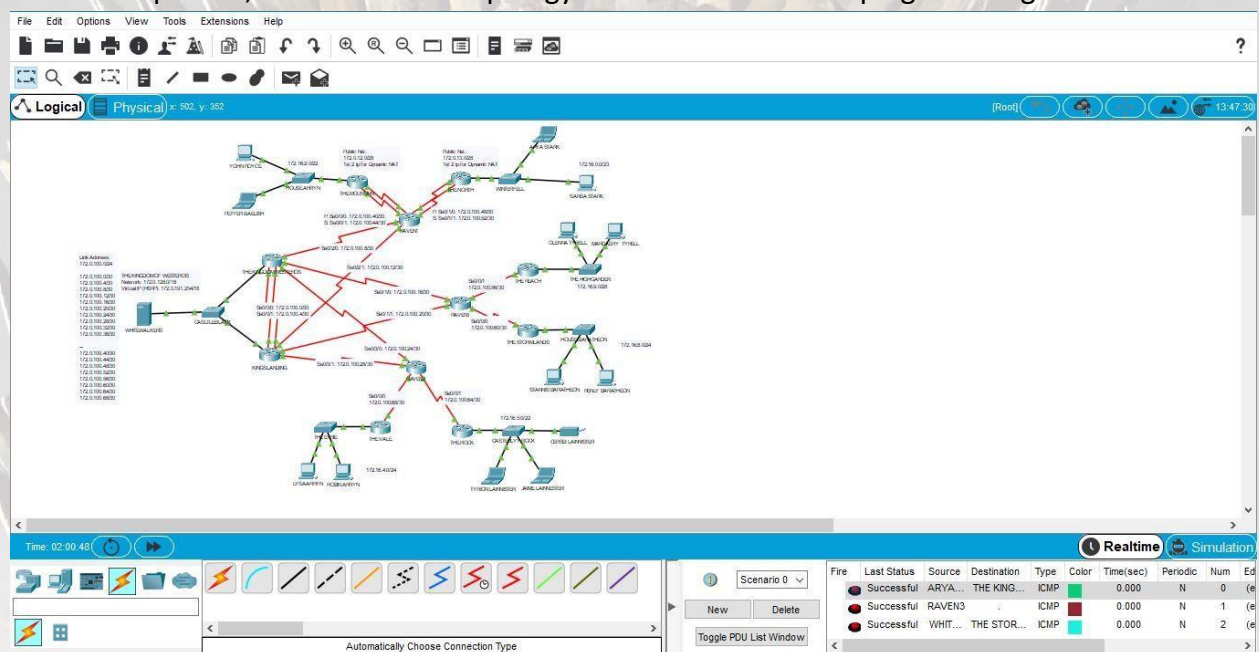


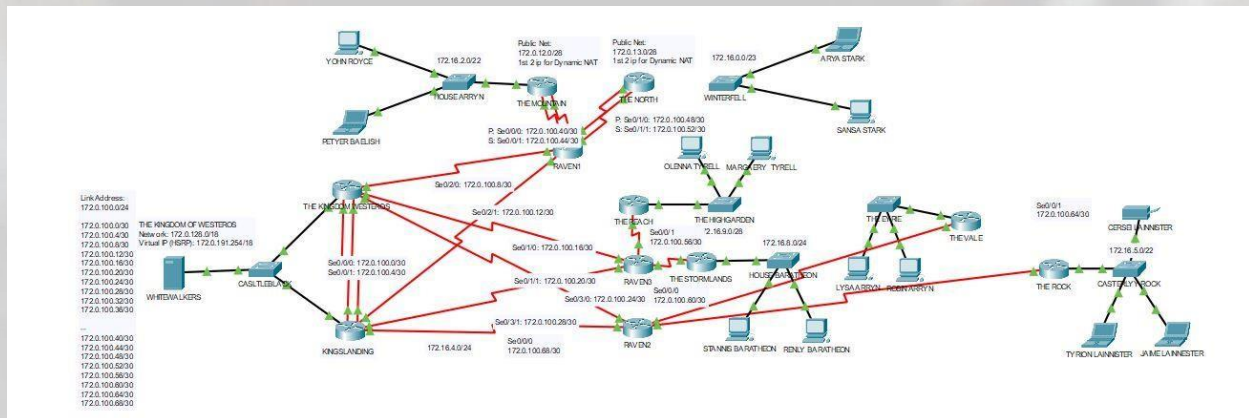
1. Network topology diagram with proper labels.

We build this network topology in Packet Tracer v7.3.1

Here in this picture, we can see our topology with some successful ping in the right below corner.



We tried to make the label visible in this picture, but it's very clear in pkt files



Description of our work with the topology and networks

Here we have done two type of configuration in this network. As we created 2 type of network, public network (172.0), Private network (172.16). Routers of Public Networks are mainly ISP which are THE_KINGDOM_OF_WESTEROS as main router, KINGSLANDING as backup or secondary router, RAVEN1, RAVEN2, RAVEN3 as ISP to link 6 kingdoms with the main router. These 5 routers were configured dynamically. We applied RIP (Routing Information Protocol)

The private network was applied on those 6 kingdoms THENORTH, THEMOUNTAIN, THEVALE, THE_ROCK, THESTORMLANDS and THEREACH. These 6 routers were configured in static configuration. We also used dynamic NAT to enable the privacy of 6 kingdoms internal network which will prevent white-walkers from accessing the kingdoms internal network.

Two Main routers THE_KINGDOM_OF_WESTEROS and KINGSLANDING (backup) are configured in same manner and these two routers are connected as floating routing with a protocol. THE_KINGDOM_OF_WESTEROS router is main ISP and will be functioning and KINGSLANDING will be the backup route and will stay in standby mode. These two routers are connected with each raven dynamically.

And we also have a server name WHITEWALKERS which is connected with A SWITCH name CASTLEBLACK and this switch is connected with 2 main routers which is a public server. Means anyone can access it, send PDU to this server from any pc. But as the 6 kingdoms are in private network server can't send PDU to end devices. It has its reach till the kingdom's router. And also, in any public routers.

In short summary,

1. We have Choose an appropriate network address and create subnets to assign to each of the places and to get the least amount of waste we used vlsm.
2. We have assigned IP addresses to all the devices and interfaces of the network
3. We created The White-walkers (10000) have a web server to spread their propaganda and recruit white-walkers.

4. We establish connections among all the networks with the shortest route possible we used in total 11 routers, 7 switches, 12 pcs, 1 printer and 1 server. We connected routers with each other by Serial DCE cable and we connected switch and end devices with copper Straight-Through cable
 - i. We have two floating routes (excluding main and backup connection)
 - ii. We have a backup system to handle missing routing entries named as KINGSLANDING
 - iii. We configure half of the network to be routed dynamically and half statically.
5. We showed 2 end devices per network to represent the whole population except the rock. It has two laptops and printers
6. We can ping each other routers after all the setups are complete. Just pc of 1 kingdom can't ping pc of another kingdom but can ping other kingdom's router and all public routers and the server. But the server can't ping pc of kingdoms. It only can ping till the routers of kingdom.
7. We labelled the whole networks path router serial port, IP address and devices and mediums name.

2. The Configuration of all routers that we have implemented in the topology.

NOW we will write the whole configuration of this network's routers and the serial port as the path way

1. Public routers are connected with serial port. And we set ip address and showed paths to connected with each and every router. This are for 5 ISP routers.

THE_KINGDOM_OF_WESTEROS

172.0.0.0/16 is variably subnetted, 23 subnets, 3 masks

C 172.0.100.0/30 is directly connected, Serial0/0/0

L 172.0.100.1/32 is directly connected, Serial0/0/0

C 172.0.100.4/30 is directly connected, Serial0/0/1

L 172.0.100.5/32 is directly connected, Serial0/0/1

C 172.0.100.8/30 is directly connected, Serial0/2/0

L 172.0.100.10/32 is directly connected, Serial0/2/0

R 172.0.100.12/30 [120/1] via 172.0.100.2, 00:00:17, Serial0/0/0

[120/1] via 172.0.100.6, 00:00:17, Serial0/0/1 [120/1]

via 172.0.100.9, 00:00:17, Serial0/2/0

C 172.0.100.16/30 is directly connected, Serial0/1/0

L 172.0.100.18/32 is directly connected, Serial0/1/0

%HSRP-6-STATECHANGE: GigabitEthernet0/0 Grp 1 state Speak -> Standby

%HSRP-6-STATECHANGE: GigabitEthernet0/0 Grp 1 state Standby -> Active

R 172.0.100.20/30 [120/1] via 172.0.100.17, 00:00:18, Serial0/1/0

[120/1] via 172.0.100.2, 00:00:17, Serial0/0/0 [120/1]

via 172.0.100.6, 00:00:17, Serial0/0/1

C 172.0.100.24/30 is directly connected, Serial0/3/0

L 172.0.100.26/32 is directly connected, Serial0/3/0

R 172.0.100.28/30 [120/1] via 172.0.100.25, 00:00:18, Serial0/3/0

[120/1] via 172.0.100.2, 00:00:17, Serial0/0/0

[120/1] via 172.0.100.6, 00:00:17, Serial0/0/1

R 172.0.100.40/30 [120/1] via 172.0.100.9, 00:00:17, Serial0/2/0

R 172.0.100.44/30 [120/1] via 172.0.100.9, 00:00:17, Serial0/2/0
R 172.0.100.48/30 [120/1] via 172.0.100.9, 00:00:17, Serial0/2/0
R 172.0.100.52/30 [120/1] via 172.0.100.9, 00:00:17, Serial0/2/0
R 172.0.100.56/30 [120/1] via 172.0.100.17, 00:00:18, Serial0/1/0
R 172.0.100.60/30 [120/1] via 172.0.100.17, 00:00:18, Serial0/1/0
R 172.0.100.64/30 [120/1] via 172.0.100.25, 00:00:18, Serial0/3/0
R 172.0.100.68/30 [120/1] via 172.0.100.25, 00:00:18, Serial0/3/0
C 172.0.128.0/18 is directly connected, GigabitEthernet0/0
L 172.0.128.1/32 is directly connected, GigabitEthernet0/0

KINGSLANDING

172.0.0.0/16 is variably subnetted, 23 subnets, 3 masks
C 172.0.100.0/30 is directly connected, Serial0/0/0
L 172.0.100.2/32 is directly connected, Serial0/0/0
C 172.0.100.4/30 is directly connected, Serial0/0/1
L 172.0.100.6/32 is directly connected, Serial0/0/1
R 172.0.100.8/30 [120/1] via 172.0.100.13, 00:00:17, Serial0/2/1
[120/1] via 172.0.100.5, 00:00:20, Serial0/0/1
[120/1] via 172.0.100.1, 00:00:20, Serial0/0/0
[120/1] via 172.0.128.1, 00:00:20, GigabitEthernet0/0
C 172.0.100.12/30 is directly connected, Serial0/2/1
L 172.0.100.14/32 is directly connected, Serial0/2/1
R 172.0.100.16/30 [120/1] via 172.0.100.1, 00:00:20, Serial0/0/0
[120/1] via 172.0.100.5, 00:00:20, Serial0/0/1
[120/1] via 172.0.100.21, 00:00:26, Serial0/1/1
[120/1] via 172.0.128.1, 00:00:20, GigabitEthernet0/0
C 172.0.100.20/30 is directly connected, Serial0/1/1
L 172.0.100.22/32 is directly connected, Serial0/1/1

R 172.0.100.24/30 [120/1] via 172.0.100.5, 00:00:20, Serial0/0/1
[120/1] via 172.0.100.1, 00:00:20, Serial0/0/0
[120/1] via 172.0.100.29, 00:00:18, Serial0/3/1
[120/1] via 172.0.128.1, 00:00:20, GigabitEthernet0/0
C 172.0.100.28/30 is directly connected, Serial0/3/1
L 172.0.100.30/32 is directly connected, Serial0/3/1
R 172.0.100.40/30 [120/1] via 172.0.100.13, 00:00:17, Serial0/2/1 R
172.0.100.44/30 [120/1] via 172.0.100.13, 00:00:17, Serial0/2/1
R 172.0.100.48/30 [120/1] via 172.0.100.13, 00:00:17, Serial0/2/1 R
172.0.100.52/30 [120/1] via 172.0.100.13, 00:00:17, Serial0/2/1
R 172.0.100.56/30 [120/1] via 172.0.100.21, 00:00:26, Serial0/1/1
R 172.0.100.60/30 [120/1] via 172.0.100.21, 00:00:26, Serial0/1/1
R 172.0.100.64/30 [120/1] via 172.0.100.29, 00:00:18, Serial0/3/1
R 172.0.100.68/30 [120/1] via 172.0.100.29, 00:00:18, Serial0/3/1
C 172.0.128.0/18 is directly connected, GigabitEthernet0/0
L 172.0.128.2/32 is directly connected, GigabitEthernet0/0

RAVEN1:

172.0.0.0/16 is variably subnetted, 25 subnets, 4 masks
S 172.0.12.0/28 is directly connected, Serial0/0/0
S 172.0.13.0/28 is directly connected, Serial0/1/0
R 172.0.100.0/30 [120/1] via 172.0.100.14, 00:00:09, Serial0/2/1
[120/1] via 172.0.100.10, 00:00:23, Serial0/2/0
R 172.0.100.4/30 [120/1] via 172.0.100.14, 00:00:09, Serial0/2/1
[120/1] via 172.0.100.10, 00:00:23, Serial0/2/0
C 172.0.100.8/30 is directly connected, Serial0/2/0
L 172.0.100.9/32 is directly connected, Serial0/2/0
C 172.0.100.12/30 is directly connected, Serial0/2/1

L 172.0.100.13/32 is directly connected, Serial0/2/1
R 172.0.100.16/30 [120/1] via 172.0.100.10, 00:00:23, Serial0/2/0 R
172.0.100.20/30 [120/1] via 172.0.100.14, 00:00:09, Serial0/2/1
R 172.0.100.24/30 [120/1] via 172.0.100.10, 00:00:23, Serial0/2/0
R 172.0.100.28/30 [120/1] via 172.0.100.14, 00:00:09, Serial0/2/1
C 172.0.100.40/30 is directly connected, Serial0/0/0
L 172.0.100.42/32 is directly connected, Serial0/0/0
C 172.0.100.44/30 is directly connected, Serial0/0/1
L 172.0.100.46/32 is directly connected, Serial0/0/1
C 172.0.100.48/30 is directly connected, Serial0/1/0
L 172.0.100.50/32 is directly connected, Serial0/1/0
C 172.0.100.52/30 is directly connected, Serial0/1/1
L 172.0.100.54/32 is directly connected, Serial0/1/1
R 172.0.100.56/30 [120/2] via 172.0.100.14, 00:00:09, Serial0/2/1
[120/2] via 172.0.100.10, 00:00:23, Serial0/2/0
R 172.0.100.60/30 [120/2] via 172.0.100.14, 00:00:09, Serial0/2/1
[120/2] via 172.0.100.10, 00:00:23, Serial0/2/0
R 172.0.100.64/30 [120/2] via 172.0.100.14, 00:00:09, Serial0/2/1
[120/2] via 172.0.100.10, 00:00:23, Serial0/2/0
R 172.0.100.68/30 [120/2] via 172.0.100.14, 00:00:09, Serial0/2/1
[120/2] via 172.0.100.10, 00:00:23, Serial0/2/0
R 172.0.128.0/18 [120/1] via 172.0.100.14, 00:00:09, Serial0/2/1
[120/1] via 172.0.100.10, 00:00:23, Serial0/2/0

RAVEN2:

172.0.0.0/16 is variably subnetted, 21 subnets, 3 masks

R 172.0.100.0/30 [120/1] via 172.0.100.26, 00:00:18, Serial0/3/0

[120/1] via 172.0.100.30, 00:00:05, Serial0/3/1
R 172.0.100.4/30 [120/1] via 172.0.100.26, 00:00:18, Serial0/3/0
[120/1] via 172.0.100.30, 00:00:05, Serial0/3/1
R 172.0.100.8/30 [120/1] via 172.0.100.26, 00:00:18, Serial0/3/0
R 172.0.100.12/30 [120/1] via 172.0.100.30, 00:00:05, Serial0/3/1
R 172.0.100.16/30 [120/1] via 172.0.100.26, 00:00:18, Serial0/3/0
R 172.0.100.20/30 [120/1] via 172.0.100.30, 00:00:05, Serial0/3/1
C 172.0.100.24/30 is directly connected, Serial0/3/0
L 172.0.100.25/32 is directly connected, Serial0/3/0
C 172.0.100.28/30 is directly connected, Serial0/3/1
L 172.0.100.29/32 is directly connected, Serial0/3/1
R 172.0.100.40/30 [120/2] via 172.0.100.30, 00:00:05, Serial0/3/1
[120/2] via 172.0.100.26, 00:00:18, Serial0/3/0
R 172.0.100.44/30 [120/2] via 172.0.100.30, 00:00:05, Serial0/3/1
[120/2] via 172.0.100.26, 00:00:18, Serial0/3/0
R 172.0.100.48/30 [120/2] via 172.0.100.30, 00:00:05, Serial0/3/1
[120/2] via 172.0.100.26, 00:00:18, Serial0/3/0
R 172.0.100.52/30 [120/2] via 172.0.100.30, 00:00:05, Serial0/3/1
[120/2] via 172.0.100.26, 00:00:18, Serial0/3/0
R 172.0.100.56/30 [120/2] via 172.0.100.26, 00:00:18, Serial0/3/0
[120/2] via 172.0.100.30, 00:00:05, Serial0/3/1
R 172.0.100.60/30 [120/2] via 172.0.100.26, 00:00:18, Serial0/3/0
[120/2] via 172.0.100.30, 00:00:05, Serial0/3/1
C 172.0.100.64/30 is directly connected, Serial0/0/1
L 172.0.100.66/32 is directly connected, Serial0/0/1
C 172.0.100.68/30 is directly connected, Serial0/0/0
L 172.0.100.70/32 is directly connected, Serial0/0/0
R 172.0.128.0/18 [120/1] via 172.0.100.26, 00:00:18, Serial0/3/0

[120/1] via 172.0.100.30, 00:00:05, Serial0/3/1

RAVAN3:

172.0.0.0/16 is variably subnetted, 21 subnets, 3 masks

R 172.0.100.0/30 [120/1] via 172.0.100.18, 00:00:24, Serial0/1/0

[120/1] via 172.0.100.22, 00:00:06, Serial0/1/1

R 172.0.100.4/30 [120/1] via 172.0.100.18, 00:00:24, Serial0/1/0

[120/1] via 172.0.100.22, 00:00:06, Serial0/1/1

R 172.0.100.8/30 [120/1] via 172.0.100.18, 00:00:24, Serial0/1/0

R 172.0.100.12/30 [120/1] via 172.0.100.22, 00:00:06, Serial0/1/1

C 172.0.100.16/30 is directly connected, Serial0/1/0

L 172.0.100.17/32 is directly connected, Serial0/1/0

C 172.0.100.20/30 is directly connected, Serial0/1/1

L 172.0.100.21/32 is directly connected, Serial0/1/1

R 172.0.100.24/30 [120/1] via 172.0.100.18, 00:00:24, Serial0/1/0

R 172.0.100.28/30 [120/1] via 172.0.100.22, 00:00:06, Serial0/1/1

R 172.0.100.40/30 [120/2] via 172.0.100.22, 00:00:06, Serial0/1/1

[120/2] via 172.0.100.18, 00:00:24, Serial0/1/0

R 172.0.100.44/30 [120/2] via 172.0.100.22, 00:00:06, Serial0/1/1

[120/2] via 172.0.100.18, 00:00:24, Serial0/1/0

R 172.0.100.48/30 [120/2] via 172.0.100.22, 00:00:06, Serial0/1/1

[120/2] via 172.0.100.18, 00:00:24, Serial0/1/0

R 172.0.100.52/30 [120/2] via 172.0.100.22, 00:00:06, Serial0/1/1 [120/2] via 172.0.100.18, 00:00:24, Serial0/1/0

C 172.0.100.56/30 is directly connected, Serial0/0/1

L 172.0.100.58/32 is directly connected, Serial0/0/1

C 172.0.100.60/30 is directly connected, Serial0/0/0

L 172.0.100.62/32 is directly connected, Serial0/0/0

R 172.0.100.64/30 [120/2] via 172.0.100.18, 00:00:24, Serial0/1/0
[120/2] via 172.0.100.22, 00:00:06, Serial0/1/1
R 172.0.100.68/30 [120/2] via 172.0.100.18, 00:00:24, Serial0/1/0
[120/2] via 172.0.100.22, 00:00:06, Serial0/1/1
R 172.0.128.0/18 [120/1] via 172.0.100.18, 00:00:24, Serial0/1/0

2. Now, as requirement we floating routing in two routers THENORTH and THEMOUNTAIN and connected them with RAVEN1 by default static but public ip. And other kingdom routers such as THEVALE, THEROCK and THESTORMLANDS, THEREACH routers are connected normally (no floating) with RAVEN2 and RAVEN3 respectively by default static. Serial Ports with ip address are given below.

THE_NORTH:

172.0.0.0/16 is variably subnetted, 4 subnets, 2 masks
C 172.0.100.48/30 is directly connected, Serial0/1/0
L 172.0.100.49/32 is directly connected, Serial0/1/0
C 172.0.100.52/30 is directly connected, Serial0/1/1
L 172.0.100.53/32 is directly connected, Serial0/1/1
172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C 172.16.0.0/23 is directly connected, GigabitEthernet0/0
L 172.16.0.1/32 is directly connected, GigabitEthernet0/0
S* 0.0.0.0/0 is directly connected, Serial0/1/0

THE_MOUNTAIN:

172.0.0.0/16 is variably subnetted, 4 subnets, 2 masks

C 172.0.100.40/30 is directly connected, Serial0/0/0

L 172.0.100.41/32 is directly connected, Serial0/0/0

C 172.0.100.44/30 is directly connected, Serial0/0/1

L 172.0.100.45/32 is directly connected, Serial0/0/1

172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks

C 172.16.0.0/22 is directly connected, GigabitEthernet0/0

L 172.16.2.1/32 is directly connected, GigabitEthernet0/0

S* 0.0.0.0/0 is directly connected, Serial0/0/0 THE_VALE:

Gateway of last resort is 0.0.0.0 to network 0.0.0.0

172.0.0.0/16 is variably subnetted, 2 subnets, 2 masks

C 172.0.100.68/30 is directly connected, Serial0/0/0

L 172.0.100.69/32 is directly connected, Serial0/0/0

172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks

C 172.16.4.0/24 is directly connected, GigabitEthernet0/0

L 172.16.4.1/32 is directly connected, GigabitEthernet0/0

S* 0.0.0.0/0 is directly connected, Serial0/0/0

THE_ROCK:

Gateway of last resort is 0.0.0.0 to network 0.0.0.0

172.0.0.0/16 is variably subnetted, 2 subnets, 2 masks

C 172.0.100.64/30 is directly connected, Serial0/0/1

L 172.0.100.65/32 is directly connected, Serial0/0/1

172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks

C 172.16.4.0/22 is directly connected, GigabitEthernet0/0

L 172.16.5.1/32 is directly connected, GigabitEthernet0/0

S* 0.0.0.0/0 is directly connected, Serial0/0/1

THE_STROMLANDS:

Gateway of last resort is 0.0.0.0 to network 0.0.0.0

172.0.0.0/16 is variably subnetted, 2 subnets, 2 masks

C 172.0.100.60/30 is directly connected, Serial0/0/0

L 172.0.100.61/32 is directly connected, Serial0/0/0

172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks

C 172.16.8.0/24 is directly connected, GigabitEthernet0/0

L 172.16.8.1/32 is directly connected, GigabitEthernet0/0

S* 0.0.0.0/0 is directly connected, Serial0/0/0 THE_REACH:

Gateway of last resort is 0.0.0.0 to network 0.0.0.0

172.0.0.0/16 is variably subnetted, 2 subnets, 2 masks

C 172.0.100.56/30 is directly connected, Serial0/0/1

L 172.0.100.57/32 is directly connected, Serial0/0/1

172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks

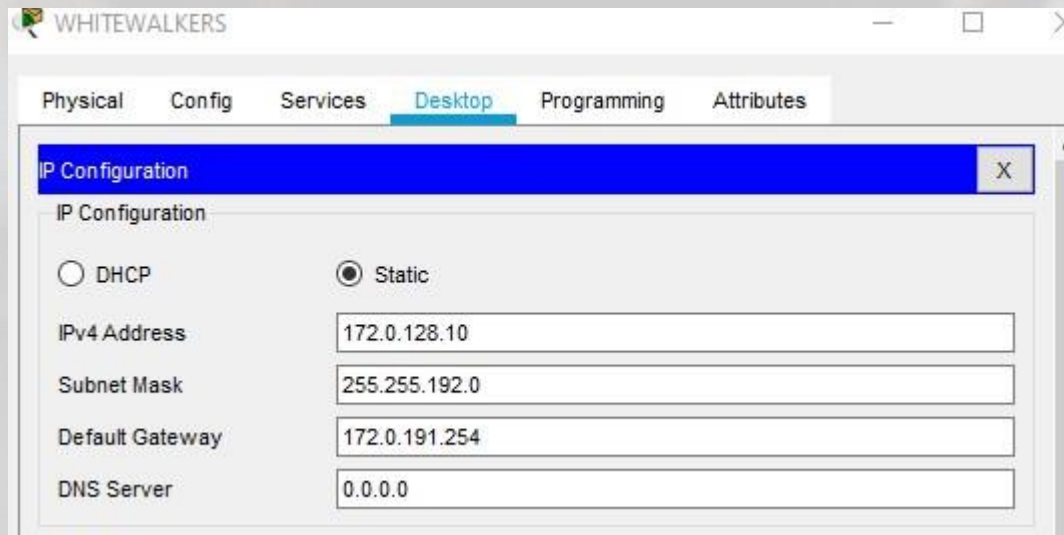
C 172.16.9.0/28 is directly connected, GigabitEthernet0/0

L 172.16.9.1/32 is directly connected, GigabitEthernet0/0

S* 0.0.0.0/0 is directly connected, Serial0/0/1

THE WHITEWALKERS:

This is the ip address of the white-walkers server which is connected with the main and backup router through a switch name CASTLEBLACK.



This are the Public network connection

Now the static route configuration for the six kingdoms of GOT out of seven. We used Dynamic NAT to secure those kingdoms internal networks from outsiders. The configurations are given below.

1.THE NORTH

```
THENORTH>
```

```
THENORTH>enable
```

```
THENORTH#configure Terminal
```

```
THENORTH(config)#interface GigabitEthernet 0/0
```

```
THENORTH(config-if)#ip address 172.16.0.1 255.255.254.0
```

```
THENORTH(config-if)#exit
```

```
THENORTH(config)#interface GigabitEthernet 0/0
```


```
THENORTH(config-if)#ip address 172.16.0.1 255.255.254.0
```

```
THENORTH(config-if)#no shutdown
```

```
THENORTH(config-if)#exit
```

```
THENORTH(config)#end
```

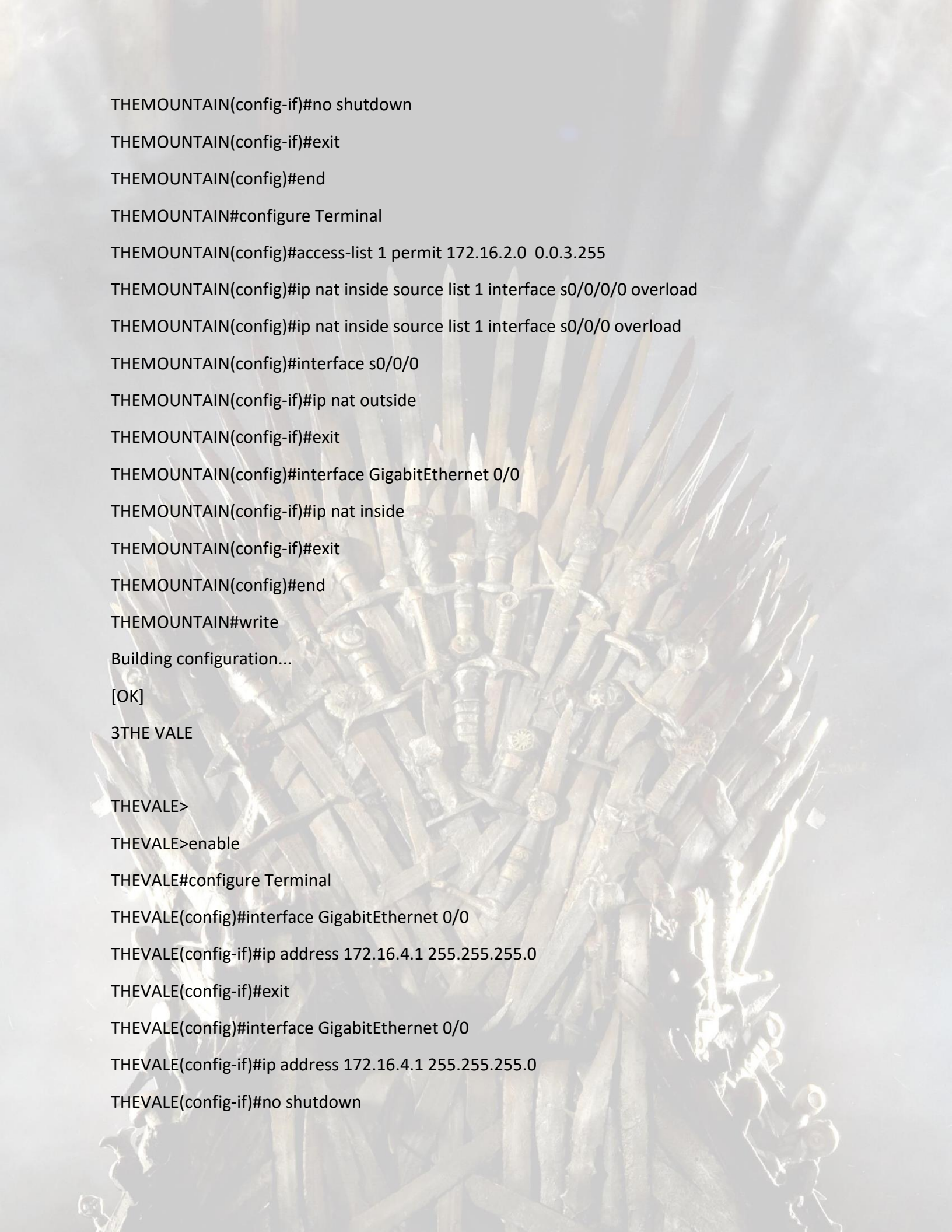
```
THENORTH#configure Terminal
```



```
THENORTH(config)#access-list 1 permit 172.16.0.0 0.0.1.255
THENORTH(config)#ip nat inside source list 1 interface s0/0/0/0 overload
THENORTH(config)#ip nat inside source list 1 interface s0/0/0 overload
THENORTH(config)#interface s0/0/0
THENORTH(config-if)#ip nat outside
THENORTH(config-if)#exit
THENORTH(config)#interface GigabitEthernet 0/0
THENORTH(config-if)#ip nat inside
THENORTH(config-if)#exit
THENORTH(config)#end
THENORTH#write
Building configuration...
[OK]
```


2THE MOUNTAIN

```
THEMOUNTAIN>
THEMOUNTAIN>enable
THEMOUNTAIN#configure Terminal
THEMOUNTAIN(config)#interface GigabitEthernet 0/0
THEMOUNTAIN(config-if)#ip address 172.16.2.1 255.255.252.0
THEMOUNTAIN(config-if)#exit
THEMOUNTAIN(config)#interface GigabitEthernet 0/0
THEMOUNTAIN(config-if)#ip address 172.16.2.1 255.255.252.0
```

```
THEMOUNTAIN(config-if)#no shutdown
THEMOUNTAIN(config-if)#exit
THEMOUNTAIN(config)#end
THEMOUNTAIN#configure Terminal
THEMOUNTAIN(config)#access-list 1 permit 172.16.2.0 0.0.3.255
THEMOUNTAIN(config)#ip nat inside source list 1 interface s0/0/0/0 overload
THEMOUNTAIN(config)#ip nat inside source list 1 interface s0/0/0 overload
THEMOUNTAIN(config)#interface s0/0/0
THEMOUNTAIN(config-if)#ip nat outside
THEMOUNTAIN(config-if)#exit
THEMOUNTAIN(config)#interface GigabitEthernet 0/0
THEMOUNTAIN(config-if)#ip nat inside
THEMOUNTAIN(config-if)#exit
THEMOUNTAIN(config)#end
THEMOUNTAIN#write
Building configuration...
[OK]
3THE VALE

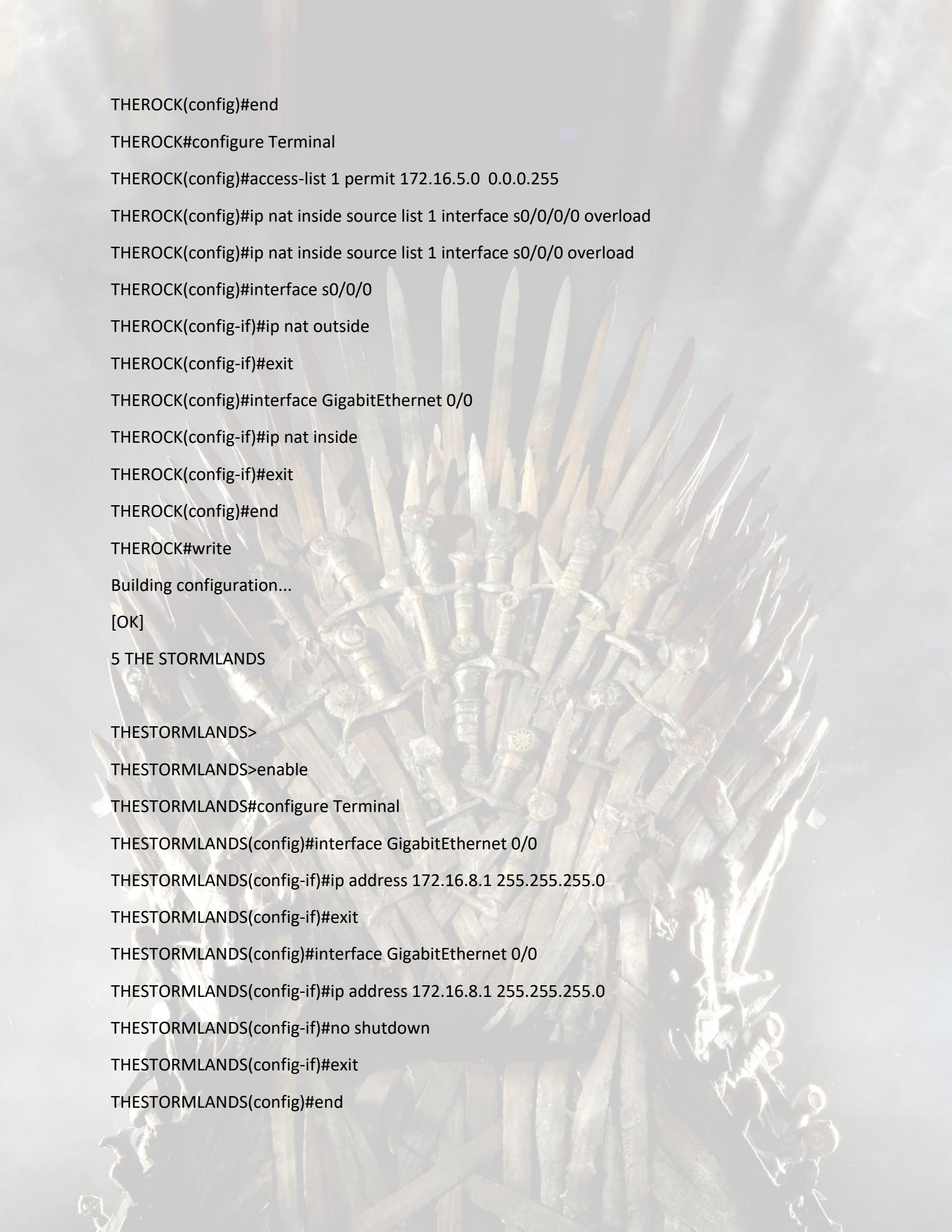
THEVALE>
THEVALE>enable
THEVALE#configure Terminal
THEVALE(config)#interface GigabitEthernet 0/0
THEVALE(config-if)#ip address 172.16.4.1 255.255.255.0
THEVALE(config-if)#exit
THEVALE(config)#interface GigabitEthernet 0/0
THEVALE(config-if)#ip address 172.16.4.1 255.255.255.0
THEVALE(config-if)#no shutdown
```



```
THEVALE(config-if)#exit
THEVALE(config)#end
THEVALE#configure Terminal
THEVALE(config)#access-list 1 permit 172.16.4.0 0.0.0.255
THEVALE(config)#ip nat inside source list 1 interface s0/0/0/0 overload
THEVALE(config)#ip nat inside source list 1 interface s0/0/0 overload
THEVALE(config)#interface s0/0/0
THEVALE(config-if)#ip nat outside
THEVALE(config-if)#exit
THEVALE(config)#interface GigabitEthernet 0/0
THEVALE(config-if)#ip nat inside
THEVALE(config-if)#exit
THEVALE(config)#end
THEVALE#write
Building configuration...
[OK]
```

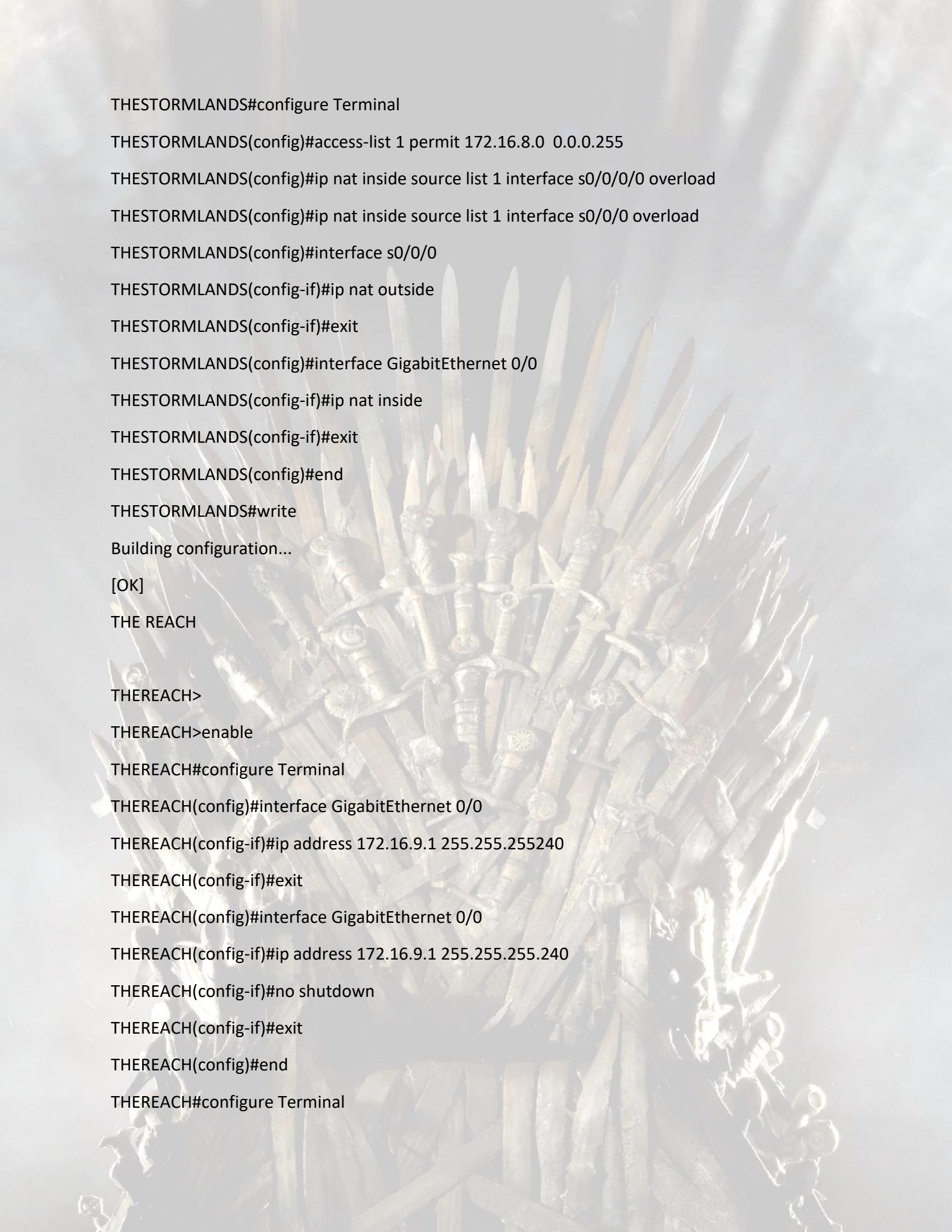
4.THE ROCK

```
THEROCK>
THEROCK>enable
THEROCK#configure Terminal
THEROCK(config)#interface GigabitEthernet 0/0
THEROCK(config-if)#ip address 172.16.5.1 255.255.252.0
THEROCK(config-if)#exit
THEROCK(config)#interface GigabitEthernet 0/0
THEROCK(config-if)#ip address 172.16.5.1 255.255.252.0
THEROCK(config-if)#no shutdown
THEROCK(config-if)#exit
```

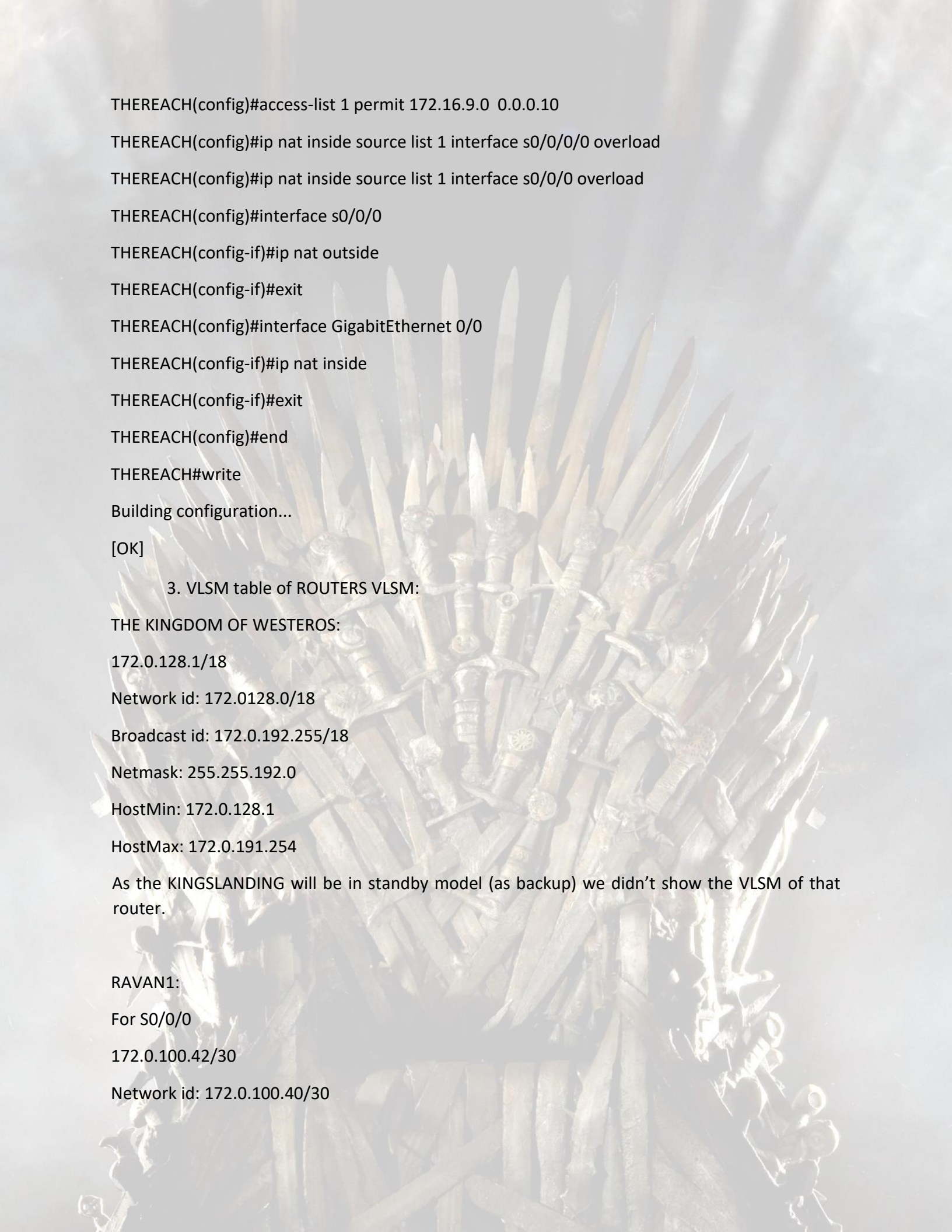
```
THEROCK(config)#end
THEROCK#configure Terminal
THEROCK(config)#access-list 1 permit 172.16.5.0 0.0.0.255
THEROCK(config)#ip nat inside source list 1 interface s0/0/0 overload
THEROCK(config)#ip nat inside source list 1 interface s0/0/0 overload
THEROCK(config)#interface s0/0/0
THEROCK(config-if)#ip nat outside
THEROCK(config-if)#exit
THEROCK(config)#interface GigabitEthernet 0/0
THEROCK(config-if)#ip nat inside
THEROCK(config-if)#exit
THEROCK(config)#end
THEROCK#write
Building configuration...
[OK]
5 THE STORMLANDS
```

```
THESTORMLANDS>
THESTORMLANDS>enable
THESTORMLANDS#configure Terminal
THESTORMLANDS(config)#interface GigabitEthernet 0/0
THESTORMLANDS(config-if)#ip address 172.16.8.1 255.255.255.0
THESTORMLANDS(config-if)#exit
THESTORMLANDS(config)#interface GigabitEthernet 0/0
THESTORMLANDS(config-if)#ip address 172.16.8.1 255.255.255.0
THESTORMLANDS(config-if)#no shutdown
THESTORMLANDS(config-if)#exit
THESTORMLANDS(config)#end
```



```
THESTORMLANDS#configure Terminal
THESTORMLANDS(config)#access-list 1 permit 172.16.8.0 0.0.0.255
THESTORMLANDS(config)#ip nat inside source list 1 interface s0/0/0/0 overload
THESTORMLANDS(config)#ip nat inside source list 1 interface s0/0/0 overload
THESTORMLANDS(config)#interface s0/0/0
THESTORMLANDS(config-if)#ip nat outside
THESTORMLANDS(config-if)#exit
THESTORMLANDS(config)#interface GigabitEthernet 0/0
THESTORMLANDS(config-if)#ip nat inside
THESTORMLANDS(config-if)#exit
THESTORMLANDS(config)#end
THESTORMLANDS#write
Building configuration...
[OK]
THE REACH

THEREACH>
THEREACH>enable
THEREACH#configure Terminal
THEREACH(config)#interface GigabitEthernet 0/0
THEREACH(config-if)#ip address 172.16.9.1 255.255.255.240
THEREACH(config-if)#exit
THEREACH(config)#interface GigabitEthernet 0/0
THEREACH(config-if)#ip address 172.16.9.1 255.255.255.240
THEREACH(config-if)#no shutdown
THEREACH(config-if)#exit
THEREACH(config)#end
THEREACH#configure Terminal
```

```
THEREACH(config)#access-list 1 permit 172.16.9.0 0.0.0.10
THEREACH(config)#ip nat inside source list 1 interface s0/0/0/0 overload
THEREACH(config)#ip nat inside source list 1 interface s0/0/0 overload
THEREACH(config)#interface s0/0/0
THEREACH(config-if)#ip nat outside
THEREACH(config-if)#exit
THEREACH(config)#interface GigabitEthernet 0/0
THEREACH(config-if)#ip nat inside
THEREACH(config-if)#exit
THEREACH(config)#end
THEREACH#write
Building configuration...
[OK]
```

3. VLSM table of ROUTERS VLSM:

THE KINGDOM OF WESTEROS:

172.0.128.1/18

Network id: 172.0.128.0/18

Broadcast id: 172.0.192.255/18

Netmask: 255.255.192.0

HostMin: 172.0.128.1

HostMax: 172.0.191.254

As the KINGSLANDING will be in standby model (as backup) we didn't show the VLSM of that router.

RAVAN1:

For S0/0/0

172.0.100.42/30

Network id: 172.0.100.40/30

Broadcast id: 172.0.100.43

Netmask: 255.255.255.252

HostMin: 172.0.100.41

HostMax: 172.0.100.42

For S0/0/1

172.0.100.46/30

Network id: 172.0.100.46 /30

Broadcast id: 172.0.100.49

Netmask: 255.255.255.252

HostMin: 172.0.100.47

HostMax: 172.0.100.48

For S0/1/0

172.0.100.50/30

Network id: 172.0.100.50 /30

Broadcast id: 172.0.100.53/30

Netmask: 255.255.255.252

HostMin: 172.0.100.51

HostMax: 172.0.100.52

For S0/1/1

172.0.100.54/30

Network id: 172.0.100.54 /30

Broadcast id: 172.0.100.57

Netmask: 255.255.255.252

HostMin: 172.0.100.55

HostMax: 172.0.100.56

For S0/2/0

172.0.100.9/30

Network id: 172.0.100.9 /30

Broadcast id: 172.0.100.12/30

Netmask: 255.255.255.252

HostMin: 172.0.100.10

HostMax: 172.0.100.11

For S0/2/1

172.0.100.13/30

Network id: 172.0.100.13 /30

Broadcast id: 172.0.100.16

Netmask: 255.255.255.252

HostMin: 172.0.100.14

HostMax:

172.0.100.15 RAVAN2:

For S0/0/0

172.0.100.70/30

Network id: 172.0.100.70 /30

Netmask: 255.255.255.252

Broadcast id: 172.0.100.73/30

HostMin: 172.0.100.71

HostMax: 172.0.100.72

For S0/0/1

172.0.100.66/30

Network id: 172.0.100.66 /30

Broadcast id: 172.0.100.69/30

Netmask: 255.255.255.252

HostMin: 172.0.100.67

HostMax: 172.0.100.68

For S0/3/0

172.0.100.25/30

Network id: 172.0.100.25 /30

Broadcast id: 172.0.100.28/30

Netmask: 255.255.255.252

HostMin: 172.0.100.26

HostMax: 172.0.100.27

For S0/3/1

172.0.100.29/30

Network id: 172.0.100.29 /30

Broadcast id: 172.0.100.32/30

Netmask: 255.255.255.252

HostMin: 172.0.100.30

HostMax: 172.0.100.31 RAVAN3:

For S0/0/0

172.0.100.62/30

Network id: 172.0.100.62 /30

Broadcast id: 172.0.100.65/30

Netmask: 255.255.255.252

HostMin: 172.0.100.63

HostMax: 172.0.100.64

For S0/0/1

172.0.100.58/30

Network id: 172.0.100.58 /30

Broadcast id: 172.0.100.61/30

Netmask: 255.255.255.252

HostMin: 172.0.100.59

HostMax: 172.0.100.60

For S0/1/0

172.0.100.17/30

Network id: 172.0.100.17 /30

Broadcast id: 172.0.100.20/30

Netmask: 255.255.255.252

HostMin: 172.0.100.18

HostMax: 172.0.100.19

For S0/1/1

172.0.100.29/30

Network id: 172.0.100.29 /30

Broadcast id: 172.0.100.32/30

Netmask: 255.255.255.252 HostMin: 172.0.100.30 HostMax:

172.0.100.31 THE_NORTH:

Network: 172.16.0.0/23

Broadcast: 172.16.1.255

HostMin: 172.16.0.1

HostMax: 172.16.1.254

Netmask: 255.255.254.0

THE_MOUNTAIN:

Network: 172.16.1.0/22

Broadcast: 172.16.1.255 /22

HostMin: 172.16.0.1

HostMax: 172.16.1.254

Netmask: 255.255.252.0

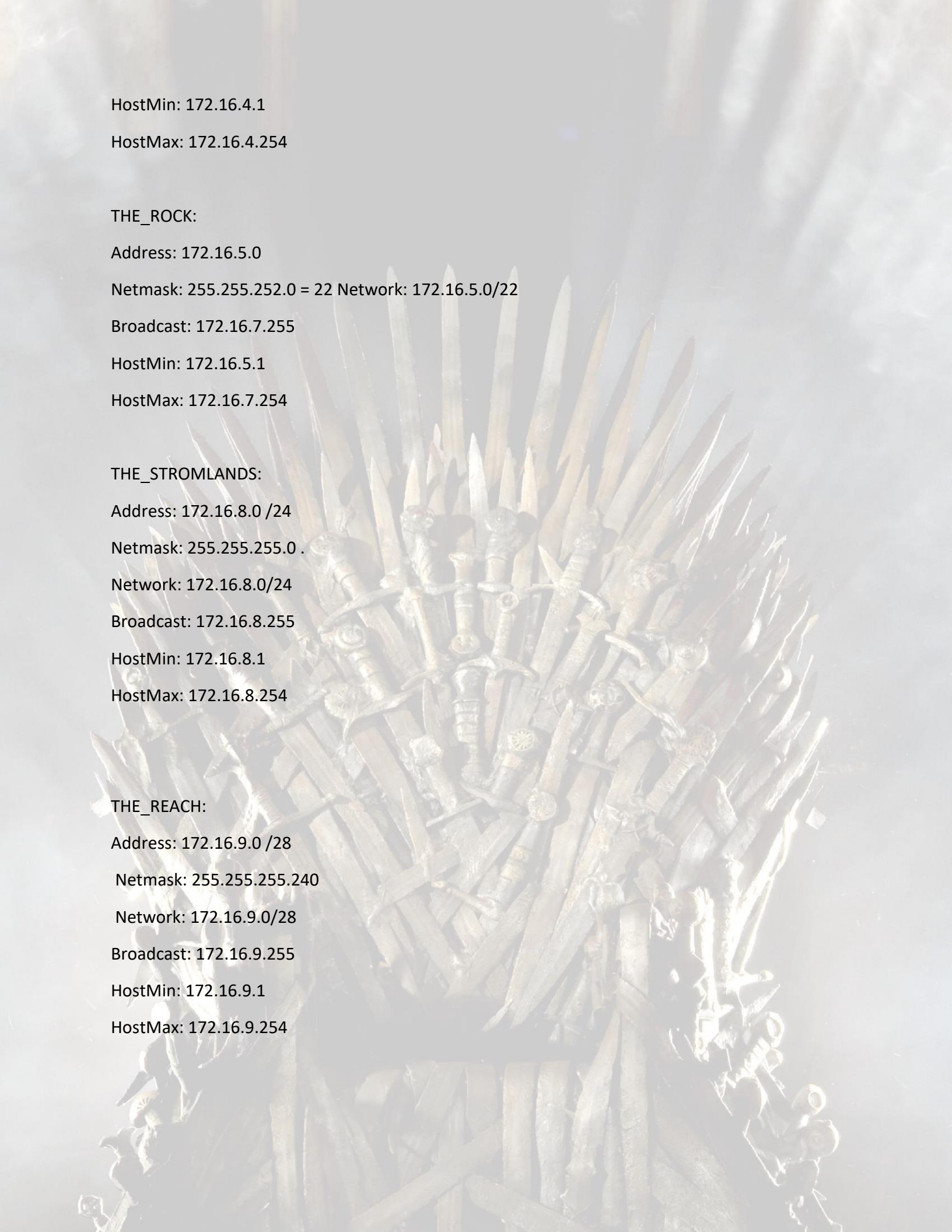
THE_VALE:

Address: 172.16.4.1

Netmask: 255.255.255.0

Network: 172.16.4.0/24

Broadcast: 172.16.4.255



HostMin: 172.16.4.1

HostMax: 172.16.4.254

THE_ROCK:

Address: 172.16.5.0

Netmask: 255.255.252.0 = 22 Network: 172.16.5.0/22

Broadcast: 172.16.7.255

HostMin: 172.16.5.1

HostMax: 172.16.7.254

THE_STROMLANDS:

Address: 172.16.8.0 /24

Netmask: 255.255.255.0 .

Network: 172.16.8.0/24

Broadcast: 172.16.8.255

HostMin: 172.16.8.1

HostMax: 172.16.8.254

THE_REACH:

Address: 172.16.9.0 /28

Netmask: 255.255.255.240

Network: 172.16.9.0/28

Broadcast: 172.16.9.255

HostMin: 172.16.9.1

HostMax: 172.16.9.254

4. IP address table of the whole networks (router, switch, Desktops, laptops, Printer and server)

Device	Interface	IPv4 Address	Subnet Mask	Default Gateway
	S0/0/0	172.0.100.42	255.255.255.252	N/A
	S0/0/1	172.0.100.46	255.255.255.252	N/A
Raven1(ISP1)	S0/1/0	172.0.100.50	255.255.255.252	N/A
	S0/1/1	172.0.100.54	255.255.255.252	N/A
	S0/2/0	172.0.100.9	255.255.255.252	N/A
	S0/2/1	172.0.100.13	255.255.255.252	N/A
	S0/0/0	172.0.100.70	255.255.255.252	N/A
	S0/0/1	172.0.100.66	255.255.255.252	N/A
Raven2(ISP2)	S0/3/0	172.0.100.25	255.255.255.252	N/A
	S0/3/1	172.0.100.29	255.255.255.252	N/A
	S0/0/0	172.0.100.62	255.255.255.252	N/A
	S0/0/1	172.0.100.58	255.255.255.252	N/A
Raven3(ISP3)	S0/1/0	172.0.100.17	255.255.255.252	N/A
	S0/1/1	172.0.100.21	255.255.255.252	N/A

					N/A	
		S0/0/0	172.0.100.1	255.255.255.252	N/A	
		S0/0/1	172.0.100.5	255.255.255.252		
	The Kingdom of Westeros(main)	S0/1/0	172.0.100.18	255.255.255.252	N/A	
		S0/2/0	172.0.100.10	255.255.255.252	N/A	
		S0/3/0	172.0.100.26	255.255.255.252	N/A	
		S0/0/0	172.0.100.2	255.255.255.252	N/A	
		S0/0/1	172.0.100.6	255.255.255.252	N/A	
	Kingslanding	S0/1/1	172.0.100.22	255.255.255.252	N/A	
	(backup)	S0/2/1	172.0.100.14	255.255.255.252	N/A	
		S0/3/1	172.0.100.30	255.255.255.252	N/A	
		G0/0	172.16.0.1	255.255.255.254	N/A	
	The North	S0/1/0	172.0.100.49	255.255.255.252	N/A	
	(R)	S0/1/1	172.0.100.53	255.255.255.252	N/A	
		G0/1(VLAN1)	172.16.0.2	255.255.254.0	172.16.0.1	
	Winterfell(S)	FastEthernet0	172.16.0.4	255.255.254.0	172.16.0.1	
	Sansa Stark(ED)					
	Arya Stark (ED)	FastEthernet0	172.16.0.3	255.255.254.0	172.16.0.1	

					N/A	
		G0/0	172.16.2.1	255.255.252.0	N/A	
	The Mountain	S0/0/0	172.0.100.41	255.255.255.252		
	(R)	S0/0/1	172.0.100.45	255.255.255.252	N/A	
		G0/1(VLAN1)	172.16.2.2	255.255.254.0	172.16.2.1	
	House Arryn(S)					
	Petyer Baelish	FastEthernet0	172.16.2.3	255.255.252.0	172.16.2.1	
	(ED)	FastEthernet0	172.16.2.4	255.255.252.0	172.16.2.1	
	Yohn Royce					
	(ED)					
		G0/0	172.16.9.1	255.255.255.240	N/A	
	The Reach(R)	S0/0/1	172.0.100.57	255.255.255.252	N/A	
	The	G0/1(VLAN1)	172.16.9.2	255.255.254.0	172.16.9.1	
	Highgarden(S)					
	Olenna Tyrell	FastEthernet0	172.16.9.3	255.255.255.240	172.16.9.1	
	(FD)					
	Margaery Tyrell	FastEthernet0	172.16.9.4	255.255.255.240	172.16.9.1	
	(ED)					

					N/A	
	The Stormlands(R)	G0/0	172.16.8.1	255.255.255.0	N/A	
		S0/0/0	172.0.100.61	255.255.255.252		
	House Baratheon(S)	G0/1(VLAN1)	172.16.8.2	255.255.254.0	172.16.9.1	
	Stannis Baratheon (ED)	FastEthernet0	172.16.8.10	255.255.255.0	172.16.9.1	
	Renly Baratheon (ED)	FastEthernet0	172.16.8.11	255.255.255.0	172.16.9.1	
	The Vale(R)	G0/0	172.16.4.1	255.255.255.0	N/A	
		S0/0/0	172.0.100.69	255.255.255.252	N/A	
	The Eyrie(S)	G0/1(VLAN1)	172.16.4.2	255.255.254.0	172.16.4.1	
	Lysa Arryn(ED)	FastEthernet0	172.16.4.3	255.255.255.0	172.16.4.1	
	Robin Arryn(ED)	FastEthernet0	172.16.4.4	255.255.255.0	172.16.4.1	
	The Rock (R)	G0/0	172.16.5.1	255.255.252.0	N/A	
		S0/0/1	172.0.100.65	255.255.255.252	N/A	
	Casterly Rock (S)	G0/1(VLAN1)	172.16.5.2	255.255.254.0	172.16.5.1	

	FastEthernet0	172.16.5.4	255.255.252.0	172.16.5.1
Cersei Lannister (ED)				
Jaime Lannister (ED)	FastEthernet0	172.16.5.3	255.255.252.0	172.16.5.1
Tyrion Lannister (ED)	FastEthernet0	172.16.5.5	255.255.252.0	172.16.5.1

That it. This is our CSE421 project for SUMMER2020

