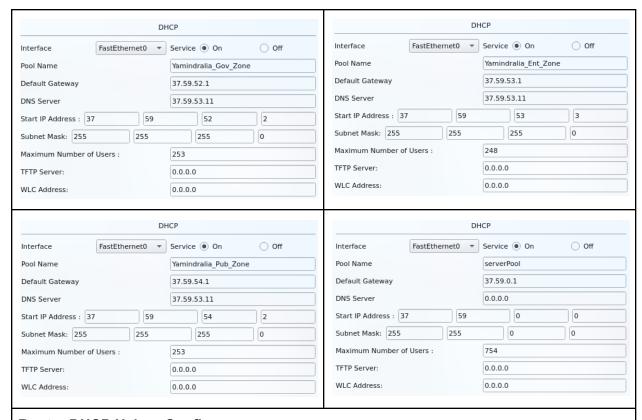
Kuronexus Public Zone VLAN Config

Kuronexus_PubS(config)#vlan 30 Kuronexus_PubS(config-vlan)#name Academy Kuronexus_PubS(config-vlan)#vlan 40 Kuronexus_PubS(config-vlan)#name Business Kuronexus_PubS(config-vlan)#vlan 50 Kuronexus_PubS(config-vlan)#name Communal Kuronexus_PubS(config-vlan)#ex Kuronexus_PubS(config)#in g0/1 Kuronexus_PubS(config-if)#sw mod tr Kuronexus_PubS(config-if)#in fa0/1 Kuronexus_PubS(config-if)#sw mod acc Kuronexus_PubS(config-if)#sw acc vlan 30 Kuronexus_PubS(config-if)#in fa0/2 Kuronexus_PubS(config-if)#sw mod acc Kuronexus_PubS(config-if)#sw acc vlan 40 Kuronexus_PubS(config-if)#in fa0/3 Kuronexus_PubS(config-if)#sw mod acc Kuronexus_PubS(config-if)#sw acc vlan 50 Kuronexus_PubS(config-if)#ex

DHCP Server Config Gokouloryn DHCP DHCP Interface FastEthernet0 ▼ Service ● On Off Interface FastEthernet0 ▼ Service • On Pool Name Gokouloryn_Gov_Zone Pool Name Gokouloryn Ent Zone Default Gateway 11.70.13.1 11.70.14.1 Default Gateway 11.70.14.11 DNS Server DNS Server 11.70.14.11 13 Start IP Address : 11 70 2 14 Start IP Address: 11 70 3 Subnet Mask: 255 255 255 0 Subnet Mask: 255 255 255 0 253 Maximum Number of Users : 248 Maximum Number of Users : TETP Server 0.0.0.0 0.0.0.0 TFTP Server: 0.0.0.0 WLC Address: 0.0.0.0 WLC Address: Save Remove Add Save Remove Start Default DNS Subnet Max TFTP WLC Mask User Server Address Start | Subnet | Max | TFTP | Mask | User | Server Start Pool Default DNS Gateway Server



	DHCP	DHCP		
Interface FastEthernet0 ▼ Service ● On		Interface FastEthernet0	Service On Off	
Pool Name	Kuronexus_Gov_Zone	Pool Name	Kuronexus_Ent_Zone	
Default Gateway	44.14.46.1	Default Gateway	44.14.47.1	
DNS Server	44.14.47.11	DNS Server	44.14.47.11	
Start IP Address : 44	46 2	Start IP Address : 44 14	47 3	
Subnet Mask: 255 255	255 0	Subnet Mask: 255 255	255 0	
laximum Number of Users : 253		Maximum Number of Users : 248		
TFTP Server: 0.0.0.0		TFTP Server: 0.0.0.0		
WLC Address:	0.0.0.0	WLC Address:	0.0.0.0	
Add	Save Remove	Add Save Remove		
	DHCP		DHCP	
Interface FastEthernet0	Service On Off	Interface FastEthernet0	Service On Off	
Pool Name	Kuronexus_Acad_Zone	Pool Name	Kuronexus_Bussy_Zone	
Default Gateway	44.14.30.1	Default Gateway	44.14.40.1	
DNS Server	44.14.47.11	DNS Server	44.14.47.11	
Start IP Address : 44	30 2	Start IP Address : 44	40 2	
Subnet Mask: 255	255 0	Subnet Mask: 255 255	255 0	
Maximum Number of Users : 253		Maximum Number of Users : 253		
TFTP Server:	0.0.0.0	TFTP Server:	0.0.0.0	
WLC Address:	/LC Address: 0.0.0.0		0.0.0.0	
Add	Save Remove	Add	Save Remove	
Interface FastEthernet0 •	OHCP Service On Off		DHCP	
Pool Name	Kuronexus_Comms_Zone	1	Service On Off	
Default Gateway	44.14.50.1	Pool Name Default Gateway	serverPool	
DNS Server			44.14.0.1	
			0.0.0.0	
Subnet Mask: 255 255	255 0	Start IP Address : 44 14	0 0	
Maximum Number of Users :	253	Subnet Mask: 255 255	0 0	
TFTP Server:	0.0.0.0	Maximum Number of Users : TFTP Server:	1260	
WLC Address:			0.0.0.0	
Add Save Remove		WLC Address:	0.0.0.0	
Add	Kemove			
Yamindralia		•		



Router DHCP Helper Config

Gokouloryn_GovR(config)#in g0/0

```
Gokouloryn_GovR(config-if)#ip help 11.70.14.2
Gokouloryn_GovR(config-if)#ex
Gokouloryn_PubR(config)#in g0/0
Gokouloryn_PubR(config-if)#ip help 11.70.14.2
Gokouloryn_PubR(config-if)#ex
Rurinthia_PubR(config)#in g0/0
Rurinthia_PubR(config-if)#ip help 22.89.23.2
Rurinthia_PubR(config-if)#ex
Rurinthia_GovR(config)#in g0/0
Rurinthia_GovR(config-if)#ip help 22.89.23.2
Rurinthia_GovR(config-if)#ex
Kuronexus_GovR(config)#in g0/0
Kuronexus_GovR(config-if)#ip help 44.14.47.2
Kuronexus_GovR(config-if)#ex
Kuronexus_PubR(config)#in r g0/0.30, g0/0.40, g0/0.50
Kuronexus_PubR(config-if-range)#ip help 44.14.47.2
Kuronexus_PubR(config-if-range)#ex
Yamindralia_GovR(config)#in g0/0
Yamindralia_GovR(config-if)#ip help 37.59.53.2
```

```
Yamindralia_GovR(config-if)#ex

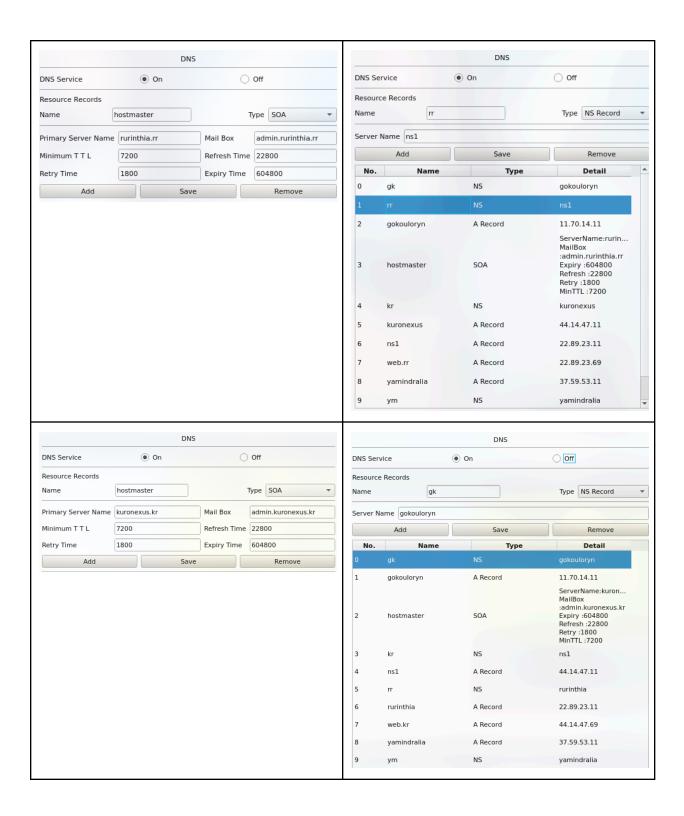
Yamindralia_PubR(config)#in g0/0
Yamindralia_PubR(config-if)#ip help 37.59.53.2
Yamindralia_PubR(config-if)#ex
```

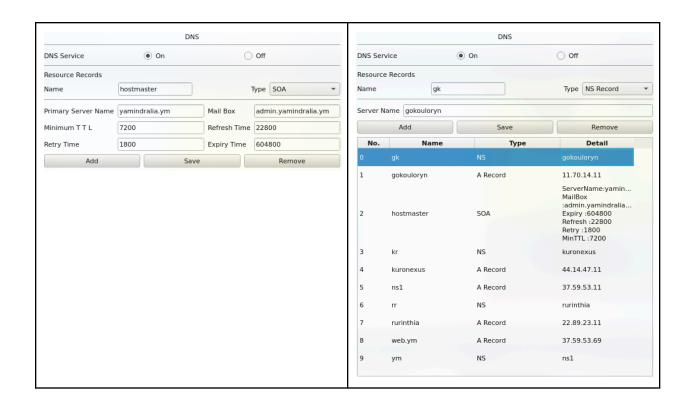
BGP Routing Config

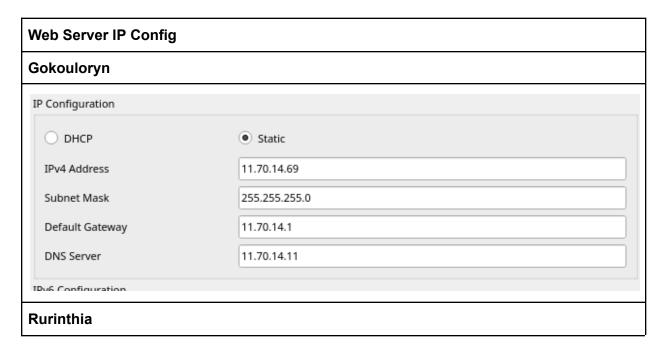
```
Gokoulorvn Border(confia)#r bap 69
Gokouloryn_Border(config-router)#no s
Gokouloryn_Border(config-router)#nei 49.64.99.2 rem 420
Gokouloryn_Border(config-router)#nei 49.64.99.3 rem 4646
Gokouloryn_Border(config-router)#r o 1
Gokouloryn_Border(config-router)#net 11.70.0.0 m 255.255.0.0
Gokouloryn_Border(config-router)#ex
Gokouloryn_Border(config)#r o 1
Gokouloryn_Border(config-router)#re b 69 s
Rurinthia_Border(config)#r bgp 420
Rurinthia_Border(config-router)#nei 49.64.99.1 rem 69
Rurinthia_Border(config-router)#nei 49.64.99.3 rem 4646
Rurinthia_Border(config-router)#net 22.89.0.0 mask 255.255.0.0
Rurinthia_Border(config-router)#r o 1
Rurinthia_Border(config-router)#ex
Rurinthia_Border(config)#r ospf 1
Rurinthia_Border(config-router)#re b 420 s
Rurinthia_Border(config-router)#ex
Kuronexus_Border(config)#r bgp 4646
Kuronexus_Border(config-router)#nei 49.64.99.1 rem 69
Kuronexus_Border(config-router)#nei 49.64.99.2 rem 420
Kuronexus_Border(config-router)#nei 50.98.28.2 rem 46
Kuronexus_Border(config-router)#nei 49.64.99.1 n
Kuronexus_Border(config-router)#nei 49.64.99.2 n
Kuronexus_Border(config-router)#nei 50.98.28.2 n
Kuronexus_Border(config-router)#net 44.14.0.0 m 255.255.0.0
Kuronexus_Border(config-router)#net 50.98.28.0 m 255.255.255.0
Kuronexus_Border(config-router)# net 49.64.99.0 m 255.255.255.0
Kuronexus_Border(config-router)#re o 1
Kuronexus_Border(config-router)#ex
Kuronexus_Border(config)#r o 1
Kuronexus_Border(config-router)#re b 4646 s
Kuronexus_Border(config-router)#ex
Yamindralia_Border(config)#r b 46
Yamindralia_Border(config-router)#nei 50.98.28.1 rem 4646
Yamindralia_Border(config-router)#net 37.59.0.0 m 255.255.0.0
Yamindralia_Border(config-router)#r o 1
Yamindralia_Border(config-router)#ex
Yamindralia_Border(config)#r o 1
```

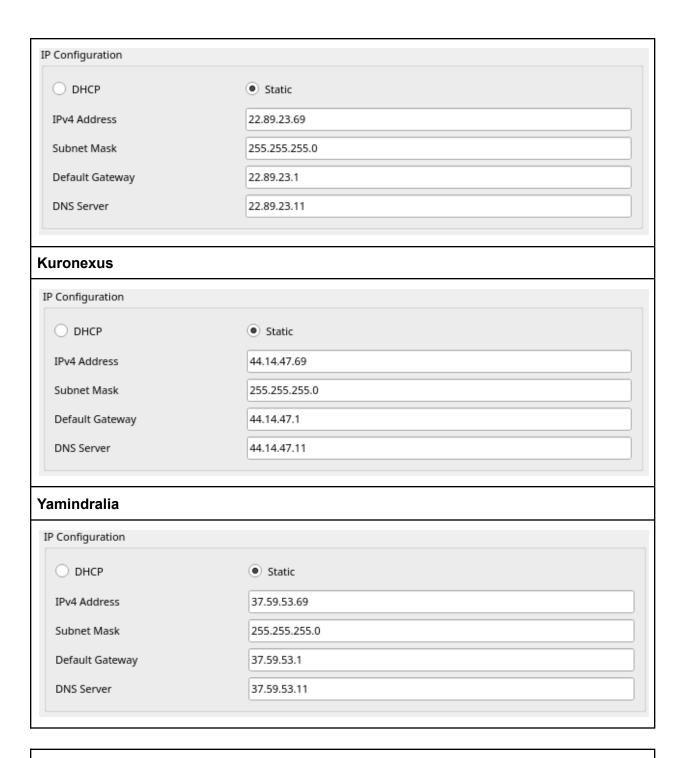
Yamindralia_Border(config-router)#re b 46 s Yamindralia_Border(config-router)#ex











```
<title>[NATION_NAME] - [NATION_TAGLINE]</title>
    <style>
       body {
            font-family: Arial, sans-serif;
            /* CUSTOMIZE: Change gradient colors for each nation */
            background: linear-gradient(135deg, [COLOR_1] 0%, [COLOR_2] 50%,
[COLOR_3] 100%);
            color: [TEXT_COLOR];
            margin: 0;
            padding: 0;
            min-height: 100vh;
       }
        .container {
            max-width: 1200px;
            margin: 0 auto;
            padding: 2rem;
           text-align: center;
       }
        .header {
            padding: 3rem 0;
            border-bottom: 2px solid rgba(255,255,255,0.3);
            margin-bottom: 3rem;
       }
        .nation-title {
            font-size: 4rem;
            font-weight: bold;
            color: [TITLE_COLOR];
            text-shadow: 2px 2px 4px rgba(0,0,0,0.3);
            margin-bottom: 1rem;
            letter-spacing: 3px;
       }
        .tagline {
            font-size: 1.5rem;
            margin-bottom: 2rem;
           font-style: italic;
            opacity: 0.9;
            color: [TAGLINE_COLOR];
       }
        .welcome-text {
            font-size: 1.2rem;
            line-height: 1.6;
            max-width: 800px;
```

```
margin: 0 auto 3rem;
}
.navigation-grid {
    display: grid;
    grid-template-columns: repeat(auto-fit, minmax(250px, 1fr));
    gap: 2rem;
    margin: 3rem 0;
}
.nav-card {
    background: rgba(255,255,255,0.1);
    border: 2px solid [BORDER_COLOR];
    border-radius: 10px;
    padding: 2rem;
    text-decoration: none;
    color: [TEXT_COLOR];
   transition: all 0.3s ease;
    display: block;
}
.nav-card:hover {
    background: rgba(255,255,255,0.2);
    border-color: [HOVER_BORDER_COLOR];
    transform: translateY(-5px);
    box-shadow: 0 8px 20px [SHADOW_COLOR];
}
.nav-card h3 {
    font-size: 1.5rem;
    margin-bottom: 1rem;
    color: [CARD_TITLE_COLOR];
}
.nav-card p {
   font-size: 1rem;
    opacity: 0.8;
    margin: 0;
}
.footer {
    margin-top: 4rem;
    padding-top: 2rem;
    border-top: 2px solid rgba(255,255,255,0.3);
   opacity: 0.7;
}
```

```
.highlight {
           background: [HIGHLIGHT_BG];
           padding: 2rem;
           border-radius: 10px;
           margin: 2rem 0;
           border-left: 4px solid [HIGHLIGHT_BORDER];
       }
       @media (max-width: 768px) {
           .nation-title {
               font-size: 2.5rem;
               letter-spacing: 1px;
           .tagline {
               font-size: 1.2rem;
           .navigation-grid {
               grid-template-columns: 1fr;
           .container {
               padding: 1rem;
       }
   </style>
</head>
<body>
   <div class="container">
       <header class="header">
           <h1 class="nation-title">[NATION_NAME_CAPS]</h1>
           [NATION_FULL_TAGLINE]
       </header>
       <main>
           <div class="highlight">
               <h2>Welcome to [NATION_DESCRIPTOR]</h2>
               [NATION_DESCRIPTION - Replace with 2-3 sentences describing the
nation's character,
                   values, and what makes it unique. Match the tone to the
nation's theme.]
               </div>
           <div class="navigation-grid">
```

```
<a href="helloworld.html" class="nav-card">
                   <h3>[EMOJI 1] Welcome Portal</h3>
                   [WELCOME_DESCRIPTION]
               </a>
               <a href="image.html" class="nav-card">
                   <h3>[EMOJI_2] [THEMED_GALLERY_NAME]</h3>
                   (p)[GALLERY_DESCRIPTION]
               </a>
               <a href="cscoptlogo177x111.jpg" class="nav-card">
                   <h3>[EMOJI_3] National Emblem</h3>
                   [EMBLEM_DESCRIPTION]
               </a>
               <a href="copyrights.html" class="nav-card">
                   <h3>[EMOJI_4] [THEMED_LEGAL_NAME]</h3>
                   [LEGAL_DESCRIPTION]
               </a>
           </div>
           <div class="highlight">
               <h2>Our [THEMED_VISION_NAME]</h2>
                   [VISION STATEMENT - Replace with 2-3 sentences about the
nation's goals,
                   future aspirations, and guiding principles. Keep consistent
with nation's theme.]
               </div>
       </main>
       <footer class="footer">
           © 2024 [NATION NAME] [NATION TYPE]. [NATION MOTTO].
           \[NATION_VALUES_STATEMENT]
       </footer>
   </div>
</body>
</html>
<!--
CUSTOMIZATION GUIDE:
_____
COLORS TO REPLACE:
- [COLOR_1] - Primary gradient color (darkest)
- [COLOR_2] - Middle gradient color
```

```
- [COLOR_3] - End gradient color (lightest)
- [TEXT COLOR] - Main text color
- [TITLE_COLOR] - Nation title color
- [TAGLINE_COLOR] - Tagline color
- [BORDER COLOR] - Card border color (with transparency)
- [HOVER_BORDER_COLOR] - Card hover border color
- [SHADOW_COLOR] - Hover shadow color (with transparency)
- [CARD_TITLE_COLOR] - Card title color
- [HIGHLIGHT BG] - Highlight box background (with transparency)
- [HIGHLIGHT_BORDER] - Highlight box left border color
TEXT TO REPLACE:
- [NATION_NAME] - Nation name (normal case)
- [NATION_NAME_CAPS] - Nation name (ALL CAPS)
- [NATION_TAGLINE] - Short tagline for title
- [NATION FULL TAGLINE] - Full tagline displayed on page
- [NATION_DESCRIPTOR] - "the [adjective] Nation/Realm/etc"
- [NATION_DESCRIPTION] - Welcome paragraph
- [NATION_TYPE] - "Digital Nation", "Crimson Nation", etc.
- [NATION_MOTTO] - Short motto for footer
- [NATION_VALUES_STATEMENT] - Values statement for footer
THEMED ELEMENTS:
- [EMOJI_1] through [EMOJI_4] - Appropriate emojis for each card
- [THEMED GALLERY NAME] - Gallery name matching theme (e.g., "Crimson Gallery")
- [THEMED_LEGAL_NAME] - Legal section name (e.g., "Shadow Code", "Sacred Laws")
- [THEMED VISION NAME] - Vision section name (e.g., "Burning Vision", "Ethereal
Vision")
- [WELCOME_DESCRIPTION] - Description for welcome portal
- [GALLERY_DESCRIPTION] - Description for image gallery
- [EMBLEM_DESCRIPTION] - Description for national emblem
- [LEGAL_DESCRIPTION] - Description for legal section
- [VISION_STATEMENT] - Nation's vision statement
EXAMPLE COLOR SCHEMES:
_____
BLUE THEME (Gokouloryn):
- COLOR_1: #1e3c72, COLOR_2: #2a5298, COLOR_3: #2a5298
- TEXT_COLOR: white, TITLE_COLOR: #87ceeb, TAGLINE_COLOR: white
RED THEME (Rurinthia):
- COLOR 1: #8b0000, COLOR 2: #dc143c, COLOR 3: #b22222
- TEXT_COLOR: white, TITLE_COLOR: #ffcccb, TAGLINE_COLOR: #ffa07a
DARK THEME (Kuronexus):
- COLOR_1: #0a0a0a, COLOR_2: #1a1a1a, COLOR_3: #2d2d2d
```

```
- TEXT_COLOR: #e0e0e0, TITLE_COLOR: #c0c0c0, TAGLINE_COLOR: #a0a0a0

PURPLE THEME (Yamindralia):
- COLOR_1: #e6e6fa, COLOR_2: #dda0dd, COLOR_3: #d8bfd8
- TEXT_COLOR: #4a4a4a, TITLE_COLOR: #8b008b, TAGLINE_COLOR: #9370db
-->
```

ACL Config

```
Gokouloryn_GovR(config)#ac 100 permit ospf any any
Gokouloryn_GovR(config)#ac 100 permit udp host 11.70.14.2 eg 67 11.70.13.0
0.0.0.255 eq 67
Gokouloryn_GovR(config)#ac 100 permit udp host 11.70.14.11 eq 53 11.70.13.0
0.0.0.255
Gokouloryn_GovR(config)#ac 100 permit tcp any 11.70.13.0 0.0.0.255
established
Gokouloryn_GovR(config)#ac 100 permit ip 22.89.22.0 0.0.0.255 11.70.13.0
0.0.0.255
Gokouloryn_GovR(config)#ac 100 permit ip 44.14.46.0 0.0.0.255 11.70.13.0
0.0.0.255
Gokouloryn_GovR(config)#ac 100 permit ip 37.59.52.0 0.0.0.255 11.70.13.0
0.0.0.255
Gokouloryn_GovR(config)#ac 100 permit icmp any 11.70.13.0 0.0.0.255
echo-reply
Gokouloryn_GovR(config)#in g0/1
Gokouloryn_GovR(config-if)#ip ac 100 in
Gokouloryn_GovR(config-if)#ex
Gokouloryn_EntR(config)#ac 100 permit ospf any any
Gokouloryn_EntR(config)#ac 100 permit ip 11.70.13.0 0.0.0.255 any
Gokouloryn_EntR(config)#ac 100 permit tcp any 11.70.14.0 0.0.0.255 eq 443
Gokouloryn_EntR(config)#ac 100 permit udp any eq 53 host 11.70.14.11
Gokouloryn_EntR(config)#ac 100 permit udp any host 11.70.14.11 eg 53
Gokouloryn_EntR(config)#ac 100 permit udp 11.70.0.0 0.0.255.255 eq 68 host
11.70.14.2 eq 67
Gokouloryn_EntR(config)#in g0/1
Gokouloryn_EntR(config-if)#ip ac 100 in
Gokouloryn_EntR(config-if)#ex
Rurinthia_GovR(config)#ac 100 permit ospf any any
Rurinthia_GovR(config)#ac 100 permit udp host 22.89.23.2 eq 67 22.89.22.0
0.0.0.255 ea 67
Rurinthia_GovR(config)#ac 100 permit udp host 22.89.23.11 eg 53 22.89.22.0
0.0.0.255
Rurinthia_GovR(config)#ac 100 permit tcp any 22.89.22.0 0.0.0.255
established
Rurinthia_GovR(config)#ac 100 permit ip 11.70.13.0 0.0.0.255 22.89.22.0
Rurinthia_GovR(config)#ac 100 permit ip 44.14.46.0 0.0.0.255 22.89.22.0
0.0.0.255
```

```
Rurinthia_GovR(config)#ac 100 permit ip 37.59.52.0 0.0.0.255 22.89.22.0
0.0.0.255
Rurinthia_GovR(config)#ac 100 permit icmp any 22.89.22.0 0.0.0.255
echo-reply
Rurinthia_GovR(config)#in g0/1
Rurinthia_GovR(config-if)#ip ac 100 in
Rurinthia_GovR(config-if)#ex
Rurinthia_EntR(config)#ac 100 permit ospf any any
Rurinthia_EntR(config)#ac 100 permit ip 22.89.22.0 0.0.0.255 any
Rurinthia_EntR(config)#ac 100 permit tcp any 22.89.23.0 0.0.0.255 eq 443
Rurinthia_EntR(config)#ac 100 permit udp any eq 53 host 22.89.23.11
Rurinthia_EntR(config)#ac 100 permit udp any host 22.89.23.11 eq 53
Rurinthia_EntR(config)#ac 100 permit udp 22.89.0.0 0.0.255.255 eq 68 host
22.89.23.2 eq 67
Rurinthia_EntR(config)#in g0/1
Rurinthia_EntR(config-if)#ip ac 100 in
Rurinthia_EntR(config-if)#ex
Kuronexus_GovR(config)#ac 100 permit ospf any any
Kuronexus_GovR(config)#ac 100 permit udp host 44.14.47.2 eg 67 44.14.46.0
0.0.0.255 eq 67
Kuronexus_GovR(config)#ac 100 permit udp host 44.14.47.11 eg 53 44.14.46.0
0.0.0.255
Kuronexus_GovR(config)#ac 100 permit tcp any 44.14.46.0 0.0.0.255
established
Kuronexus_GovR(config)#ac 100 permit ip 11.70.13.0 0.0.0.255 44.14.46.0
0.0.0.255
Kuronexus_GovR(config)#ac 100 permit ip 22.89.22.0 0.0.0.255 44.14.46.0
0.0.0.255
Kuronexus_GovR(config)#ac 100 permit ip 37.59.52.0 0.0.0.255 44.14.46.0
0.0.0.255
Kuronexus_GovR(config)#ac 100 permit icmp any 44.14.46.0 0.0.0.255
echo-replv
Kuronexus_GovR(config)#in g0/1
Kuronexus_GovR(config-if)#ip ac 100 in
Kuronexus_GovR(config-if)#ex
Kuronexus_EntR(config)#ac 100 permit ospf any any
Kuronexus_EntR(config)#ac 100 permit ip 44.14.46.0 0.0.0.255 any
Kuronexus_EntR(config)#ac 100 permit tcp any 44.14.47.0 0.0.0.255 eq 443
Kuronexus_EntR(config)#ac 100 permit udp any eq 53 host 44.14.47.11
Kuronexus_EntR(config)#ac 100 permit udp any host 44.14.47.11 eg 53
Kuronexus_EntR(config)#ac 100 permit udp 44.14.0.0 0.0.255.255 eq 68 host
44.14.47.2 eq 67
Kuronexus_EntR(config)#in g0/1
Kuronexus_EntR(config-if)#ip ac 100 in
Kuronexus_EntR(config-if)#ex
Yamindralia_GovR(config)#ac 100 permit ospf any any
Yamindralia_GovR(config)#ac 100 permit udp host 37.59.53.2 eg 67 37.59.52.0
0.0.0.255 eq 67
Yamindralia_GovR(config)#ac 100 permit udp host 37.59.53.11 eq 53 37.59.52.0
```

```
0.0.0.255
Yamindralia_GovR(config)#ac 100 permit tcp any 37.59.52.0 0.0.0.255
established
Yamindralia_GovR(config)#ac 100 permit ip 11.70.13.0 0.0.0.255 37.59.52.0
0.0.0.255
Yamindralia_GovR(config)#ac 100 permit ip 22.89.22.0 0.0.0.255 37.59.52.0
Yamindralia_GovR(config)#ac 100 permit ip 44.14.46.0 0.0.0.255 37.59.52.0
0.0.0.255
Yamindralia_GovR(config)#ac 100 permit icmp any 37.59.52.0 0.0.0.255
echo-reply
Yamindralia GovR(config)#in g0/1
Yamindralia_GovR(config-if)#ip ac 100 in
Yamindralia_GovR(config-if)#ex
Yamindralia_EntR(config)#ac 100 permit ospf any any
Yamindralia_EntR(config)#ac 100 permit ip 37.59.52.0 0.0.0.255 any
Yamindralia_EntR(config)#ac 100 permit tcp any 37.59.53.0 0.0.0.255 eq 443
Yamindralia_EntR(config)#ac 100 permit udp any eg 53 host 37.59.53.11
Yamindralia_EntR(config)#ac 100 permit udp any host 37.59.53.11 eq 53
Yamindralia_EntR(config)#ac 100 permit udp 37.59.0.0 0.0.255.255 eg 68 host
37.59.53.2 eq 67
Yamindralia EntR(config)#in g0/1
Yamindralia_EntR(config-if)#ip ac 100 in
Yamindralia_EntR(config-if)#ex
```

NAT Config

```
Gokouloryn_Border(config)#in g0/0
Gokouloryn_Border(config-if)#ip nat in
Gokouloryn_Border(config-if)#in g0/1
Gokouloryn_Border(config-if)#ip nat o
Gokouloryn_Border(config-if)#ex
Gokouloryn_Border(config)#ac 1 permit 11.70.0.0 0.0.255.254
Gokouloryn_Border(config)#ip nat in so l 1 in g0/1 o
```

IPv6 Config

```
Rurinthia_Border(config)#in g0/0
Rurinthia_Border(config-if)#ipv en
Rurinthia_Border(config-if)#ipv add 2001:ae86:1983:1::1/64
Rurinthia_Border(config-if)#ex

Rurinthia_GovR(config)#in g0/1
Rurinthia_GovR(config-if)#ipv en
Rurinthia_GovR(config-if)#ipv add 2001:ae86:1983:1::2/64
Rurinthia_GovR(config-if)#in g0/0
```

```
Rurinthia GovR(config-if)#ipv en
Rurinthia_GovR(config-if)#ipv add 2001:ae86:1983:2::1/64
Rurinthia_GovR(config-if)#ex
Rurinthia_EntR(config)#in g0/1
Rurinthia_EntR(config-if)#ipv en
Rurinthia_EntR(config-if)#ipv add 2001:ae86:1983:1::3/64
Rurinthia_EntR(config-if)#in g0/0
Rurinthia_EntR(config-if)#ipv en
Rurinthia_EntR(config-if)#ipv add 2001:ae86:1983:3::1/64
Rurinthia_EntR(config-if)#ex
Rurinthia_PubR(config)#in g0/1
Rurinthia_PubR(config-if)#ipv en
Rurinthia_PubR(config-if)#ipv add 2001:ae86:1983:1::4/64
Rurinthia_PubR(config-if)#in g0/0
Rurinthia_PubR(config-if)#ipv en
Rurinthia_PubR(config-if)#ipv add 2001:ae86:1983:4::1/64
Rurinthia_PubR(config-if)#ex
Yamindralia_Border(config)#in g0/0
Yamindralia_Border(config-if)#ipv en
Yamindralia_Border(config-if)#ipv add 2001:fd32:1987:1::1/64
Yamindralia_Border(config-if)#ex
Yamindralia_GovR(config)#in g0/1
Yamindralia_GovR(config-if)#ipv en
Yamindralia_GovR(config-if)#ipv add 2001:fd32:1987:1::2/64
Yamindralia_GovR(config-if)in g0/0
Yamindralia_GovR(config-if)#ipv en
Yamindralia_GovR(config-if)#ipv add 2001:fd32:1987:2::1/64
Yamindralia_GovR(config-if)#ex
Yamindralia EntR(config)#in g0/1
Yamindralia_EntR(config-if)#ipv en
Yamindralia_EntR(config-if)#ipv add 2001:fd32:1987:1::3/64
Yamindralia_EntR(config-if)#in g0/0
Yamindralia_EntR(config-if)#ipv en
Yamindralia_EntR(config-if)#ipv add 2001:fd32:1987:3::1/64
Yamindralia_EntR(config-if)#ex
Yamindralia_PubR(config)#in g0/1
Yamindralia_PubR(config-if)#ipv en
Yamindralia_PubR(config-if)#ipv add 2001:fd32:1987:1::4/64
Yamindralia_PubR(config-if)#in g0/0
Yamindralia_PubR(config-if)#ipv en
Yamindralia_PubR(config-if)#ipv add 2001:fd32:1987:4::1/64
Yamindralia_PubR(config-if)#ex
```

IPv6 Routing Config

```
Rurinthia Border(config)#ipv uni
Rurinthia_Border(config)#ipv router o 1
Rurinthia_Border(config-rtr)#ex
Rurinthia_Border(config)#in g0/0
Rurinthia_Border(config-if)#ipv o 1 area 0
Rurinthia_Border(config-if)#ex
Rurinthia_GovR(config)#ipv uni
Rurinthia_GovR(config)#ipv router o 1
Rurinthia_GovR(config-rtr)#ex
Rurinthia_GovR(config)#in g0/1
Rurinthia GovR(config-if)#ipv o 1 area 0
Rurinthia_GovR(config-if)#in q0/0
Rurinthia_GovR(config-if)#ipv o 1 area 1
Rurinthia_GovR(config-if)#ex
Rurinthia_EntR(config)#ipv uni
Rurinthia_EntR(config)#ipv router o 1
Rurinthia_EntR(config-rtr)#ex
Rurinthia_EntR(config)#in g0/1
Rurinthia_EntR(config-if)#ipv o 1 area 0
Rurinthia_EntR(config-if)#in g0/0
Rurinthia EntR(config-if)#ipv o 1 area 2
Rurinthia_EntR(config-if)#ex
Rurinthia_PubR(config)#ipv uni
Rurinthia_PubR(config)#ipv router o 1
Rurinthia_PubR(config-rtr)#ex
Rurinthia_PubR(config)#in g0/1
Rurinthia_PubR(config-if)#ipv o 1 area 0
Rurinthia_PubR(config-if)#ex
Rurinthia_PubR(config)#in g0/0
Rurinthia_PubR(config-if)#ipv o 1 area 3
Rurinthia_PubR(config-if)#ex
Yamindralia_Border(config)#ipv uni
Yamindralia_Border(config)#ipv router o 1
Yamindralia_Border(config-rtr)#ex
Yamindralia_Border(config)#in g0/0
Yamindralia_Border(config-if)#ipv o 1 area 0
Yamindralia_Border(config-if)#ex
Yamindralia_GovR(config)#ipv uni
Yamindralia_GovR(config)#ipv router o 1
Yamindralia GovR(config-rtr)#ex
Yamindralia_GovR(config)#in g0/1
Yamindralia_GovR(config-if)#ipv o 1 area 0
Yamindralia_GovR(config-if)#in g0/0
Yamindralia_GovR(config-if)#ipv o 1 area 1
Yamindralia_EntR(config)#ipv uni
Yamindralia_EntR(config)#ipv router o 1
Yamindralia_EntR(config-rtr)#ex
```

```
Yamindralia_EntR(config)#in g0/1
Yamindralia_EntR(config-if)#ipv o 1 area 0
Yamindralia_EntR(config-if)#ex
Yamindralia_EntR(config)#in g0/0
Yamindralia_EntR(config-if)#ipv o 1 area 2
Yamindralia_EntR(config-if)#ex

Yamindralia_PubR(config)#ipv uni
Yamindralia_PubR(config)#ipv router o 1
Yamindralia_PubR(config-rtr)#ex
Yamindralia_PubR(config)#in g0/1
Yamindralia_PubR(config-if)#ipv o 1 area 0
Yamindralia_PubR(config-if)#ex
Yamindralia_PubR(config)#in g0/0
Yamindralia_PubR(config-if)#ipv o 1 area 3
Yamindralia_PubR(config-if)#ex
```

IPv6 Tunneling Config

```
Rurinthia_Border(config)#in t0
Rurinthia_Border(config-if)#ipv add 3000::1/64
Rurinthia_Border(config-if)#t s g0/1
Rurinthia_Border(config-if)#t d 50.98.28.2
Rurinthia_Border(config-if)#t m ipv
Yamindralia_Border(config)#in t0
Yamindralia_Border(config-if)#ipv add 3000::2/64
Yamindralia_Border(config-if)#t s g0/1
Yamindralia_Border(config-if)#t d 49.64.99.2
Yamindralia_Border(config-if)#t m ipv
```

IPv6 Static Routing Config

```
Rurinthia_Border(config)#ipv route 2001:fd32:1987::/48 3000::2
Rurinthia_Border(config)#ipv router o 1
Rurinthia_Border(config-rtr)#red s

Yamindralia_Border(config)#ipv route 2001:ae86:1983::/48 3000::1
Yamindralia_Border(config)#ipv router o 1
Yamindralia_Border(config-rtr)#red s
```

IPv6 DHCP Config

```
Rurinthia_GovR(config)#ipv dh po Rurinthia_Gov_Zone
Rurinthia_GovR(config-dhcpv6)#add pre 2001:ae86:1983:2::/64
Rurinthia_GovR(config-dhcpv6)#dns 2001:ae86:1983:3::11
Rurinthia_GovR(config-dhcpv6)#domain-name gov.rr
```

```
Rurinthia GovR(config-dhcpv6)#ex
Rurinthia_GovR(config)#in g0/0
Rurinthia_GovR(config-if)#ipv dh se Rurinthia_Gov_Zone
Rurinthia_GovR(config-if)#ipv nd m
Rurinthia_GovR(config-if)#ipv nd o
Rurinthia_GovR(config-if)#ex
Rurinthia_EntR(config)#ipv dh po Rurinthia_Ent_Zone
Rurinthia_EntR(config-dhcpv6)#add pre 2001:ae86:1983:3::/64
Rurinthia_EntR(config-dhcpv6)#dns 2001:ae86:1983:3::11
Rurinthia_EntR(config-dhcpv6)#domain-name ent.rr
Rurinthia EntR(config-dhcpv6)#ex
Rurinthia_EntR(config)#in g0/0
Rurinthia_EntR(config-if)#ipv nd m
Rurinthia_EntR(config-if)#ipv nd o
Rurinthia_EntR(config-if)#ipv dh se Rurinthia_Ent_Zone
Rurinthia_EntR(config-if)#ex
Rurinthia_PubR(config)#ipv dh po Rurinthia_Pub_Zone
Rurinthia_PubR(config-dhcpv6)#add pre 2001:ae86:1983:4::/64
Rurinthia_PubR(config-dhcpv6)#dns 2001:ae86:1983:3::11
Rurinthia_PubR(config-dhcpv6)#domain-name public.ym
Rurinthia PubR(config-dhcpv6)#ex
Rurinthia_PubR(config)#in g0/0
Rurinthia_PubR(config-if)#ipv nd m
Rurinthia_PubR(config-if)#ipv nd o
Rurinthia_PubR(config-if)#ipv dh se Rurinthia_Pub_Zone
Rurinthia_PubR(config-if)#ex
Yamindralia_GovR(config)#ipv dh po Yamindralia_Gov_Zone
Yamindralia_GovR(config-dhcpv6)#add pre 2001:fd32:1987:2::/64
Yamindralia_GovR(config-dhcpv6)#dns 2001:fd32:1987:3::11
Yamindralia_GovR(config-dhcpv6)#domain-name gov.ym
Yamindralia GovR(config-dhcpv6)#ex
Yamindralia_GovR(config)#in g0/0
Yamindralia_GovR(config-if)#ipv dh se Yamindralia_Gov_Zone
Yamindralia_GovR(config-if)#ipv nd m
Yamindralia_GovR(config-if)#ipv nd o`
Yamindralia_EntR(config)#ipv dh po Yamindralia_Ent_Zone
Yamindralia_EntR(config-dhcpv6)#add pre 2001:fd32:1987:3::/64
Yamindralia_EntR(config-dhcpv6)#dns 2001:fd32:1987:3::11
Yamindralia_EntR(config-dhcpv6)#domain-name ent.ym
Yamindralia_EntR(config-dhcpv6)#ex
Yamindralia_EntR(config)#in g0/0
Yamindralia_EntR(config-if)#ipv nd m
Yamindralia_EntR(config-if)#ipv nd o
Yamindralia_EntR(config-if)#ipv dh se Yamindralia_Ent_Zone
Yamindralia_EntR(config-if)#ex
Yamindralia_PubR(config)#ipv dh po Yamindralia_Pub_Zone
Yamindralia_PubR(config-dhcpv6)#add pre 2001:fd32:1987:4::/64
Yamindralia_PubR(config-dhcpv6)#dns 2001:fd32:1987:3::11
```

Yamindralia_PubR(config-dhcpv6)#domain-name public.ym
Yamindralia_PubR(config-dhcpv6)#ex
Yamindralia_PubR(config)#in g0/0
Yamindralia_PubR(config-if)#ipv nd m
Yamindralia_PubR(config-if)#ipv nd o
Yamindralia_PubR(config-if)#ipv dh se Yamindralia_Pub_Zone
Yamindralia_PubR(config-if)#ex

