



OR-AVNER KFAR SITRIN

BULDING NETWORK INFRASTRUCTURE IN

P.Bolotov Corporation

TIKSHUV 5 POINTS FINAL PROJECT



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Introduction

Hello, my name is Pavlo Bolotov, and I am a system administrator at P.Bolotov corporation. Although I reside in Kyiv, Ukraine, I work remotely across various locations, including Zhytomyr (Ukraine), Detroit (USA), and Zurich (Switzerland). In this project, I will present both the logical and physical topology of the network. My objective is to establish a network connection between three branches. I will provide a detailed explanation of the network configuration and outline all the settings and commands used to complete this task. Feel free to use this document as a guide for future reference.

About the company

P.Bolotov is an emerging technology corporation known for its pioneering work in network infrastructure solutions, cybersecurity, and cloud computing. Headquartered in Kyiv, Ukraine, and founded by Pavlo Bolotov, the company operates globally, providing advanced IT services to a diverse range of industries.

Initially focusing on system administration and network engineering, P.Bolotov has rapidly grown into a full-service tech firm, offering expertise in secure networking, data management, and remote systems integration. The corporation's cutting-edge solutions help businesses enhance their IT architecture, ensuring seamless operations across multiple locations.

With its emphasis on remote work and cross-border collaboration, P.Bolotov excels in building and managing complex network systems that support clients in sectors like finance, healthcare, and education. The company's technological offerings are tailored to meet the demands of a fast-evolving digital landscape, emphasizing reliability, security, and innovation.

P.Bolotov continues to expand its influence by delivering robust, scalable IT solutions that drive efficiency and empower businesses to stay ahead in an increasingly competitive global market.

History

P.Bolotov Corporation began as a bold vision by its founder, Pavlo Bolotov, to create a company that could redefine network infrastructure and IT services for businesses of all sizes. Established in Kyiv, Ukraine, the corporation's origins can be traced back to Pavlo's early career as a system administrator, where he worked with various international companies, including tech giants, to design and implement efficient, secure, and scalable networks.

In the early days, P.Bolotov Corporation primarily offered network administration services, helping local businesses in Ukraine optimize their IT systems. Pavlo's expertise in this field allowed the company to develop a reputation for delivering reliable and innovative solutions. The turning point for P.Bolotov came with the rapid growth of cloud computing and the increasing need for remote work solutions. Sensing an opportunity to address the challenges companies faced when operating across multiple locations, Pavlo decided to expand the company's services beyond traditional networking.

By the mid-2010s, P.Bolotov Corporation was offering a comprehensive suite of IT services, including cybersecurity solutions, cloud infrastructure management, and remote systems integration. These services became particularly crucial as more businesses began to operate globally and relied on secure and efficient networks to maintain business continuity. The company's ability to work remotely with clients in various locations, including Ukraine, the United States, and Switzerland, cemented its status as a forward-thinking technology partner.

One of the defining moments in the company's history was its role in helping several multinational corporations optimize their global network infrastructures. P.Bolotov Corporation introduced innovative solutions that allowed companies to securely and efficiently manage their IT systems across multiple regions, a feat that required not only technical expertise but also a deep understanding of international IT standards and compliance requirements.

As P.Bolotov Corporation grew, it began to expand into new areas such as data management, cybersecurity, and IT consulting. Pavlo Bolotov's vision of providing holistic technology solutions became the foundation for the company's growth. Today, P.Bolotov Corporation serves a diverse range of industries, including finance, healthcare, and education, delivering highly customized IT services that meet the unique needs of each client.

The company's commitment to innovation and its ability to stay ahead of technology trends have earned it a respected position in the industry. P.Bolotov Corporation continues to expand its global presence, offering tailored IT services to clients in multiple countries while maintaining its strong roots in Ukraine.

Looking ahead, P.Bolotov Corporation aims to further develop its expertise in emerging fields such as artificial intelligence, machine learning, and advanced cybersecurity. The company's forward-looking approach and its dedication to delivering cutting-edge IT solutions ensure that it remains a trusted partner for businesses seeking to navigate the complexities of the modern digital landscape.



Products

1. NetSecure Pro

Advanced Network Security Solution

NetSecure Pro is P.Bolotov Corporation's flagship network security solution designed for businesses that require top-tier protection for their digital assets. This product offers comprehensive protection against a wide range of cyber threats, including malware, ransomware, and advanced persistent threats (APTs). NetSecure Pro integrates seamlessly with existing IT infrastructures, providing real-time threat monitoring, intelligent firewalls, and automated incident response.

It's specifically designed to support companies with multi-location operations, ensuring secure communication channels and data encryption across all branches. Whether it's securing remote work environments or managing complex cross-border networks, NetSecure Pro delivers robust security tailored to the modern business landscape.

2. CloudBridge Connect

Remote Collaboration and Cloud Integration Platform

CloudBridge Connect is a state-of-the-art platform that enables businesses to streamline their remote collaboration and cloud operations. This product helps organizations create a unified cloud ecosystem by integrating various cloud services into a single, manageable interface. With CloudBridge Connect, companies can seamlessly connect their branches, data centers, and cloud environments, ensuring that all systems and applications communicate effectively.

The platform also offers cloud migration services, allowing businesses to move their operations to the cloud with minimal disruption. CloudBridge Connect's emphasis on reliability and data security makes it an ideal solution for enterprises looking to scale their operations while maintaining optimal control over their data and applications.

3. DataFlow Manager

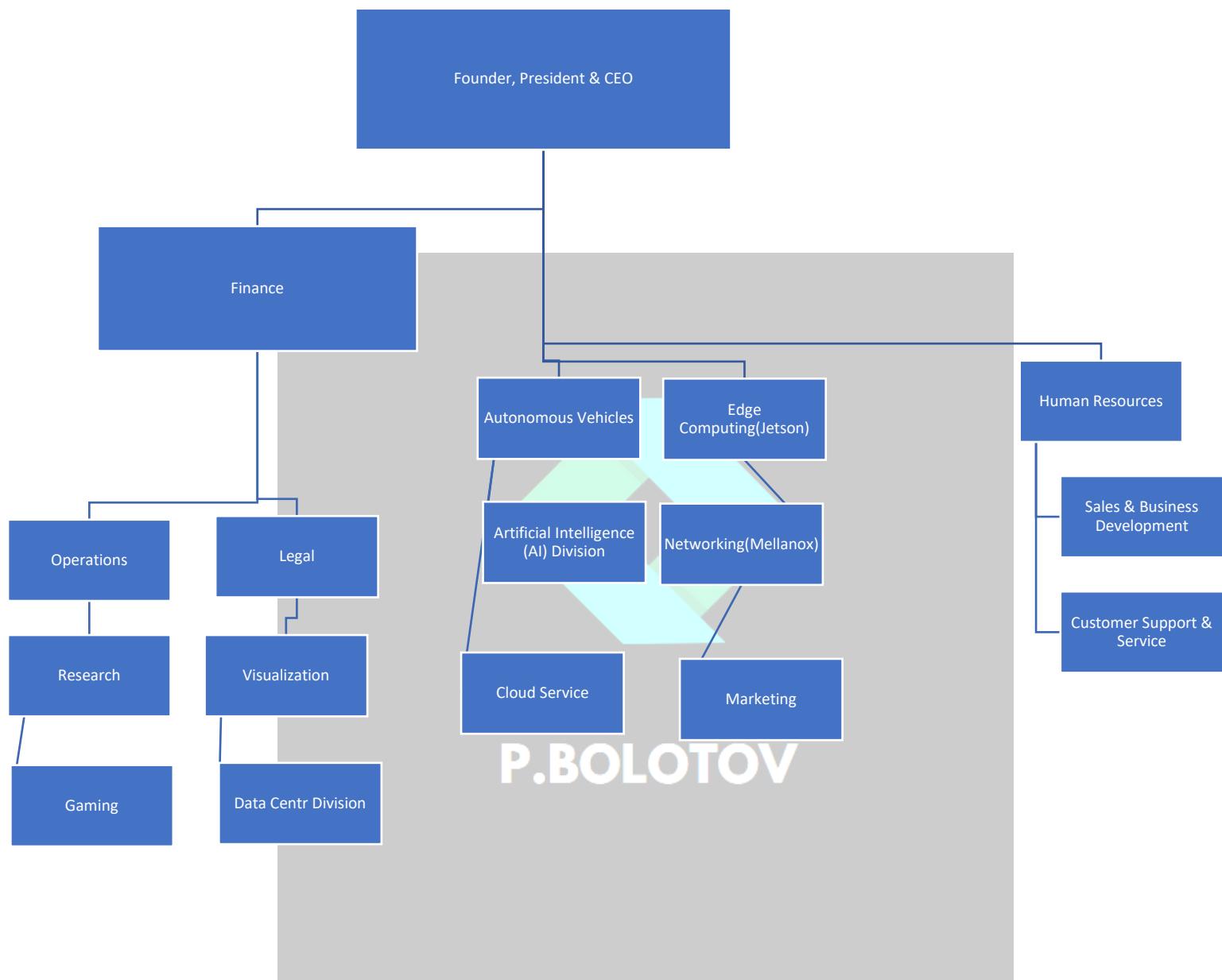
End-to-End Data Management and Analytics Solution

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DataFlow Manager is P.Bolotov Corporation's complete data management platform, designed to help businesses handle large-scale data processing, storage, and analytics. This product allows companies to automate their data workflows, ensuring that data from various sources is collected, stored, and analyzed efficiently.

DataFlow Manager features advanced data visualization and reporting tools, which provide businesses with actionable insights into their operations. With support for both structured and unstructured data, this solution is ideal for companies in data-intensive industries such as finance, healthcare, and logistics. The platform also emphasizes data security and compliance, ensuring that businesses meet regulatory standards while benefiting from cutting-edge analytics.

Organizational chart



Physical topology

Departments in Branch

Zytomir

Department name	VLAN Number	VLAN Name	Network ID	Subnet Musk	Default Gateway
CEO	131	CEO	192.168.131.0	255.255.255.0	192.168.131.254
Finance	132	Finance	192.168.132.0	255.255.255.0	192.168.132.254
Operations	133	Operations	192.168.133.0	255.255.255.0	192.168.133.254
Legal	134	Legal	192.168.134.0	255.255.255.0	192.168.134.254
Research	135	Research	172.20.0.0	255.255.0.0	172.20.255.254
Visualization	136	Visualization	172.21.0.0	255.255.0.0	172.20.255.254
Gaming	137	Gaming	10.0.0.0	255.0.0.0	10.255.255.254

Detroit

Department Name	VLAN Number	VLAN Name	Network ID	Subnet Musk	Default Gateway
CEO	131	CEO	192.168.131.0	255.255.255.0	192.168.131.254
Finance	132	Finance	192.168.132.0	255.255.255.0	192.168.132.254
Operations	133	Operations	192.168.133.0	255.255.255.0	192.168.133.254
Guest	134	Guest	192.168.134.0	255.255.255.0	192.168.134.254
Research	135	Research	172.20.0.0	255.255.0.0	172.20.255.254
Gaming	137	Gaming	10.0.0.0	255.0.0.0	10.255.255.254
AccessPoint	138	AccessPoint	192.168.138.0	255.255.255.0	192.168.138.254

Zyrich

Department name	VLAN Number	VLAN Name	Network ID	Subnet Musk	Default Gateway
CEO	131	CEO	192.168.131.0	255.255.255.0	192.168.131.254
Finance	132	Finance	192.168.132.0	255.255.255.0	192.168.132.254
Operations	133	Operations	192.168.133.0	255.255.255.0	192.168.133.254
Guest	134	Guest	192.168.134.0	255.255.255.0	192.168.134.254
Research	135	Research	172.20.0.0	255.255.0.0	172.20.255.254
Gaming	137	Gaming	10.0.0.0	255.0.0.0	10.255.255.254
AccessPoint	138	AccessPoint	192.168.138.0	255.255.255.0	192.168.138.254
AccessPointForWorker	139	AccessPointForWorker	192.168.139.0	255.255.255.0	192.168.139.254

Hostname & Passwords

Zytomir

Communication Component	Hostname	Secret Password (Enable mode)	Console Password	Access Password VTY
Router	Zytomir-R	tinker	best	hero
Main Switch	Zytomir-SW-Main	tinker	best	hero
Switch Floor 1	Zytomir-SW-1	tinker	best	hero
Switch Floor 2	Zytomir-SW-2	tinker	best	hero
Switch Floor 3	Zytomir-SW-3	tinker	best	hero
Switch Floor 4	Zytomir-SW-4	tinker	best	hero
Switch Floor 5	Zytomir-SW-5	tinker	best	hero
Switch Floor 6	Zytomir-SW-6	tinker	best	hero
Switch Floor 7	Zytomir-SW-7	tinker	best	hero

Router Banner	!!!! Warning!!! Warning!!! Unauthorized access prohibited !!!!!!!!!!!!!!!
Main Switch Banner	!!!! Warning!!! Warning!!! Unauthorized access prohibited !!!!!!!!!!!!!!!
Switch Floor 1 Banner	!!!! Warning!!! Warning!!! Unauthorized access prohibited !!!!!!!!!!!!!!!
Switch Floor 2 Banner	!!!! Warning!!! Warning!!! Unauthorized access prohibited !!!!!!!!!!!!!!!
Switch Floor 3 Banner	!!!! Warning!!! Warning!!! Unauthorized access prohibited !!!!!!!!!!!!!!!

Switch Floor 4 Banner	!!!! Warning!!! Warning!!! Unauthorized access prohibited !!!!!!!!!!!!!!!
Switch Floor 5 Banner	!!!! Warning!!! Warning!!! Unauthorized access prohibited !!!!!!!!!!!!!!!
Switch Floor 6 Banner	!!!! Warning!!! Warning!!! Unauthorized access prohibited !!!!!!!!!!!!!!!
Switch Floor 7 Banner	



Communication Component	Hostname	Secret Password (Enable mode)	Console Password	Access Password VTY
Router	Detroit-Router	tinker	best	hero
Maint Switch	Detroit -SW-Main	tinker	best	hero
Switch Floor 1	Detroit -SW1	tinker	best	hero
Switch Floor 2	Detroit -SW2	tinker	best	hero
Switch Floor 3	Detroit -SW3	tinker	best	hero
Switch Floor 4	Detroit -SW4	tinker	best	hero
Switch Floor 5	Detroit -SW5	tinker	best	hero

Router Banner	!!!! Warning!!! Warning!!! Unauthorized access prohibited !!!!!!!!!!!!!!!
Main Switch Banner	!!!! Warning!!! Warning!!! Unauthorized access prohibited !!!!!!!!!!!!!!!
Switch Floor 1 Banner	!!!! Warning!!! Warning!!! Unauthorized access prohibited !!!!!!!!!!!!!!!
Switch Floor 2 Banner	!!!! Warning!!! Warning!!! Unauthorized access prohibited !!!!!!!!!!!!!!!
Switch Floor 3 Banner	!!!! Warning!!! Warning!!! Unauthorized access prohibited !!!!!!!!!!!!!!!
Switch Floor 4 Banner	!!!! Warning!!! Warning!!! Unauthorized access prohibited !!!!!!!!!!!!!!!
Switch Floor 5 Banner	!!!! Warning!!! Warning!!! Unauthorized access prohibited !!!!!!!!!!!!!!!



Zyrich

Communication Component	Hostname	Secret Password (Enable mode)	Console Password	Access Password VTY
Router	Zyrich-Router	tinker	best	hero
Switch Floor 1	Zyrich-SW1	tinker	best	hero
Switch Floor 2	Zyrich-SW2	tinker	best	hero
Switch Floor 3	Zyrich-SW3	tinker	best	hero
Switch Floor 4	Zyrich-SW4	tinker	best	hero
Switch Floor 5	Zyrich-SW5	tinker	best	hero

Router Banner	!!!! Warning!!! Warning!!! Unauthorized access prohibited !!!!!!!!!!!!!!!
Switch Floor 1 Banner	!!!! Warning!!! Warning!!! Unauthorized access prohibited !!!!!!!!!!!!!!!
Switch Floor 2 Banner	!!!! Warning!!! Warning!!! Unauthorized access prohibited !!!!!!!!!!!!!!!
Switch Floor 3 Banner	!!!! Warning!!! Warning!!! Unauthorized access prohibited !!!!!!!!!!!!!!!
Switch Floor 4 Banner	!!!! Warning!!! Warning!!! Unauthorized access prohibited !!!!!!!!!!!!!!!
Switch Floor 5 Banner	!!!! Warning!!! Warning!!! Unauthorized access prohibited !!!!!!!!!!!!!!!

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Security settings

This set of commands configures security and access policies on a network switch, including passwords for privileged, console, and remote access, encryption for those passwords, and a login warning message.

- **Secret Password:** Secures privileged EXEC mode with an encrypted password, protecting sensitive configuration access.
- **Console Password:** Sets a password for local (physical) console access, ensuring only authorized users can log in.
- **VTY Password:** Configures a password for remote access via Telnet or SSH, securing network device management.

Security commands – Zytomir:

Floor 1

```
Zytomir-SW-1(config)# line console 0
Zytomir-SW-1(config-line)# password best
Zytomir-SW-1(config-line)# login
Zytomir-SW-1(config-line)# exit
Zytomir-SW-1(config)# enable secret tinker
Zytomir-SW-1(config)# line vty 0 4
Zytomir-SW-1(config-line)# password hero
Zytomir-SW-1(config-line)# login
Zytomir-SW-1(config-line)# exit
Zytomir-SW-1(config)# service password-encryption
```

```
Zytomir-SW-1(config)# banner motd  
#!!!!!!!!!!!!!!Warning!!!  
Warning!!!Unauthorized entry is a criminal  
affence!!!!!!#
```

Floor 2

```
Zytomir-SW-2(config)# line console 0  
Zytomir-SW-2(config-line)# password best  
Zytomir-SW-2(config-line)# login  
Zytomir-SW-2(config-line)# exit  
Zytomir-SW-2(config)# enable secret tinker  
Zytomir-SW-2(config)# line vty 0 4  
Zytomir-SW-2(config-line)# password hero  
Zytomir-SW-2(config-line)# login  
Zytomir-SW-2(config-line)# exit  
Zytomir-SW-2(config)# service password-encryption  
Zytomir-SW-2(config)# banner motd  
#!!!!!!!!!!!!!!Warning!!!  
Warning!!!Unauthorized entry is a criminal  
affence!!!!!!#
```

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Floor 3

```
Zytomir-SW-3(config)# line console 0  
Zytomir-SW-3(config-line)# password best  
Zytomir-SW-3(config-line)# login  
Zytomir-SW-3(config-line)# exit  
Zytomir-SW-3(config)# enable secret tinker  
Zytomir-SW-3(config)# line vty 0 4  
Zytomir-SW-3(config-line)# password hero  
Zytomir-SW-3(config-line)# login  
Zytomir-SW-3(config-line)# exit  
Zytomir-SW-3(config)# service password-encryption
```

```
Zytomir-SW-3(config)# banner motd  
#!!!!!!!!!!!!!!!!!!!!!!!!!!!!!! Warning!!!  
Warning!!!Unauthorized entry is a criminal  
affence!!!!!!!!!!!!!!!!!!!!!!#
```

Floor 4

```
Zytomir-SW-4(config)# line console 0  
Zytomir-SW-4(config-line)# password best  
Zytomir-SW-4(config-line)# login  
Zytomir-SW-4(config-line)# exit  
Zytomir-SW-4(config)# enable secret tinker  
Zytomir-SW-4(config)# line vty 0 4  
Zytomir-SW-4(config-line)# password hero  
Zytomir-SW-4(config-line)# login  
Zytomir-SW-4(config-line)# exit  
Zytomir-SW-4(config)# service password-encryption  
Zytomir-SW-4(config)# banner motd  
#!!!!!!!!!!!!!!!!!!!!!! Warning!!!  
Warning!!!Unauthorized entry is a criminal  
affence!!!!!!!!!!!!!!#
```

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Floor 5

```
Zytomir-SW-5(config)# line console 0  
Zytomir-SW-5(config-line)# password best  
Zytomir-SW-5(config-line)# login  
Zytomir-SW-5(config-line)# exit  
Zytomir-SW-5(config)# enable secret tinker  
Zytomir-SW-5(config)# line vty 0 4  
Zytomir-SW-5(config-line)# password hero  
Zytomir-SW-5(config-line)# login  
Zytomir-SW-5(config-line)# exit  
Zytomir-SW-5(config)# service password-encryption
```

```
Zytomir-SW-5(config)# banner motd  
#!!!!!!!!!!!!!!Warning!!!  
Warning!!!Unauthorized entry is a criminal  
affence!!!!!!#
```

Floor 6

```
Zytomir-SW-6(config)# line console 0  
Zytomir-SW-6(config-line)# password best  
Zytomir-SW-6(config-line)# login  
Zytomir-SW-6(config-line)# exit  
Zytomir-SW-6(config)# enable secret tinker  
Zytomir-SW-6(config)# line vty 0 4  
Zytomir-SW-6(config-line)# password hero  
Zytomir-SW-6(config-line)# login  
Zytomir-SW-6(config-line)# exit  
Zytomir-SW-6(config)# service password-encryption  
Zytomir-SW-6(config)# banner motd  
#!!!!!!!!!!!!!!Warning!!!  
Warning!!!Unauthorized entry is a criminal  
affence!!!!!!#
```

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Floor 7

```
Zytomir-SW-7(config)# line console 0  
Zytomir-SW-7(config-line)# password best  
Zytomir-SW-7(config-line)# login  
Zytomir-SW-7(config-line)# exit  
Zytomir-SW-7(config)# enable secret tinker  
Zytomir-SW-7(config)# line vty 0 4  
Zytomir-SW-7(config-line)# password hero  
Zytomir-SW-7(config-line)# login  
Zytomir-SW-7(config-line)# exit  
Zytomir-SW-7(config)# service password-encryption
```

```
Zytomir-SW-7(config)# banner motd  
#!!!!!!!!!!!!!!Warning!!!  
Warning!!!Unauthorized entry is a criminal  
affence!!!!!!#
```

Main

```
Zytomir-SW-Main(config)# line console 0  
Zytomir-SW-Main(config-line)# password best  
Zytomir-SW-Main(config-line)# login  
Zytomir-SW-Main(config-line)# exit  
Zytomir-SW-Main(config)# enable secret tinker  
Zytomir-SW-Main(config)# line vty 0 4  
Zytomir-SW-Main(config-line)# password hero  
Zytomir-SW-Main(config-line)# login  
Zytomir-SW-Main(config-line)# exit  
Zytomir-SW-Main(config)# service password-encryption  
Zytomir-SW-Main(config)# banner motd  
#!!!!!!!!!!!!!!Warning!!!  
Warning!!!Unauthorized entry is a criminal  
affence!!!!!!#
```

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Router

```
Zytomir-R(config)# line console 0  
Zytomir-R (config-line)# password best  
Zytomir-R (config-line)# login  
Zytomir-R (config-line)# exit  
Zytomir-R (config)# enable secret tinker  
Zytomir-R (config)# line vty 0 4  
Zytomir-R (config-line)# password hero  
Zytomir-R (config-line)# login  
Zytomir-R (config-line)# exit  
Zytomir-R (config)# service password-encryption
```

```
Zytomir-R (config)# banner motd
#!!!!!!!!!!!!!!!!!!!!!!!!!!!!!! Warning!!!
Warning!!!Unauthorized entry is a criminal
affence!!!!!!#
```

Security commands – Detroit:

Floor 1

```
Detroit-SW1(config)# line console 0
Detroit-SW1(config-line)# password best
Detroit-SW1(config-line)# login
Detroit-SW1(config-line)# exit
Detroit-SW1(config)# enable secret tinker
Detroit-SW1(config)# line vty 0 4
Detroit-SW1(config-line)# password hero
Detroit-SW1(config-line)# login
Detroit-SW1(config-line)# exit
Detroit-SW1(config)# service password-encryption
Detroit-SW1(config)# banner motd #!!!!!!!!!!!!!! Warning!!!
Warning!!!Unauthorized entry is a criminal
affence!!!!!!#
```

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Floor 2

```
Detroit-SW2(config)# line console 0
Detroit-SW2(config-line)# password best
Detroit-SW2(config-line)# login
Detroit-SW2(config-line)# exit
Detroit-SW2(config)# enable secret tinker
Detroit-SW2(config)# line vty 0 4
Detroit-SW2(config-line)# password hero
```

```
Detroit-SW2(config-line)# login
Detroit-SW2(config-line)# exit
Detroit-SW2(config)# service password-encryption
Detroit-SW2(config)# banner motd
#!!!!!!!!!!!!!!!!!!!!!!!!!!!!!! Warning!!!
Warning!!!Unauthorized entry is a criminal
affence!!!!!!#
```

Floor 3

```
Detroit-SW3(config)# line console 0
Detroit-SW3(config-line)# password best
Detroit-SW3(config-line)# login
Detroit-SW3(config-line)# exit
Detroit-SW3(config)# enable secret tinker
Detroit-SW3(config)# line vty 0 4
Detroit-SW3(config-line)# password hero
Detroit-SW3(config-line)# login
Detroit-SW3(config-line)# exit
Detroit-SW3(config)# service password-encryption
Detroit-SW3(config)# banner motd
#!!!!!!!!!!!!!!!!!!!!!! Warning!!!
Warning!!!Unauthorized entry is a criminal
affence!!!!!!#
```

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Floor 4

```
Detroit-SW4(config)# line console 0
Detroit-SW4(config-line)# password best
Detroit-SW4(config-line)# login
Detroit-SW4(config-line)# exit
Detroit-SW4(config)# enable secret tinker
Detroit-SW4(config)# line vty 0 4
Detroit-SW4(config-line)# password hero
Detroit-SW4(config-line)# login
```

```
Detroit-SW4(config-line)# exit  
Detroit-SW4(config)# service password-encryption  
Detroit-SW4(config)# banner motd  
#!!!!!!!!!!!!!!Warning!!!  
Warning!!!Unauthorized entry is a criminal  
affence!!!!!!#
```

Floor 5

```
Detroit-SW5(config)# line console 0  
Detroit-SW5(config-line)# password best  
Detroit-SW5(config-line)# login  
Detroit-SW5(config-line)# exit  
Detroit-SW5(config)# enable secret tinker  
Detroit-SW5(config)# line vty 0 4  
Detroit-SW5(config-line)# password hero  
Detroit-SW5(config-line)# login  
Detroit-SW5(config-line)# exit  
Detroit-SW5(config)# service password-encryption  
Detroit-SW5(config)# banner motd  
#!!!!!!!!!!!!!!Warning!!!  
Warning!!!Unauthorized entry is a criminal  
affence!!!!!!#
```

Main

```
Detroit-SW-Main(config)# line console 0  
Detroit-SW-Main(config-line)# password best  
Detroit-SW-Main(config-line)# login  
Detroit-SW-Main(config-line)# exit  
Detroit-SW-Main(config)# enable secret tinker  
Detroit-SW-Main(config)# line vty 0 4  
Detroit-SW-Main(config-line)# password hero
```

```
Detroit-SW-Main(config-line)# login
Detroit-SW-Main(config-line)# exit
Detroit-SW-Main(config)# service password-encryption
Detroit-SW-Main(config)# banner motd
#!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!! Warning!!!
Warning!!!Unauthorized entry is a criminal
affence!!!!!!#
```

Router

```
Detroit-R(config)# line console 0
Detroit-R (config-line)# password best
Detroit-R (config-line)# login
Detroit-R (config-line)# exit
Detroit-R (config)# enable secret tinker
Detroit-R (config)# line vty 0 4
Detroit-R (config-line)# password hero
Detroit-R (config-line)# login
Detroit-R (config-line)# exit
Detroit-R (config)# service password-encryption
Detroit-R (config)# banner motd
#!!!!!!!!!!!!!!!!!!!!!! Warning!!!
Warning!!!Unauthorized entry is a criminal
affence!!!!!!#
```

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Security commands – Zyrich:

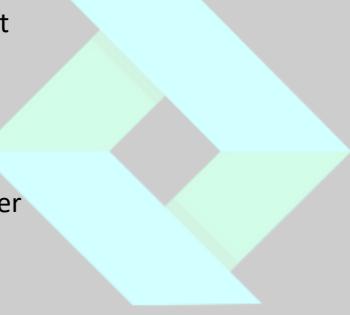
Floor 1

```
Zyrich-SW1(config)# line console 0
Zyrich-SW1(config-line)# password best
Zyrich-SW1(config-line)# login
Zyrich-SW1(config-line)# exit
Zyrich-SW1(config)# enable secret tinker
```

```
Zyrich-SW1(config)# line vty 0 4
Zyrich-SW1(config-line)# password hero
Zyrich-SW1(config-line)# login
Zyrich-SW1(config-line)# exit
Zyrich-SW1(config)# service password-encryption
Zyrich-SW1(config)# banner motd
#!!!!!!!!!!!!!!Warning!!!
Warning!!!Unauthorized entry is a criminal
affence!!!!!!#
```

Floor 2

```
Zyrich-SW2(config)# line console 0
Zyrich-SW2(config-line)# password best
Zyrich-SW2(config-line)# login
Zyrich-SW2(config-line)# exit
Zyrich-SW2(config)# enable secret tinker
Zyrich-SW2(config)# line vty 0 4
Zyrich-SW2(config-line)# password hero
Zyrich-SW2(config-line)# login
Zyrich-SW2(config-line)# exit
Zyrich-SW2(config)# service password-encryption
Zyrich-SW2(config)# banner motd
#!!!!!!!!!!!!!!Warning!!!
Warning!!!Unauthorized entry is a criminal
affence!!!!!!#
```



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Floor 3

```
Zyrich-SW3(config)# line console 0
Zyrich-SW3(config-line)# password best
Zyrich-SW3(config-line)# login
Zyrich-SW3(config-line)# exit
Zyrich-SW3(config)# enable secret tinker
```

```
Zyrich-SW3(config)# line vty 0 4
Zyrich-SW3(config-line)# password hero
Zyrich-SW3(config-line)# login
Zyrich-SW3(config-line)# exit
Zyrich-SW3(config)# service password-encryption
Zyrich-SW3(config)# banner motd
#!!!!!!!!!!!!!!Warning!!!
Warning!!!Unauthorized entry is a criminal
affence!!!!!!#
```

Floor 4

```
Zyrich-SW4(config)# line console 0
Zyrich-SW4(config-line)# password best
Zyrich-SW4(config-line)# login
Zyrich-SW4(config-line)# exit
Zyrich-SW4(config)# enable secret tinker
Zyrich-SW4(config)# line vty 0 4
Zyrich-SW4(config-line)# password hero
Zyrich-SW4(config-line)# login
Zyrich-SW4(config-line)# exit
Zyrich-SW4(config)# service password-encryption
Zyrich-SW4(config)# banner motd
#!!!!!!!!!!!!!!Warning!!!
Warning!!!Unauthorized entry is a criminal
affence!!!!!!#
```

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Floor 5

```
Zyrich-SW5(config)# line console 0
Zyrich-SW5(config-line)# password best
Zyrich-SW5(config-line)# login
Zyrich-SW5(config-line)# exit
Zyrich-SW5(config)# enable secret tinker
```

```
Zyrich-SW5(config)# line vty 0 4
Zyrich-SW5(config-line)# password hero
Zyrich-SW5(config-line)# login
Zyrich-SW5(config-line)# exit
Zyrich-SW5(config)# service password-encryption
Zyrich-SW5(config)# banner motd
#!!!!!!!!!!!!!!Warning!!!
Warning!!!Unauthorized entry is a criminal
affence!!!!!!#
```

Router

```
Zyrich-Router(config)# line console 0
Zyrich-Router(config-line)# password best
Zyrich-Router(config-line)# login
Zyrich-Router(config-line)# exit
Zyrich-Router(config)# enable secret tinker
Zyrich-Router(config)# line vty 0 4
Zyrich-Router(config-line)# password hero
Zyrich-Router(config-line)# login
Zyrich-Router(config-line)# exit
Zyrich-Router(config)# service password-encryption
Zyrich-Router(config)# banner motd
#!!!!!!!!!!!!!!Warning!!!
Warning!!!Unauthorized entry is a criminal
affence!!!!!!#
```

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DHCP

DHCP (Dynamic Host Configuration Protocol) is a network protocol that automatically assigns IP addresses and other network settings (like gateway and DNS) to devices on a network, enabling them to communicate efficiently.

DHCP commands – Zytomir:

```
Zytomir-R(config)# ip dhcp pool vlan131-CEO  
Zytomir-R(dhcp-config)# network 192.168.131.0 255.255.255.0  
Zytomir-R(dhcp-config)# default-router 192.168.131.254  
Zytomir-R(dhcp-config)# dns-server 202.202.202.202  
Zytomir-R(dhcp-config)# ip dhcp pool vlan132-Finance  
Zytomir-R(dhcp-config)# network 192.168.132.0 255.255.255.0  
Zytomir-R(dhcp-config)# default-router 192.168.132.254  
Zytomir-R(dhcp-config)# dns-server 202.202.202.202  
Zytomir-R(dhcp-config)# ip dhcp pool vlan133-Operations  
Zytomir-R(dhcp-config)# network 192.168.133.0 255.255.255.0  
Zytomir-R(dhcp-config)# default-router 192.168.133.254  
Zytomir-R(dhcp-config)# dns-server 202.202.202.202  
Zytomir-R(dhcp-config)# ip dhcp pool vlan134-Legal  
Zytomir-R(dhcp-config)# network 192.168.134.0 255.255.255.0  
Zytomir-R(dhcp-config)# default-router 192.168.134.254  
Zytomir-R(dhcp-config)# dns-server 202.202.202.202  
Zytomir-R(dhcp-config)# ip dhcp pool vlan135-Research  
Zytomir-R(dhcp-config)# network 172.20.0.0 255.255.0.0  
Zytomir-R(dhcp-config)# default-router 172.20.255.254  
Zytomir-R(dhcp-config)# dns-server 202.202.202.202  
Zytomir-R(dhcp-config)# ip dhcp pool vlan136-Visualization  
Zytomir-R(dhcp-config)# network 172.21.0.0 255.255.0.0  
Zytomir-R(dhcp-config)# default-router 172.21.255.254  
Zytomir-R(dhcp-config)# dns-server 202.202.202.202
```

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```

Zytomir-R(dhcp-config)# ip dhcp pool vlan137-Gaming
Zytomir-R(dhcp-config)# network 10.0.0.0 255.0.0.0
Zytomir-R(dhcp-config)# default-router 10.255.255.254
Zytomir-R(dhcp-config)# dns-server 202.202.202.202
Zytomir-R(dhcp-config)# exit
Zytomir-R(config)# ip dhcp excluded-address 192.168.131.240 192.168.131.254
Zytomir-R(config)# ip dhcp excluded-address 192.168.132.240 192.168.132.254
Zytomir-R(config)# ip dhcp excluded-address 192.168.133.240 192.168.133.254
Zytomir-R(config)# ip dhcp excluded-address 192.168.134.240 192.168.134.254
Zytomir-R(config)# ip dhcp excluded-address 172.20.255.240 172.20.255.254
Zytomir-R(config)# ip dhcp excluded-address 172.21.255.240 172.21.255.254
Zytomir-R(config)# ip dhcp excluded-address 10.255.255.240 10.255.255.254
  
```

DHCP commands – Detroit:

```

Detroit-R(config)# ip dhcp pool vlan131-CEO
Detroit-R(dhcp-config)# network 192.168.131.0 255.255.255.0
Detroit-R(dhcp-config)# default-router 192.168.131.254
Detroit-R(dhcp-config)# dns-server 202.202.202.202
Detroit-R(dhcp-config)# ip dhcp pool vlan132-Finance
Detroit-R(dhcp-config)# network 192.168.132.0 255.255.255.0
Detroit-R(dhcp-config)# default-router 192.168.132.254
Detroit-R(dhcp-config)# dns-server 202.202.202.202
Detroit-R(dhcp-config)# ip dhcp pool vlan133-Operations
Detroit-R(dhcp-config)# network 192.168.133.0 255.255.255.0
Detroit-R(dhcp-config)# default-router 192.168.133.254
Detroit-R(dhcp-config)# dns-server 202.202.202.202
Detroit-R(dhcp-config)# ip dhcp pool vlan134-Guest
Detroit-R(dhcp-config)# network 192.168.134.0 255.255.255.0
Detroit-R(dhcp-config)# default-router 192.168.134.254
Detroit-R(dhcp-config)# dns-server 202.202.202.202
Detroit-R(dhcp-config)# ip dhcp pool vlan135-Research
  
```

```

Detroit-R(dhcp-config)# network 172.20.0.0 255.255.0.0
Detroit-R(dhcp-config)# default-router 172.20.255.254
Detroit-R(dhcp-config)# dns-server 202.202.202.202
Detroit-R(dhcp-config)# ip dhcp pool vlan137-Gaming
Detroit-R(dhcp-config)# network 10.0.0.0 255.0.0.0
Detroit-R(dhcp-config)# default-router 10.255.255.254
Detroit-R(dhcp-config)# dns-server 202.202.202.202
Detroit-R(dhcp-config)# ip dhcp pool vlan138-AccessPoint
Detroit-R(dhcp-config)# network 192.168.138.0 255.255.255.0
Detroit-R(dhcp-config)# default-router 192.168.138.254
Detroit-R(dhcp-config)# dns-server 202.202.202.202
Detroit-R(dhcp-config)# exit
Detroit-R(config)# ip dhcp excluded-address 192.168.131.240 192.168.131.254
Detroit-R(config)# ip dhcp excluded-address 192.168.132.240 192.168.132.254
Detroit-R(config)# ip dhcp excluded-address 192.168.133.240 192.168.133.254
Detroit-R(config)# ip dhcp excluded-address 192.168.134.240 192.168.134.254
Detroit-R(config)# ip dhcp excluded-address 172.20.255.240 172.20.255.254
Detroit-R(config)# ip dhcp excluded-address 10.255.255.240 10.255.255.254

```

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DHCP commands – Zyrich:

```

Zytomir-R(config)# ip dhcp pool vlan131-CEO
Zytomir-R(dhcp-config)# network 192.168.131.0 255.255.255.0
Zytomir-R(dhcp-config)# default-router 192.168.131.254
Zytomir-R(dhcp-config)# dns-server 202.202.202.202
Zytomir-R(dhcp-config)# ip dhcp pool vlan132-Finance
Zytomir-R(dhcp-config)# network 192.168.132.0 255.255.255.0
Zytomir-R(dhcp-config)# default-router 192.168.132.254
Zytomir-R(dhcp-config)# dns-server 202.202.202.202
Zytomir-R(dhcp-config)# ip dhcp pool vlan133-Operations
Zytomir-R(dhcp-config)# network 192.168.133.0 255.255.255.0

```

```

Zytomir-R(dhcp-config)# default-router 192.168.133.254
Zytomir-R(dhcp-config)# dns-server 202.202.202.202
Zytomir-R(dhcp-config)# ip dhcp pool vlan134-Guest
Zytomir-R(dhcp-config)# network 192.168.134.0 255.255.255.0
Zytomir-R(dhcp-config)# default-router 192.168.134.254
Zytomir-R(dhcp-config)# dns-server 202.202.202.202
Zytomir-R(dhcp-config)# ip dhcp pool vlan135-Research
Zytomir-R(dhcp-config)# network 172.20.0.0 255.255.0.0
Zytomir-R(dhcp-config)# default-router 172.20.255.254
Zytomir-R(dhcp-config)# dns-server 202.202.202.202
Zytomir-R(dhcp-config)# ip dhcp pool vlan137-Gaming
Zytomir-R(dhcp-config)# network 10.0.0.0 255.0.0.0
Zytomir-R(dhcp-config)# default-router 10.255.255.254
Zytomir-R(dhcp-config)# dns-server 202.202.202.202
Zytomir-R(dhcp-config)# ip dhcp pool vlan138-AccessPoint
Zytomir-R(dhcp-config)# network 192.168.138.0 255.255.255.0
Zytomir-R(dhcp-config)# default-router 192.168.138.254
Zytomir-R(dhcp-config)# dns-server 202.202.202.202
Zytomir-R(dhcp-config)# ip dhcp pool vlan139-AccessPointForWorker
Zytomir-R(dhcp-config)# network 192.168.139.0 255.255.255.0
Zytomir-R(dhcp-config)# default-router 192.168.139.254
Zytomir-R(dhcp-config)# dns-server 202.202.202.202
Zytomir-R(dhcp-config)# exit
Zytomir-R(config)# ip dhcp excluded-address 192.168.131.240 192.168.131.254
Zytomir-R(config)# ip dhcp excluded-address 192.168.132.240 192.168.132.254
Zytomir-R(config)# ip dhcp excluded-address 192.168.133.240 192.168.133.254
Zytomir-R(config)# ip dhcp excluded-address 192.168.134.240 192.168.134.254
Zytomir-R(config)# ip dhcp excluded-address 172.20.255.240 172.20.255.254
Zytomir-R(config)# ip dhcp excluded-address 10.255.255.240 10.255.255.254
Zytomir-R(config)# ip dhcp excluded-address 192.168.138.240 192.168.138.254
Zytomir-R(config)# ip dhcp excluded-address 192.168.139.240 192.168.139.254

```



VLAN

VLAN (Virtual Local Area Network) is a logical subdivision of a physical network that groups devices together, even if they are on different physical switches. It improves network segmentation, security, and traffic management by isolating broadcast domains within the same physical infrastructure.

Commands on the switches – Zytomir:

Floor 1

```
Zytomir-SW-1> enable
Zytomir-SW-1# configure terminal
Zytomir-SW-1(config)# vlan 131
Zytomir-SW-1(config-vlan)# name CEO
Zytomir-SW-1(config-vlan)# exit
Zytomir-SW-1(config)# vlan 132
Zytomir-SW-1(config-vlan)# name Finance
Zytomir-SW-1(config-vlan)# exit
Zytomir-SW-1(config)# vlan 133
Zytomir-SW-1(config-vlan)# name Operations
Zytomir-SW-1(config-vlan)# exit
Zytomir-SW-1(config)# vlan 134
Zytomir-SW-1(config-vlan)# name Legal
Zytomir-SW-1(config-vlan)# exit
Zytomir-SW-1(config)# vlan 135
Zytomir-SW-1(config-vlan)# name Research
Zytomir-SW-1(config-vlan)# exit
Zytomir-SW-1(config)# vlan 136
Zytomir-SW-1(config-vlan)# name Visualization
Zytomir-SW-1(config-vlan)# exit
Zytomir-SW-1(config)# vlan 137
Zytomir-SW-1(config-vlan)# name Gaming
```



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```
Zytomir-SW-1(config-vlan)# exit
```

```
Zytomir-SW-1(config)# interface fa0/1
```

```
Zytomir-SW-1(config-if)# switchport access vlan 131
```

```
Zytomir-SW-1(config-if)# exit
```

```
Zytomir-SW-1(config)# interface fa0/2
```

```
Zytomir-SW-1(config-if)# switchport access vlan 132
```

```
Zytomir-SW-1(config-if)# exit
```

```
Zytomir-SW-1(config)# interface fa0/3
```

```
Zytomir-SW-1(config-if)# switchport access vlan 133
```

```
Zytomir-SW-1(config-if)# exit
```

```
Zytomir-SW-1(config)# interface fa0/4
```

```
Zytomir-SW-1(config-if)# switchport access vlan 134
```

```
Zytomir-SW-1(config-if)# exit
```

```
Zytomir-SW-1(config)# interface fa0/5
```

```
Zytomir-SW-1(config-if)# switchport access vlan 135
```

```
Zytomir-SW-1(config-if)# exit
```

```
Zytomir-SW-1(config)# interface fa0/6
```

```
Zytomir-SW-1(config-if)# switchport access vlan 136
```

```
Zytomir-SW-1(config-if)# exit
```

```
Zytomir-SW-1(config)# interface fa0/7
```

```
Zytomir-SW-1(config-if)# switchport access vlan 137
```

```
Zytomir-SW-1(config-if)# exit
```

Floor 2

```
Zytomir-SW-2> enable
```

```
Zytomir-SW-2# configure terminal
```

```
Zytomir-SW-2(config)# vlan 131
```

```
Zytomir-SW-2(config-vlan)# name CEO
```

```
Zytomir-SW-2(config-vlan)# exit
```

```
Zytomir-SW-2(config)# vlan 132
```

```
Zytomir-SW-2(config-vlan)# name Finance
```

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```
Zytomir-SW-2(config-vlan)# exit
Zytomir-SW-2(config)# vlan 133
Zytomir-SW-2(config-vlan)# name Operations
Zytomir-SW-2(config-vlan)# exit
Zytomir-SW-2(config)# vlan 134
Zytomir-SW-2(config-vlan)# name Legal
Zytomir-SW-2(config-vlan)# exit
Zytomir-SW-2(config)# vlan 135
Zytomir-SW-2(config-vlan)# name Research
Zytomir-SW-2(config-vlan)# exit
Zytomir-SW-2(config)# vlan 136
Zytomir-SW-2(config-vlan)# name Visualization
Zytomir-SW-2(config-vlan)# exit
Zytomir-SW-2(config)# vlan 137
Zytomir-SW-2(config-vlan)# name Gaming
Zytomir-SW-2(config-vlan)# exit
Zytomir-SW-2(config)# interface fa0/1
Zytomir-SW-2(config-if)# switchport access vlan 131
Zytomir-SW-2(config-if)# exit
Zytomir-SW-2(config)# interface fa0/2
Zytomir-SW-2(config-if)# switchport access vlan 132
Zytomir-SW-2(config-if)# exit
Zytomir-SW-2(config)# interface fa0/3
Zytomir-SW-2(config-if)# switchport access vlan 133
Zytomir-SW-2(config-if)# exit
Zytomir-SW-2(config)# interface fa0/4
Zytomir-SW-2(config-if)# switchport access vlan 134
Zytomir-SW-2(config-if)# exit
Zytomir-SW-2(config)# interface fa0/5
Zytomir-SW-2(config-if)# switchport access vlan 135
Zytomir-SW-2(config-if)# exit
```



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```
Zytomir-SW-2(config)# interface fa0/6
Zytomir-SW-2(config-if)# switchport access vlan 136
Zytomir-SW-2(config-if)# exit
Zytomir-SW-2(config)# interface fa0/7
Zytomir-SW-2(config-if)# switchport access vlan 137
Zytomir-SW-2(config-if)# exit
```

Floor 3

```
Zytomir-SW-3> enable
Zytomir-SW-3# configure terminal
Zytomir-SW-3(config)# vlan 131
Zytomir-SW-3(config-vlan)# name CEO
Zytomir-SW-3(config-vlan)# exit
Zytomir-SW-3(config)# vlan 132
Zytomir-SW-3(config-vlan)# name Finance
Zytomir-SW-3(config-vlan)# exit
Zytomir-SW-3(config)# vlan 133
Zytomir-SW-3(config-vlan)# name Operations
Zytomir-SW-3(config-vlan)# exit
Zytomir-SW-3(config)# vlan 134
Zytomir-SW-3(config-vlan)# name Legal
Zytomir-SW-3(config-vlan)# exit
Zytomir-SW-3(config)# vlan 135
Zytomir-SW-3(config-vlan)# name Research
Zytomir-SW-3(config-vlan)# exit
Zytomir-SW-3(config)# vlan 136
Zytomir-SW-3(config-vlan)# name Visualization
Zytomir-SW-3(config-vlan)# exit
Zytomir-SW-3(config)# vlan 137
Zytomir-SW-3(config-vlan)# name Gaming
Zytomir-SW-3(config-vlan)# exit
```

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```
Zytomir-SW-3(config)# interface fa0/1
Zytomir-SW-3(config-if)# switchport access vlan 131
Zytomir-SW-3(config-if)# exit
Zytomir-SW-3(config)# interface fa0/2
Zytomir-SW-3(config-if)# switchport access vlan 132
Zytomir-SW-3(config-if)# exit
Zytomir-SW-3(config)# interface fa0/3
Zytomir-SW-3(config-if)# switchport access vlan 133
Zytomir-SW-3(config-if)# exit
Zytomir-SW-3(config)# interface fa0/4
Zytomir-SW-3(config-if)# switchport access vlan 134
Zytomir-SW-3(config-if)# exit
Zytomir-SW-3(config)# interface fa0/5
Zytomir-SW-3(config-if)# switchport access vlan 135
Zytomir-SW-3(config-if)# exit
Zytomir-SW-3(config)# interface fa0/6
Zytomir-SW-3(config-if)# switchport access vlan 136
Zytomir-SW-3(config-if)# exit
Zytomir-SW-3(config)# interface fa0/7
Zytomir-SW-3(config-if)# switchport access vlan 137
Zytomir-SW-3(config-if)# exit
```

Floor 4

```
Zytomir-SW-4> enable
Zytomir-SW-4# configure terminal
Zytomir-SW-4(config)# vlan 131
Zytomir-SW-4(config-vlan)# name CEO
Zytomir-SW-4(config-vlan)# exit
Zytomir-SW-4(config)# vlan 132
Zytomir-SW-4(config-vlan)# name Finance
Zytomir-SW-4(config-vlan)# exit
Zytomir-SW-4(config)# vlan 133
```

```
Zytomir-SW-4(config-vlan)# name Operations
Zytomir-SW-4(config-vlan)# exit
Zytomir-SW-4(config)# vlan 134
Zytomir-SW-4(config-vlan)# name Legal
Zytomir-SW-4(config-vlan)# exit
Zytomir-SW-4(config)# vlan 135
Zytomir-SW-4(config-vlan)# name Research
Zytomir-SW-4(config-vlan)# exit
Zytomir-SW-4(config)# vlan 136
Zytomir-SW-4(config-vlan)# name Visualization
Zytomir-SW-4(config-vlan)# exit
Zytomir-SW-4(config)# vlan 137
Zytomir-SW-4(config-vlan)# name Gaming
Zytomir-SW-4(config-vlan)# exit
Zytomir-SW-4(config)# interface fa0/1
Zytomir-SW-4(config-if)# switchport access vlan 131
Zytomir-SW-4(config-if)# exit
Zytomir-SW-4(config)# interface fa0/2
Zytomir-SW-4(config-if)# switchport access vlan 132
Zytomir-SW-4(config-if)# exit
Zytomir-SW-4(config)# interface fa0/3
Zytomir-SW-4(config-if)# switchport access vlan 133
Zytomir-SW-4(config-if)# exit
Zytomir-SW-4(config)# interface fa0/4
Zytomir-SW-4(config-if)# switchport access vlan 134
Zytomir-SW-4(config-if)# exit
Zytomir-SW-4(config)# interface fa0/5
Zytomir-SW-4(config-if)# switchport access vlan 135
Zytomir-SW-4(config-if)# exit
Zytomir-SW-4(config)# interface fa0/6
Zytomir-SW-4(config-if)# switchport access vlan 136
```

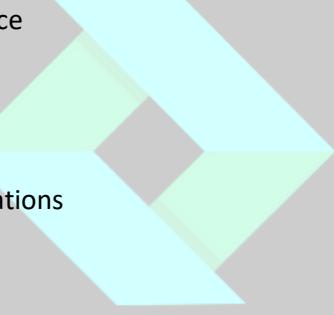


P.BOLOTOV

```
Zytomir-SW-4(config-if)# exit  
Zytomir-SW-4(config)# interface fa0/7  
Zytomir-SW-4(config-if)# switchport access vlan 137  
Zytomir-SW-4(config-if)# exit
```

Floor 5

```
Zytomir-SW-5> enable  
Zytomir-SW-5# configure terminal  
Zytomir-SW-5(config)# vlan 131  
Zytomir-SW-5(config-vlan)# name CEO  
Zytomir-SW-5(config-vlan)# exit  
Zytomir-SW-5(config)# vlan 132  
Zytomir-SW-5(config-vlan)# name Finance  
Zytomir-SW-5(config-vlan)# exit  
Zytomir-SW-5(config)# vlan 133  
Zytomir-SW-5(config-vlan)# name Operations  
Zytomir-SW-5(config-vlan)# exit  
Zytomir-SW-5(config)# vlan 134  
Zytomir-SW-5(config-vlan)# name Legal  
Zytomir-SW-5(config-vlan)# exit  
Zytomir-SW-5(config)# vlan 135  
Zytomir-SW-5(config-vlan)# name Research  
Zytomir-SW-5(config-vlan)# exit  
Zytomir-SW-5(config)# vlan 136  
Zytomir-SW-5(config-vlan)# name Visualization  
Zytomir-SW-5(config-vlan)# exit  
Zytomir-SW-5(config)# vlan 137  
Zytomir-SW-5(config-vlan)# name Gaming  
Zytomir-SW-5(config-vlan)# exit  
Zytomir-SW-5(config)# interface fa0/1  
Zytomir-SW-5(config-if)# switchport access vlan 131  
Zytomir-SW-5(config-if)# exit
```



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```
Zytomir-SW-5(config)# interface fa0/2
Zytomir-SW-5(config-if)# switchport access vlan 132
Zytomir-SW-5(config-if)# exit
Zytomir-SW-5(config)# interface fa0/3
Zytomir-SW-5(config-if)# switchport access vlan 133
Zytomir-SW-5(config-if)# exit
Zytomir-SW-5(config)# interface fa0/4
Zytomir-SW-5(config-if)# switchport access vlan 134
Zytomir-SW-5(config-if)# exit
Zytomir-SW-5(config)# interface fa0/5
Zytomir-SW-5(config-if)# switchport access vlan 135
Zytomir-SW-5(config-if)# exit
Zytomir-SW-5(config)# interface fa0/6
Zytomir-SW-5(config-if)# switchport access vlan 136
Zytomir-SW-5(config-if)# exit
Zytomir-SW-5(config)# interface fa0/7
Zytomir-SW-5(config-if)# switchport access vlan 137
Zytomir-SW-5(config-if)# exit
```

Floor 6

P.BOLOTOV

```
Zytomir-SW-6> enable
Zytomir-SW-6# configure terminal
Zytomir-SW-6(config)# vlan 131
Zytomir-SW-6(config-vlan)# name CEO
Zytomir-SW-6(config-vlan)# exit
Zytomir-SW-6(config)# vlan 132
Zytomir-SW-6(config-vlan)# name Finance
Zytomir-SW-6(config-vlan)# exit
Zytomir-SW-6(config)# vlan 133
Zytomir-SW-(config-vlan)# name Operations
Zytomir-SW-6(config-vlan)# exit
Zytomir-SW-6(config)# vlan 134
```

```
Zytomir-SW-6(config-vlan)# name Legal
Zytomir-SW-6(config-vlan)# exit
Zytomir-SW-6(config)# vlan 135
Zytomir-SW-6(config-vlan)# name Research
Zytomir-SW-6(config-vlan)# exit
Zytomir-SW-6(config)# vlan 136
Zytomir-SW-6(config-vlan)# name Visualization
Zytomir-SW-6(config-vlan)# exit
Zytomir-SW-6(config)# vlan 137
Zytomir-SW-6(config-vlan)# name Gaming
Zytomir-SW-6(config-vlan)# exit
Zytomir-SW-6(config)# interface fa0/1
Zytomir-SW-6(config-if)# switchport access vlan 131
Zytomir-SW-6(config-if)# exit
Zytomir-SW-6(config)# interface fa0/2
Zytomir-SW-6(config-if)# switchport access vlan 132
Zytomir-SW-6(config-if)# exit
Zytomir-SW-6(config)# interface fa0/3
Zytomir-SW-6(config-if)# switchport access vlan 133
Zytomir-SW-6(config-if)# exit
Zytomir-SW-6(config)# interface fa0/4
Zytomir-SW-6(config-if)# switchport access vlan 134
Zytomir-SW-6(config-if)# exit
Zytomir-SW-6(config)# interface fa0/5
Zytomir-SW-6(config-if)# switchport access vlan 135
Zytomir-SW-6(config-if)# exit
Zytomir-SW-6(config)# interface fa0/6
Zytomir-SW-6(config-if)# switchport access vlan 136
Zytomir-SW-6(config-if)# exit
Zytomir-SW-6(config)# interface fa0/7
Zytomir-SW-6(config-if)# switchport access vlan 137
```

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```
Zytomir-SW-6(config-if)# exit
```

Floor 7

```
Zytomir-SW-7> enable
```

```
Zytomir-SW-7# configure terminal
```

```
Zytomir-SW-7(config)# vlan 131
```

```
Zytomir-SW-7(config-vlan)# name CEO
```

```
Zytomir-SW-7(config-vlan)# exit
```

```
Zytomir-SW-7(config)# vlan 132
```

```
Zytomir-SW-7(config-vlan)# name Finance
```

```
Zytomir-SW-7(config-vlan)# exit
```

```
Zytomir-SW-7(config)# vlan 133
```

```
Zytomir-SW-7(config-vlan)# name Operations
```

```
Zytomir-SW-7(config-vlan)# exit
```

```
Zytomir-SW-7(config)# vlan 134
```

```
Zytomir-SW-7(config-vlan)# name Legal
```

```
Zytomir-SW-7(config-vlan)# exit
```

```
Zytomir-SW-7(config)# vlan 135
```

```
Zytomir-SW-7(config-vlan)# name Research
```

```
Zytomir-SW-7(config-vlan)# exit
```

```
Zytomir-SW-7(config)# vlan 136
```

```
Zytomir-SW-7(config-vlan)# name Visualization
```

```
Zytomir-SW-7(config-vlan)# exit
```

```
Zytomir-SW-7(config)# vlan 137
```

```
Zytomir-SW-7(config-vlan)# name Gaming
```

```
Zytomir-SW-7(config-vlan)# exit
```

```
Zytomir-SW-7(config)# interface fa0/1
```

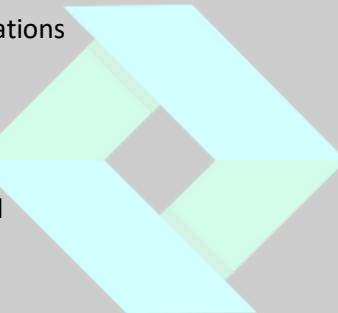
```
Zytomir-SW-7(config-if)# switchport access vlan 131
```

```
Zytomir-SW-7(config-if)# exit
```

```
Zytomir-SW-7(config)# interface fa0/2
```

```
Zytomir-SW-7(config-if)# switchport access vlan 132
```

```
Zytomir-SW-7(config-if)# exit
```



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```

Zytomir-SW-7(config)# interface fa0/3
Zytomir-SW-7(config-if)# switchport access vlan 133
Zytomir-SW-7(config-if)# exit
Zytomir-SW-7(config)# interface fa0/4
Zytomir-SW-7(config-if)# switchport access vlan 134
Zytomir-SW-7(config-if)# exit
Zytomir-SW-7(config)# interface fa0/5
Zytomir-SW-7(config-if)# switchport access vlan 135
Zytomir-SW-7(config-if)# exit
Zytomir-SW-7(config)# interface fa0/6
Zytomir-SW-7(config-if)# switchport access vlan 136
Zytomir-SW-7(config-if)# exit
Zytomir-SW-7(config)# interface fa0/7
Zytomir-SW-7(config-if)# switchport access vlan 137
Zytomir-SW-7(config-if)# exit
  
```

Main
 Commands on the switches – Detroit:
Floor 1 **P.BOLOTOV**

```

Detroit-SW1> enable
Detroit-SW1# configure terminal
Detroit-SW1(config)# vlan 131
Detroit-SW1(config-vlan)# name CEO
Detroit-SW1(config-vlan)# exit
Detroit-SW1(config)# vlan 132
Detroit-SW1(config-vlan)# name Finance
Detroit-SW1(config-vlan)# exit
Detroit-SW1(config)# vlan 133
Detroit-SW1(config-vlan)# name Operations
Detroit-SW1(config-vlan)# exit
Detroit-SW1(config)# vlan 134
  
```

```
Detroit-SW1(config-vlan)# name Guest
Detroit-SW1(config-vlan)# exit
Detroit-SW1(config)# vlan 135
Detroit-SW1(config-vlan)# name Research
Detroit-SW1(config-vlan)# exit
Detroit-SW1(config)# vlan 137
Detroit-SW1(config-vlan)# name Gaming
Detroit-SW1(config-vlan)# exit
Detroit-SW1(config)# vlan 138
Detroit-SW1(config-vlan)# name AccessPoint
Detroit-SW1(config-vlan)# exit
Detroit-SW1(config)# interface fa0/1
Detroit-SW1(config-if)# switchport access vlan 131
Detroit-SW1(config-if)# exit
Detroit-SW1(config)# interface fa0/2
Detroit-SW1(config-if)# switchport access vlan 132
Detroit-SW1(config-if)# exit
Detroit-SW1(config)# interface fa0/3
Detroit-SW1(config-if)# switchport access vlan 133
Detroit-SW1(config-if)# exit
Detroit-SW1(config)# interface fa0/4
Detroit-SW1(config-if)# switchport access vlan 134
Detroit-SW1(config-if)# exit
Detroit-SW1(config)# interface fa0/5
Detroit-SW1(config-if)# switchport access vlan 135
Detroit-SW1(config-if)# exit
Detroit-SW1(config)# interface fa0/6
Detroit-SW1(config-if)# switchport access vlan 137
Detroit-SW1(config-if)# exit
Detroit-SW1(config)# interface fa0/7
Detroit-SW1(config-if)# switchport access vlan 138
```

P.BOLOTOV

```
Detroit-SW1(config-if)# exit
```

Floor 2

```
Detroit-SW2> enable
```

```
Detroit-SW2# configure terminal
```

```
Detroit-SW2(config)# vlan 131
```

```
Detroit-SW2(config-vlan)# name CEO
```

```
Detroit-SW2(config-vlan)# exit
```

```
Detroit-SW2(config)# vlan 132
```

```
Detroit-SW2(config-vlan)# name Finance
```

```
Detroit-SW2(config-vlan)# exit
```

```
Detroit-SW2(config)# vlan 133
```

```
Detroit-SW2(config-vlan)# name Operations
```

```
Detroit-SW2(config-vlan)# exit
```

```
Detroit-SW2(config)# vlan 134
```

```
Detroit-SW2(config-vlan)# name Guest
```

```
Detroit-SW2(config-vlan)# exit
```

```
Detroit-SW2(config)# vlan 135
```

```
Detroit-SW2(config-vlan)# name Research
```

```
Detroit-SW2(config-vlan)# exit
```

```
Detroit-SW2(config)# vlan 137
```

```
Detroit-SW2(config-vlan)# name Gaming
```

```
Detroit-SW2(config-vlan)# exit
```

```
Detroit-SW2(config)# vlan 138
```

```
Detroit-SW2(config-vlan)# name AccessPoint
```

```
Detroit-SW2(config-vlan)# exit
```

```
Detroit-SW2(config)# interface fa0/1
```

```
Detroit-SW2(config-if)# switchport access vlan 131
```

```
Detroit-SW2(config-if)# exit
```

```
Detroit-SW2(config)# interface fa0/2
```

```
Detroit-SW2(config-if)# switchport access vlan 132
```

```
Detroit-SW2(config-if)# exit
Detroit-SW2(config)# interface fa0/3
Detroit-SW2(config-if)# switchport access vlan 133
Detroit-SW2(config-if)# exit
Detroit-SW2(config)# interface fa0/4
Detroit-SW2(config-if)# switchport access vlan 134
Detroit-SW2(config-if)# exit
Detroit-SW2(config)# interface fa0/5
Detroit-SW2(config-if)# switchport access vlan 135
Detroit-SW2(config-if)# exit
Detroit-SW2(config)# interface fa0/6
Detroit-SW2(config-if)# switchport access vlan 137
Detroit-SW2(config-if)# exit
Detroit-SW2(config)# interface fa0/7
Detroit-SW2(config-if)# switchport access vlan 138
Detroit-SW2(config-if)# exit
```

Floor 3

```
Detroit-SW3> enable
Detroit-SW3# configure terminal
Detroit-SW3(config)# vlan 131
Detroit-SW3(config-vlan)# name CEO
Detroit-SW3(config-vlan)# exit
Detroit-SW3(config)# vlan 132
Detroit-SW3(config-vlan)# name Finance
Detroit-SW3(config-vlan)# exit
Detroit-SW3(config)# vlan 133
Detroit-SW3(config-vlan)# name Operations
Detroit-SW3(config-vlan)# exit
Detroit-SW3(config)# vlan 134
Detroit-SW3(config-vlan)# name Guest
```

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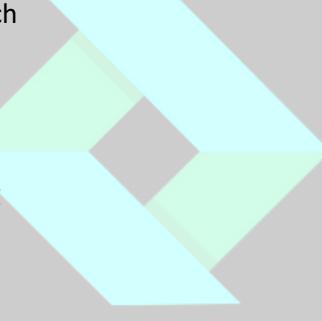
```
Detroit-SW3(config-vlan)# exit
Detroit-SW3(config)# vlan 135
Detroit-SW3(config-vlan)# name Research
Detroit-SW3(config-vlan)# exit
Detroit-SW3(config)# vlan 137
Detroit-SW3(config-vlan)# name Gaming
Detroit-SW3(config-vlan)# exit
Detroit-SW3(config)# interface fa0/1
Detroit-SW3(config-if)# switchport access vlan 131
Detroit-SW3(config-if)# exit
Detroit-SW3(config)# interface fa0/2
Detroit-SW3(config-if)# switchport access vlan 132
Detroit-SW3(config-if)# exit
Detroit-SW3(config)# interface fa0/3
Detroit-SW3(config-if)# switchport access vlan 133
Detroit-SW3(config-if)# exit
Detroit-SW3(config)# interface fa0/4
Detroit-SW3(config-if)# switchport access vlan 134
Detroit-SW3(config-if)# exit
Detroit-SW3(config)# interface fa0/5
Detroit-SW3(config-if)# switchport access vlan 135
Detroit-SW3(config-if)# exit
Detroit-SW3(config)# interface fa0/6
Detroit-SW3(config-if)# switchport access vlan 137
Detroit-SW3(config-if)# exit
```

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Floor 4

```
Detroit-SW4> enable
Detroit-SW4(config terminal
Detroit-SW4(config)# vlan 131
Detroit-SW4(config-vlan)# name CEO
```

```
Detroit-SW4(config-vlan)# exit
Detroit-SW4(config)# vlan 132
Detroit-SW4(config-vlan)# name Finance
Detroit-SW4(config-vlan)# exit
Detroit-SW4(config)# vlan 133
Detroit-SW4(config-vlan)# name Operations
Detroit-SW4(config-vlan)# exit
Detroit-SW4(config)# vlan 134
Detroit-SW4(config-vlan)# name Guest
Detroit-SW4(config-vlan)# exit
Detroit-SW4(config)# vlan 135
Detroit-SW4(config-vlan)# name Research
Detroit-SW4(config-vlan)# exit
Detroit-SW4(config)# vlan 137
Detroit-SW4(config-vlan)# name Gaming
Detroit-SW4(config-vlan)# exit
Detroit-SW4(config)# interface fa0/1
Detroit-SW4(config-if)# switchport access vlan 131
Detroit-SW4(config-if)# exit
Detroit-SW4(config)# interface fa0/2
Detroit-SW4(config-if)# switchport access vlan 132
Detroit-SW4(config-if)# exit
Detroit-SW4(config)# interface fa0/3
Detroit-SW4(config-if)# switchport access vlan 133
Detroit-SW4(config-if)# exit
Detroit-SW4(config)# interface fa0/4
Detroit-SW4(config-if)# switchport access vlan 134
Detroit-SW4(config-if)# exit
Detroit-SW4(config)# interface fa0/5
Detroit-SW4(config-if)# switchport access vlan 135
Detroit-SW4(config-if)# exit
```



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```
Detroit-SW4(config)# interface fa0/6  
Detroit-SW4(config-if)# switchport access vlan 137  
Detroit-SW4(config-if)# exit
```

Floor 5

```
Detroit-SW5> enable  
Detroit-SW5(config terminal  
Detroit-SW5(config)# vlan 131  
Detroit-SW5(config-vlan)# name CEO  
Detroit-SW5(config-vlan)# exit  
Detroit-SW5(config)# vlan 132  
Detroit-SW5(config-vlan)# name Finance  
Detroit-SW5(config-vlan)# exit  
Detroit-SW5(config)# vlan 133  
Detroit-SW5(config-vlan)# name Operations  
Detroit-SW5(config-vlan)# exit  
Detroit-SW5(config)# vlan 134  
Detroit-SW5(config-vlan)# name Guest  
Detroit-SW5(config-vlan)# exit  
Detroit-SW5(config)# vlan 135  
Detroit-SW5(config-vlan)# name Research  
Detroit-SW5(config-vlan)# exit  
Detroit-SW5(config)# vlan 137  
Detroit-SW5(config-vlan)# name Gaming  
Detroit-SW5(config-vlan)# exit  
Detroit-SW5(config)# interface fa0/1  
Detroit-SW5(config-if)# switchport access vlan 131  
Detroit-SW5(config-if)# exit  
Detroit-SW5(config)# interface fa0/2  
Detroit-SW5(config-if)# switchport access vlan 132  
Detroit-SW5(config-if)# exit
```

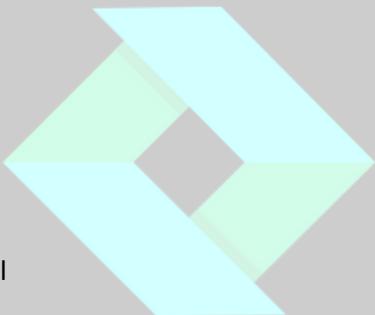


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```
Detroit-SW5(config)# interface fa0/3
Detroit-SW5(config-if)# switchport access vlan 133
Detroit-SW5(config-if)# exit
Detroit-SW5(config)# interface fa0/4
Detroit-SW5(config-if)# switchport access vlan 134
Detroit-SW5(config-if)# exit
Detroit-SW5(config)# interface fa0/5
Detroit-SW5(config-if)# switchport access vlan 135
Detroit-SW5(config-if)# exit
Detroit-SW5(config)# interface fa0/6
Detroit-SW5(config-if)# switchport access vlan 137
Detroit-SW5(config-if)# exit
```

Main

```
Detroit-SW-Main> enable
Detroit-SW-Main# configure terminal
Detroit-SW-Main(config)# vlan 131
Detroit-SW-Main(config-vlan)# name CEO
Detroit-SW-Main(config-vlan)# exit
Detroit-SW-Main(config)# vlan 132
Detroit-SW-Main(config-vlan)# name Finance
Detroit-SW-Main(config-vlan)# exit
Detroit-SW-Main(config)# vlan 133
Detroit-SW-Main(config-vlan)# name Operations
Detroit-SW-Main(config-vlan)# exit
Detroit-SW-Main(config)# vlan 134
Detroit-SW-Main(config-vlan)# name Guest
Detroit-SW-Main(config-vlan)# exit
Detroit-SW-Main(config)# vlan 135
Detroit-SW-Main(config-vlan)# name Research
Detroit-SW-Main(config-vlan)# exit
```



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```
Detroit-SW-Main(config)# vlan 137
Detroit-SW-Main(config-vlan)# name Gaming
Detroit-SW-Main(config-vlan)# exit
Detroit-SW-Main(config)# vlan 138
Detroit-SW-Main(config-vlan)# name AccessPoint
Detroit-SW-Main(config-vlan)# exit
```

Commands on the switches – Zyrich:

Floor 1

```
Zyrich-SW1> enable
Zyrich-SW1# configure terminal
Zyrich-SW1(config)# vlan 131
Zyrich-SW1(config-vlan)# name CEO
Zyrich-SW1(config-vlan)# exit
Zyrich-SW1(config)# vlan 132
Zyrich-SW1(config-vlan)# name Finance
Zyrich-SW1(config-vlan)# exit
Zyrich-SW1(config)# vlan 133
Zyrich-SW1(config-vlan)# name Operations
Zyrich-SW1(config-vlan)# exit
Zyrich-SW1(config)# vlan 134
Zyrich-SW1(config-vlan)# name Guest
Zyrich-SW1(config-vlan)# exit
Zyrich-SW1(config)# vlan 135
Zyrich-SW1(config-vlan)# name Research
Zyrich-SW1(config-vlan)# exit
Zyrich-SW1(config)# vlan 137
Zyrich-SW1(config-vlan)# name Gaming
Zyrich-SW1(config-vlan)# exit
Zyrich-SW1(config)# vlan 138
Zyrich-SW1(config-vlan)# name AccessPoint
Zyrich-SW1(config-vlan)# exit
```

P.BOLOTOV

```

Zyrich-SW1(config)# interface fa0/1
Zyrich-SW1(config-if)# switchport access vlan 131
Zyrich-SW1(config-if)# exit
Zyrich-SW1(config)# interface fa0/2
Zyrich-SW1(config-if)# switchport access vlan 132
Zyrich-SW1(config-if)# exit
Zyrich-SW1(config)# interface fa0/3
Zyrich-SW1(config-if)# switchport access vlan 133
Zyrich-SW1(config-if)# exit
Zyrich-SW1(config)# interface fa0/4
Zyrich-SW1(config-if)# switchport access vlan 134
Zyrich-SW1(config-if)# exit
Zyrich-SW1(config)# interface fa0/5
Zyrich-SW1(config-if)# switchport access vlan 135
Zyrich-SW1(config-if)# exit
Zyrich-SW1(config)# interface fa0/6
Zyrich-SW1(config-if)# switchport access vlan 137
Zyrich-SW1(config-if)# exit
Zyrich-SW1(config)# interface fa0/7
Zyrich-SW1(config-if)# switchport access vlan 138
Zyrich-SW1(config-if)# exit
  
```

Floor 2

```

Zyrich-SW2> enable
Zyrich-SW2# configure terminal
Zyrich-SW2(config)# vlan 131
Zyrich-SW2(config-vlan)# name CEO
Zyrich-SW2(config-vlan)# exit
Zyrich-SW2(config)# vlan 132
Zyrich-SW2(config-vlan)# name Finance
Zyrich-SW2(config-vlan)# exit
Zyrich-SW2(config)# vlan 133
  
```

P.BOLOTOV

```
Zyrich-SW2(config-vlan)# name Operations
Zyrich-SW2(config-vlan)# exit
Zyrich-SW2(config)# vlan 134
Zyrich-SW2(config-vlan)# name Guest
Zyrich-SW2(config-vlan)# exit
Zyrich-SW2(config)# vlan 135
Zyrich-SW2(config-vlan)# name Research
Zyrich-SW2(config-vlan)# exit
Zyrich-SW2(config)# vlan 137
Zyrich-SW2(config-vlan)# name Gaming
Zyrich-SW2(config-vlan)# exit
Zyrich-SW2(config)# vlan 138
Zyrich-SW2(config-vlan)# name AccessPoint
Zyrich-SW2(config-vlan)# exit
Zyrich-SW2(config)# interface fa0/1
Zyrich-SW2(config-if)# switchport access vlan 131
Zyrich-SW2(config-if)# exit
Zyrich-SW2(config)# interface fa0/2
Zyrich-SW2(config-if)# switchport access vlan 132
Zyrich-SW2(config-if)# exit
Zyrich-SW2(config)# interface fa0/3
Zyrich-SW2(config-if)# switchport access vlan 133
Zyrich-SW2(config-if)# exit
Zyrich-SW2(config)# interface fa0/4
Zyrich-SW2(config-if)# switchport access vlan 134
Zyrich-SW2(config-if)# exit
Zyrich-SW2(config)# interface fa0/5
Zyrich-SW2(config-if)# switchport access vlan 135
Zyrich-SW2(config-if)# exit
Zyrich-SW2(config)# interface fa0/6
Zyrich-SW2(config-if)# switchport access vlan 137
```



P.BOLOTOV

```
Zyrich-SW2(config-if)# exit  
Zyrich-SW2(config)# interface fa0/7  
Zyrich-SW2(config-if)# switchport access vlan 138  
Zyrich-SW2(config-if)# exit
```

Floor 3

```
Zyrich-SW3> enable  
Zyrich-SW3# configure terminal  
Zyrich-SW3(config)# vlan 131  
Zyrich-SW3(config-vlan)# name CEO  
Zyrich-SW3(config-vlan)# exit  
Zyrich-SW3(config)# vlan 132  
Zyrich-SW3(config-vlan)# name Finance  
Zyrich-SW3(config-vlan)# exit  
Zyrich-SW3(config)# vlan 133  
Zyrich-SW3(config-vlan)# name Operations  
Zyrich-SW3(config-vlan)# exit  
Zyrich-SW3(config)# vlan 134  
Zyrich-SW3(config-vlan)# name Guest  
Zyrich-SW3(config-vlan)# exit  
Zyrich-SW3(config)# vlan 135  
Zyrich-SW3(config-vlan)# name Research  
Zyrich-SW3(config-vlan)# exit  
Zyrich-SW3(config)# vlan 137  
Zyrich-SW3(config-vlan)# name Gaming  
Zyrich-SW3(config-vlan)# exit  
Zyrich-SW3(config)# vlan 138  
Zyrich-SW3(config-vlan)# name AccessPoint  
Zyrich-SW3(config-vlan)# exit  
Zyrich-SW3(config)# interface fa0/1  
Zyrich-SW3(config-if)# switchport access vlan 131
```



P.BOLOTOV

```
Zyrich-SW3(config-if)# exit
Zyrich-SW3(config)# interface fa0/2
Zyrich-SW3(config-if)# switchport access vlan 132
Zyrich-SW3(config-if)# exit
Zyrich-SW3(config)# interface fa0/3
Zyrich-SW3(config-if)# switchport access vlan 133
Zyrich-SW3(config-if)# exit
Zyrich-SW3(config)# interface fa0/4
Zyrich-SW3(config-if)# switchport access vlan 134
Zyrich-SW3(config-if)# exit
Zyrich-SW3(config)# interface fa0/5
Zyrich-SW3(config-if)# switchport access vlan 135
Zyrich-SW3(config-if)# exit
Zyrich-SW3(config)# interface fa0/6
Zyrich-SW3(config-if)# switchport access vlan 137
Zyrich-SW3(config-if)# exit
Zyrich-SW3(config)# interface fa0/7
Zyrich-SW3(config-if)# switchport access vlan 138
Zyrich-SW3(config-if)# exit
```

P.BOLOTOV

Floor 4

```
Zyrich-SW4> enable
Zyrich-SW4# configure terminal
Zyrich-SW4(config)# vlan 131
Zyrich-SW4(config-vlan)# name CEO
Zyrich-SW4(config-vlan)# exit
Zyrich-SW4(config)# vlan 132
Zyrich-SW4(config-vlan)# name Finance
Zyrich-SW4(config-vlan)# exit
Zyrich-SW4(config)# vlan 133
Zyrich-SW4(config-vlan)# name Operations
```

```
Zyrich-SW4(config-vlan)# exit
Zyrich-SW4(config)# vlan 134
Zyrich-SW4(config-vlan)# name Guest
Zyrich-SW4(config-vlan)# exit
Zyrich-SW4(config)# vlan 135
Zyrich-SW4(config-vlan)# name Research
Zyrich-SW4(config-vlan)# exit
Zyrich-SW4(config)# vlan 137
Zyrich-SW4(config-vlan)# name Gaming
Zyrich-SW4(config-vlan)# exit
Zyrich-SW4(config)# vlan 138
Zyrich-SW4(config-vlan)# name AccessPoint
Zyrich-SW4(config-vlan)# exit
Zyrich-SW4(config)# interface fa0/1
Zyrich-SW4(config-if)# switchport access vlan 131
Zyrich-SW4(config-if)# exit
Zyrich-SW4(config)# interface fa0/2
Zyrich-SW4(config-if)# switchport access vlan 132
Zyrich-SW4(config-if)# exit
Zyrich-SW4(config)# interface fa0/3
Zyrich-SW4(config-if)# switchport access vlan 133
Zyrich-SW4(config-if)# exit
Zyrich-SW4(config)# interface fa0/4
Zyrich-SW4(config-if)# switchport access vlan 134
Zyrich-SW4(config-if)# exit
Zyrich-SW4(config)# interface fa0/5
Zyrich-SW4(config-if)# switchport access vlan 135
Zyrich-SW4(config-if)# exit
Zyrich-SW4(config)# interface fa0/6
Zyrich-SW4(config-if)# switchport access vlan 137
Zyrich-SW4(config-if)# exit
```

P.BOLOTOV

```
Zyrich-SW4(config)# interface fa0/7  
Zyrich-SW4(config-if)# switchport access vlan 138  
Zyrich-SW4(config-if)# exit
```

Floor 5

```
Zyrich-SW5> enable  
Zyrich-SW5# configure terminal  
Zyrich-SW5(config)# vlan 131  
Zyrich-SW5(config-vlan)# name CEO  
Zyrich-SW5(config-vlan)# exit  
Zyrich-SW5(config)# vlan 132  
Zyrich-SW5(config-vlan)# name Finance  
Zyrich-SW5(config-vlan)# exit  
Zyrich-SW5(config)# vlan 133  
Zyrich-SW5(config-vlan)# name Operations  
Zyrich-SW5(config-vlan)# exit  
Zyrich-SW5(config)# vlan 134  
Zyrich-SW5(config-vlan)# name Guest  
Zyrich-SW5(config-vlan)# exit  
Zyrich-SW5(config)# vlan 135  
Zyrich-SW5(config-vlan)# name Research  
Zyrich-SW5(config-vlan)# exit  
Zyrich-SW5(config)# vlan 137  
Zyrich-SW5(config-vlan)# name Gaming  
Zyrich-SW5(config-vlan)# exit  
Zyrich-SW5(config)# vlan 138  
Zyrich-SW5(config-vlan)# name AccessPoint  
Zyrich-SW5(config-vlan)# exit  
Zyrich-SW5(config)# interface fa0/1  
Zyrich-SW5(config-if)# switchport access vlan 131  
Zyrich-SW5(config-if)# exit
```



P.BOLOTOV

```
Zyrich-SW5(config)# interface fa0/2
Zyrich-SW5(config-if)# switchport access vlan 132
Zyrich-SW5(config-if)# exit
Zyrich-SW5(config)# interface fa0/3
Zyrich-SW5(config-if)# switchport access vlan 133
Zyrich-SW5(config-if)# exit
Zyrich-SW5(config)# interface fa0/4
Zyrich-SW5(config-if)# switchport access vlan 134
Zyrich-SW5(config-if)# exit
Zyrich-SW5(config)# interface fa0/5
Zyrich-SW5(config-if)# switchport access vlan 135
Zyrich-SW5(config-if)# exit
Zyrich-SW5(config)# interface fa0/6
Zyrich-SW5(config-if)# switchport access vlan 137
Zyrich-SW5(config-if)# exit
Zyrich-SW5(config)# interface fa0/7
Zyrich-SW5(config-if)# switchport access vlan 138
Zyrich-SW5(config-if)# exit
```

P.BOLOTOV

Router on the Stick, dot1q

Router-on-a-Stick is a network configuration where a single router is used to route traffic between multiple VLANs on a single physical interface. This is achieved by configuring the router's interface as a **trunk port** and creating **subinterfaces**, each assigned to a specific VLAN.

Dot1Q (802.1Q) is a networking protocol standard for **VLAN tagging** on Ethernet networks. It allows multiple VLANs to share a single physical network link by tagging Ethernet frames with a **VLAN identifier (VLAN ID)**. This enables devices to distinguish traffic belonging to different VLANs.

Commands on the router – Zytomir:

```
Zytomir-R(config)# interface gigabitEthernet 0/1
Zytomir-R(config-subif)# no shutdown
Zytomir-R(config-subif)# exit
Zytomir-R(config)# interface gigabitEthernet 0/1.131
Zytomir-R(config-subif)# encapsulation dot1q 131
Zytomir-R(config-subif)# ip address 192.168.131.254 255.255.255.0
Zytomir-R(config-subif)# interface gigabitEthernet 0/1.132
Zytomir-R(config-subif)# encapsulation dot1q 132
Zytomir-R(config-subif)# ip address 192.168.132.254 255.255.255.0
Zytomir-R(config-subif)# interface gigabitEthernet 0/1.133
Zytomir-R(config-subif)# encapsulation dot1q 133
Zytomir-R(config-subif)# ip address 192.168.133.254 255.255.255.0
Zytomir-R(config-subif)# interface gigabitEthernet 0/1.134
Zytomir-R(config-subif)# encapsulation dot1q 134
Zytomir-R(config-subif)# ip address 192.168.134.254 255.255.255.0
Zytomir-R(config-subif)# interface gigabitEthernet 0/1.135
Zytomir-R(config-subif)# encapsulation dot1q 135
Zytomir-R(config-subif)# ip address 172.20.255.254 255.255.0.0
Zytomir-R(config-subif)# encapsulation dot1q 136
Zytomir-R(config-subif)# ip address 172.21.255.254 255.255.0.0
Zytomir-R(config-subif)# interface gigabitEthernet 0/1.137
```

```
Zytomir-R(config-subif)# encapsulation dot1q 137
Zytomir-R(config-subif)# ip address 10.255.255.254 255.0.0.0
```

Commands on the router – Detroit:

```
Detroit-R(config)# interface gigabitEthernet 0/1
Detroit-R(config-subif)# no shutdown
Detroit-R(config-subif)# exit
Detroit-R(config)# interface gigabitEthernet 0/1.131
Detroit-R(config-subif)# encapsulation dot1q 131
Detroit-R(config-subif)# ip address 192.168.131.254 255.255.255.0
Detroit-R(config-subif)# interface gigabitEthernet 0/1.132
Detroit-R(config-subif)# encapsulation dot1q 132
Detroit-R(config-subif)# ip address 192.168.132.254 255.255.255.0
Detroit-R(config-subif)# interface gigabitEthernet 0/1.133
Detroit-R(config-subif)# encapsulation dot1q 133
Detroit-R(config-subif)# ip address 192.168.133.254 255.255.255.0
Detroit-R(config-subif)# interface gigabitEthernet 0/1.134
Detroit-R(config-subif)# encapsulation dot1q 134
Detroit-R(config-subif)# ip address 192.168.134.254 255.255.255.0
Detroit-R(config-subif)# interface gigabitEthernet 0/1.135
Detroit-R(config-subif)# encapsulation dot1q 135
Detroit-R(config-subif)# ip address 172.20.255.254 255.255.0.0
Detroit-R(config-subif)# interface gigabitEthernet 0/1.137
Detroit-R(config-subif)# encapsulation dot1q 137
Detroit-R(config-subif)# ip address 10.255.255.254 255.0.0.0
Detroit-R(config-subif)# interface gigabitEthernet 0/1.138
Detroit-R(config-subif)# encapsulation dot1q 138
Detroit-R(config-subif)# ip address 192.168.138.254 255.255.255.0
Zytomir-R(config-subif)# interface gigabitEthernet 0/1.139
Detroit-R(config-subif)# encapsulation dot1q 139
Detroit-R(config-subif)# ip address 192.168.139.254 255.255.255.0
```

Commands on the router – Zyrich:

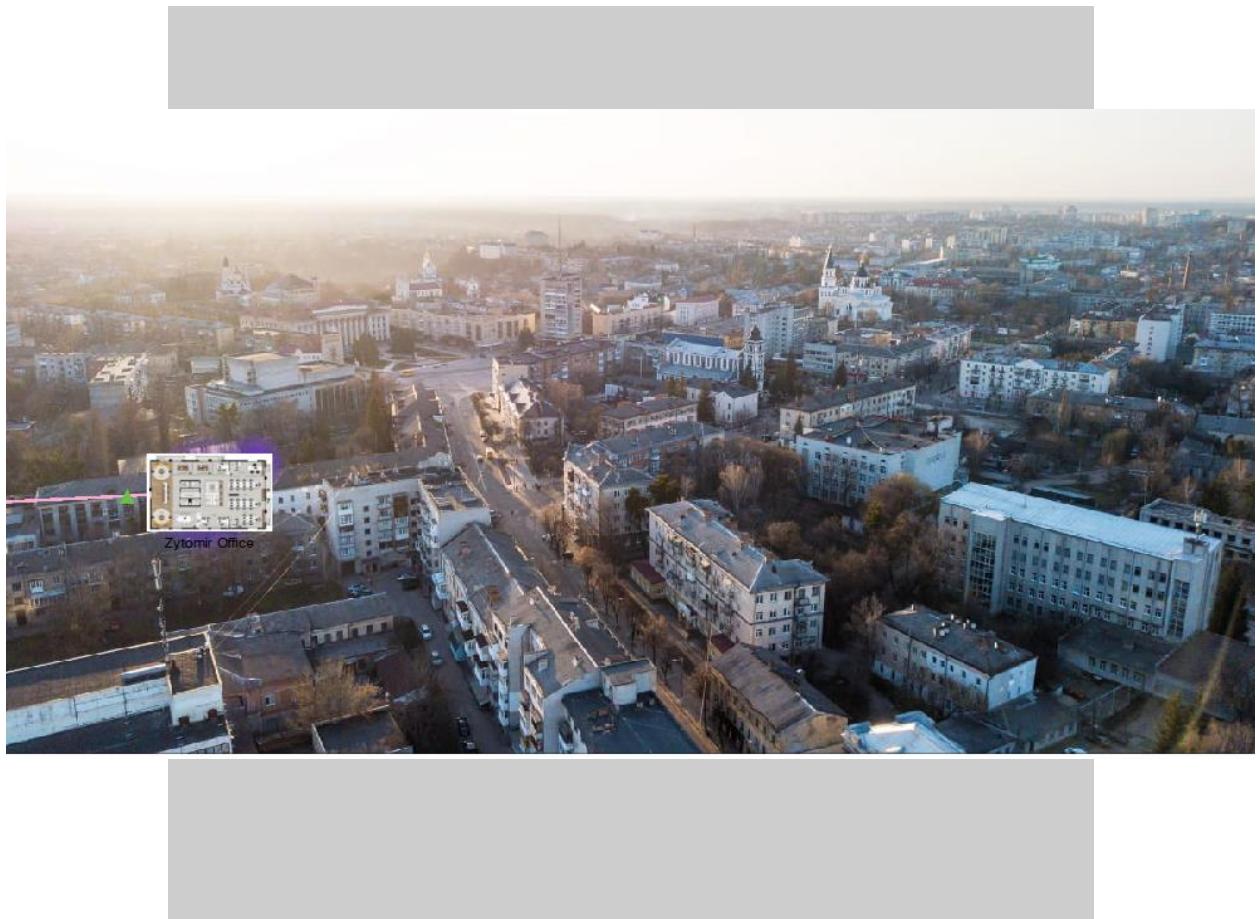
```
Zyrich-R(config)# interface gigabitEthernet 0/1
Zyrich-R(config-subif)# no shutdown
Zyrich-R(config-subif)# exit
Zyrich-R(config)# interface gigabitEthernet 0/1.131
Zyrich-R(config-subif)# encapsulation dot1q 131
Zyrich-R(config-subif)# ip address 192.168.131.254 255.255.255.0
Zyrich-R(config-subif)# interface gigabitEthernet 0/1.132
Zyrich-R(config-subif)# encapsulation dot1q 132
Zyrich-R(config-subif)# ip address 192.168.132.254 255.255.255.0
Zyrich-R(config-subif)# interface gigabitEthernet 0/1.133
Zyrich-R(config-subif)# encapsulation dot1q 133
Zyrich-R(config-subif)# ip address 192.168.133.254 255.255.255.0
Zyrich-R(config-subif)# interface gigabitEthernet 0/1.134
Zyrich-R(config-subif)# encapsulation dot1q 134
Zyrich-R(config-subif)# ip address 192.168.134.254 255.255.255.0
Zyrich-R(config-subif)# interface gigabitEthernet 0/1.135
Zyrich-R(config-subif)# encapsulation dot1q 135
Zyrich-R(config-subif)# ip address 172.20.255.254 255.255.0.0
Zyrich-R(config-subif)# interface gigabitEthernet 0/1.137
Zyrich-R(config-subif)# encapsulation dot1q 137
Zyrich-R(config-subif)# ip address 10.255.255.254 255.0.0.0
Zyrich-R(config-subif)# interface gigabitEthernet 0/1.138
Zyrich-R(config-subif)# encapsulation dot1q 138
Zyrich-R(config-subif)# ip address 192.168.138.254 255.255.255.0
Zyrich-R(config-subif)# interface gigabitEthernet 0/1.139
Zyrich-R(config-subif)# encapsulation dot1q 139
Zyrich-R(config-subif)# ip address 192.168.139.254 255.255.255.0
```

P.BOLOTOV

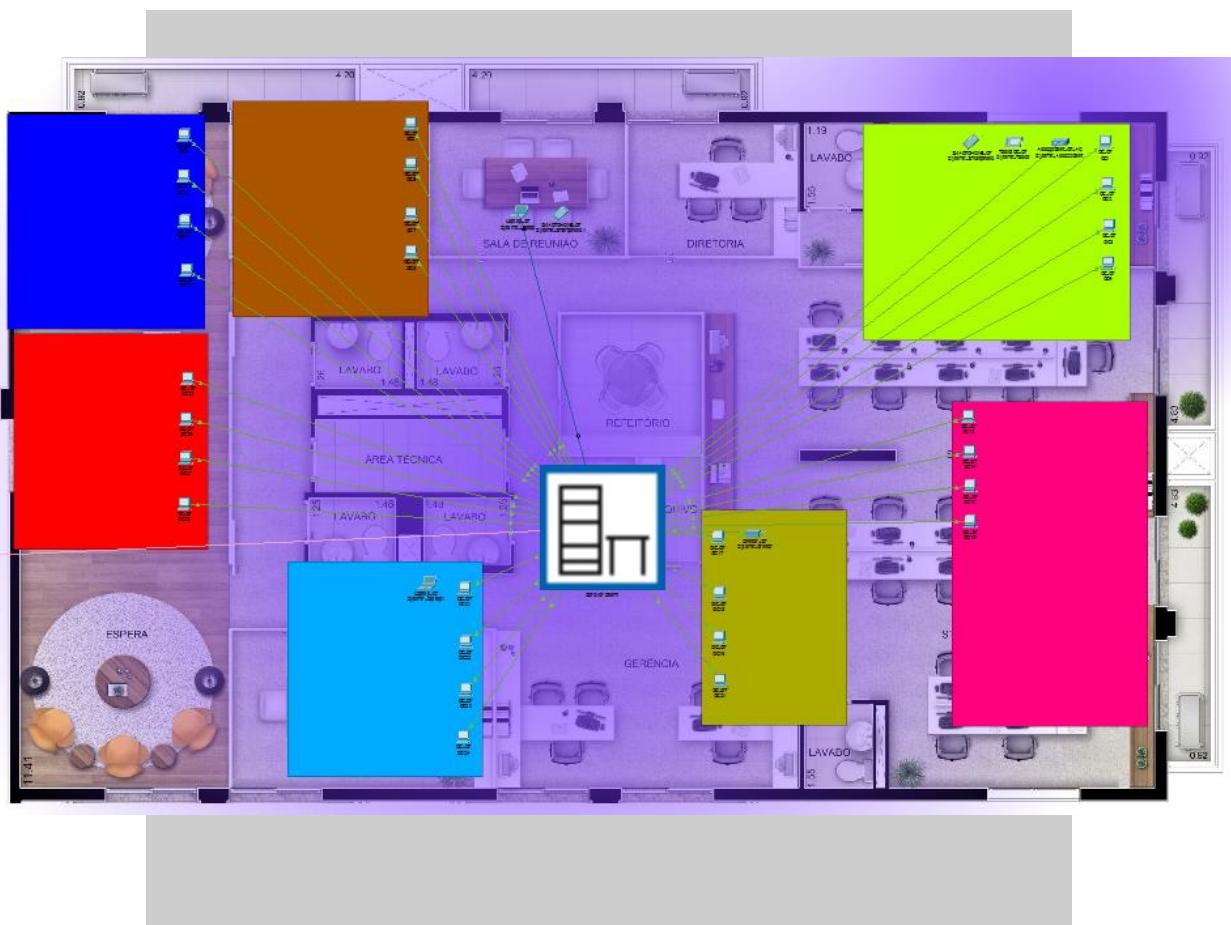
Physical Photocopy Topology (Screenshots from Packet Tracer)

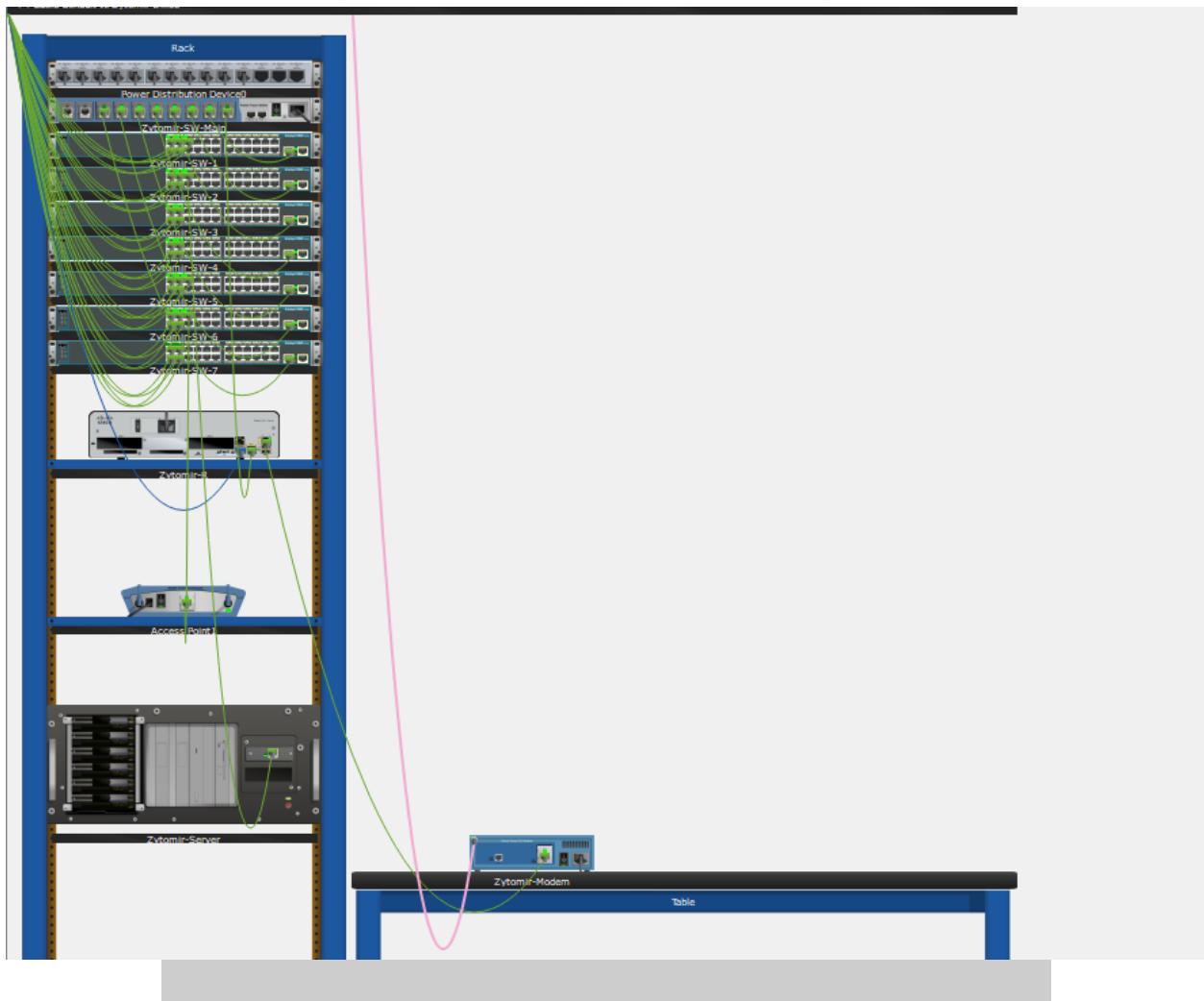


First Branch – Zytomir

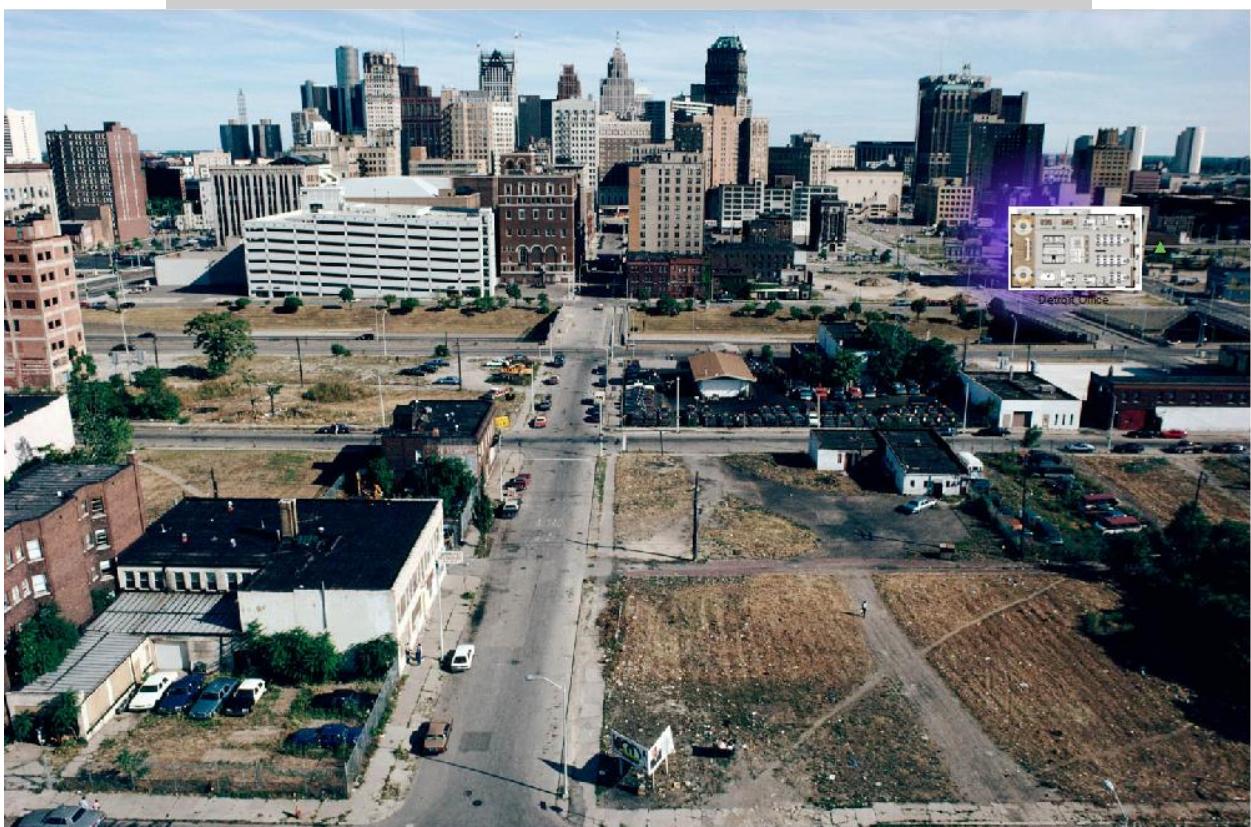


Zytomir Office + Rack

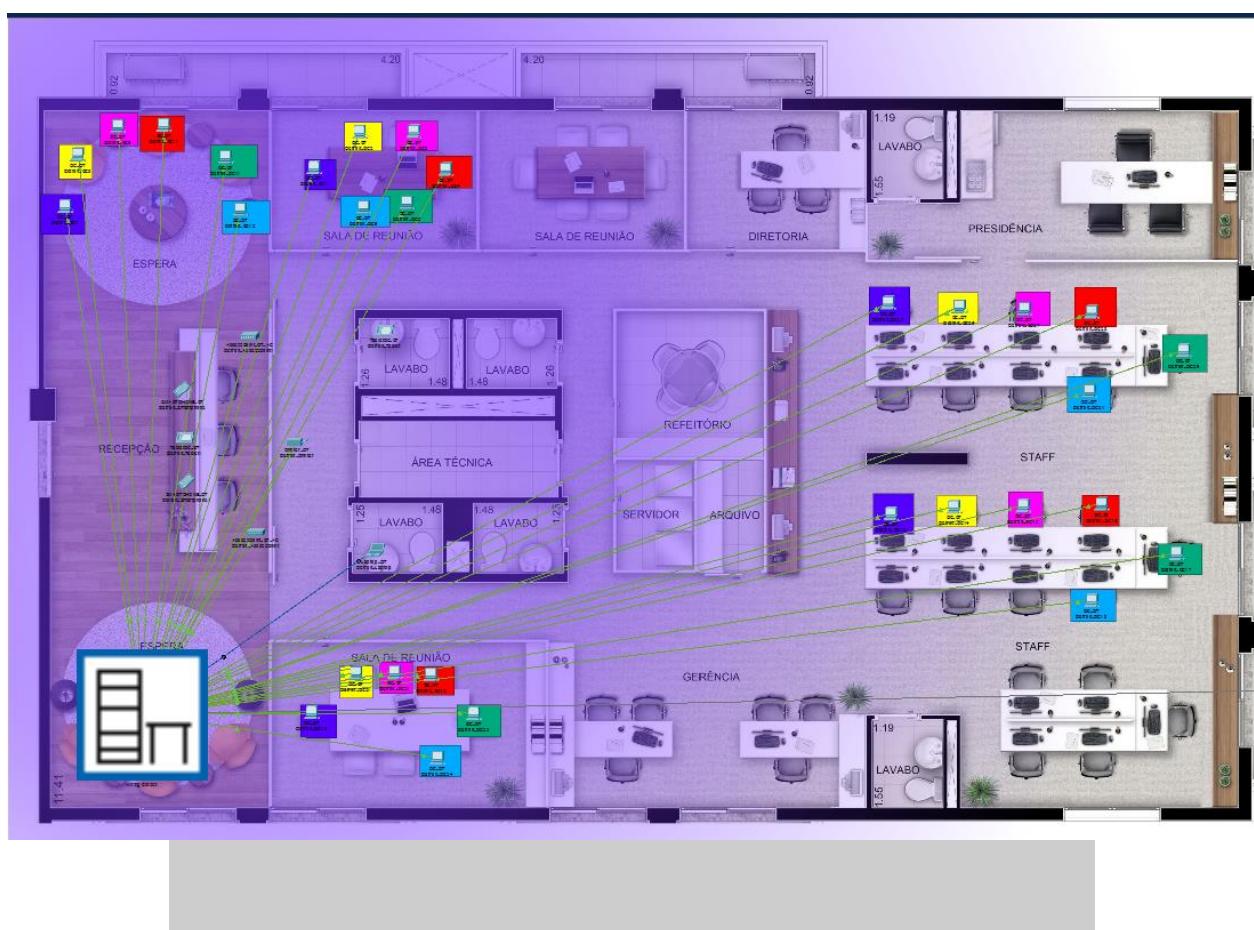




Second Branch – Detroit

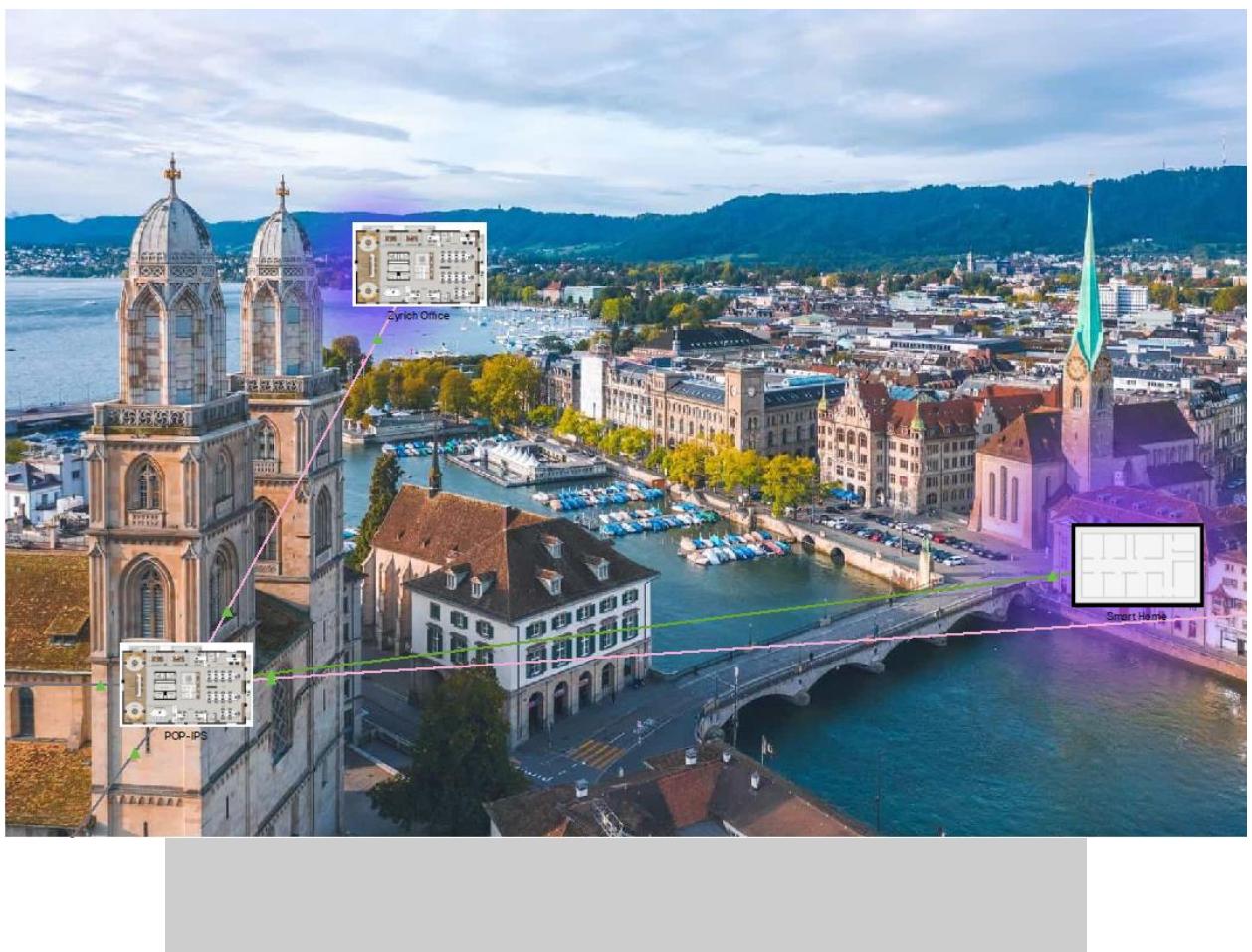


Detroit Office + Rack

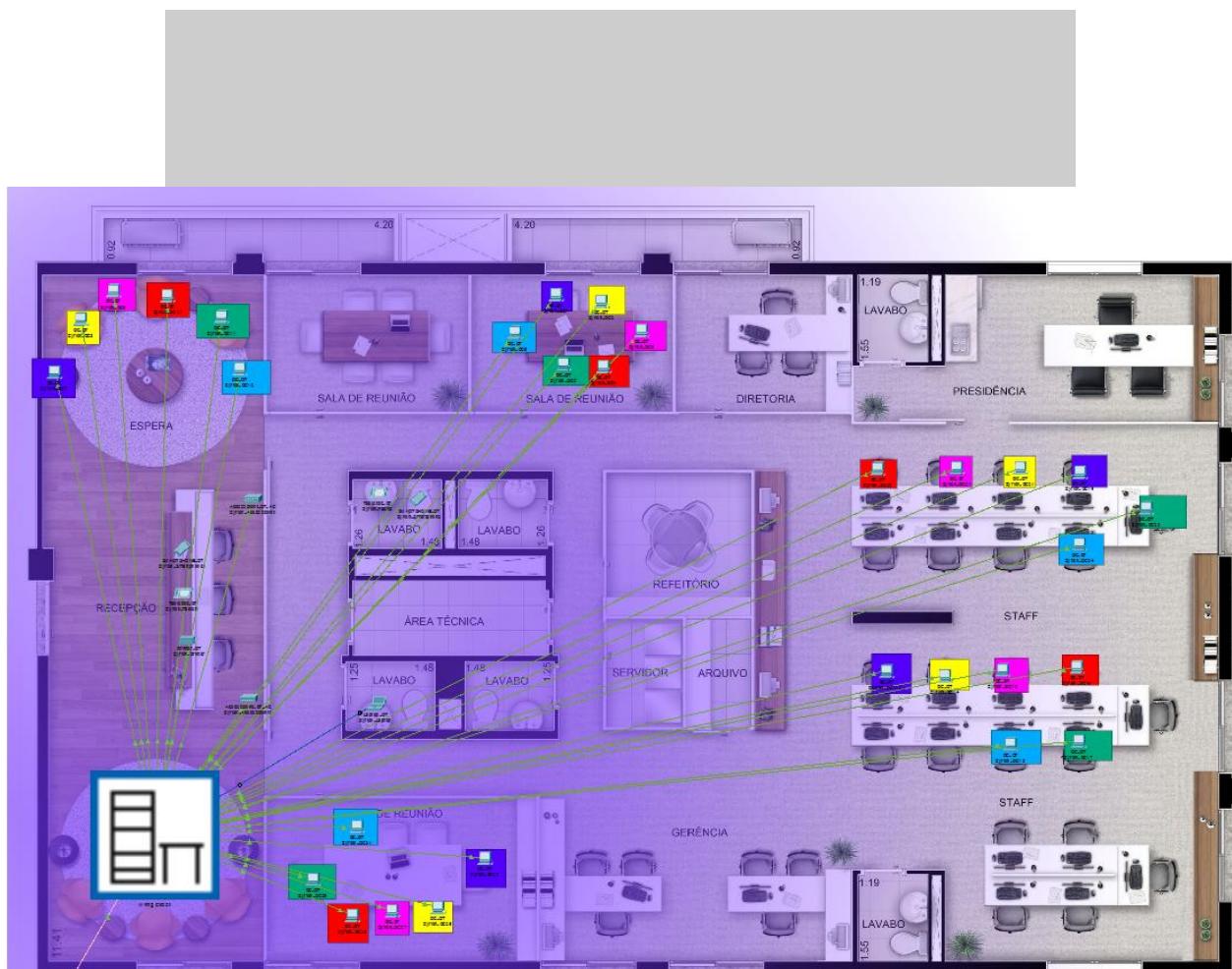


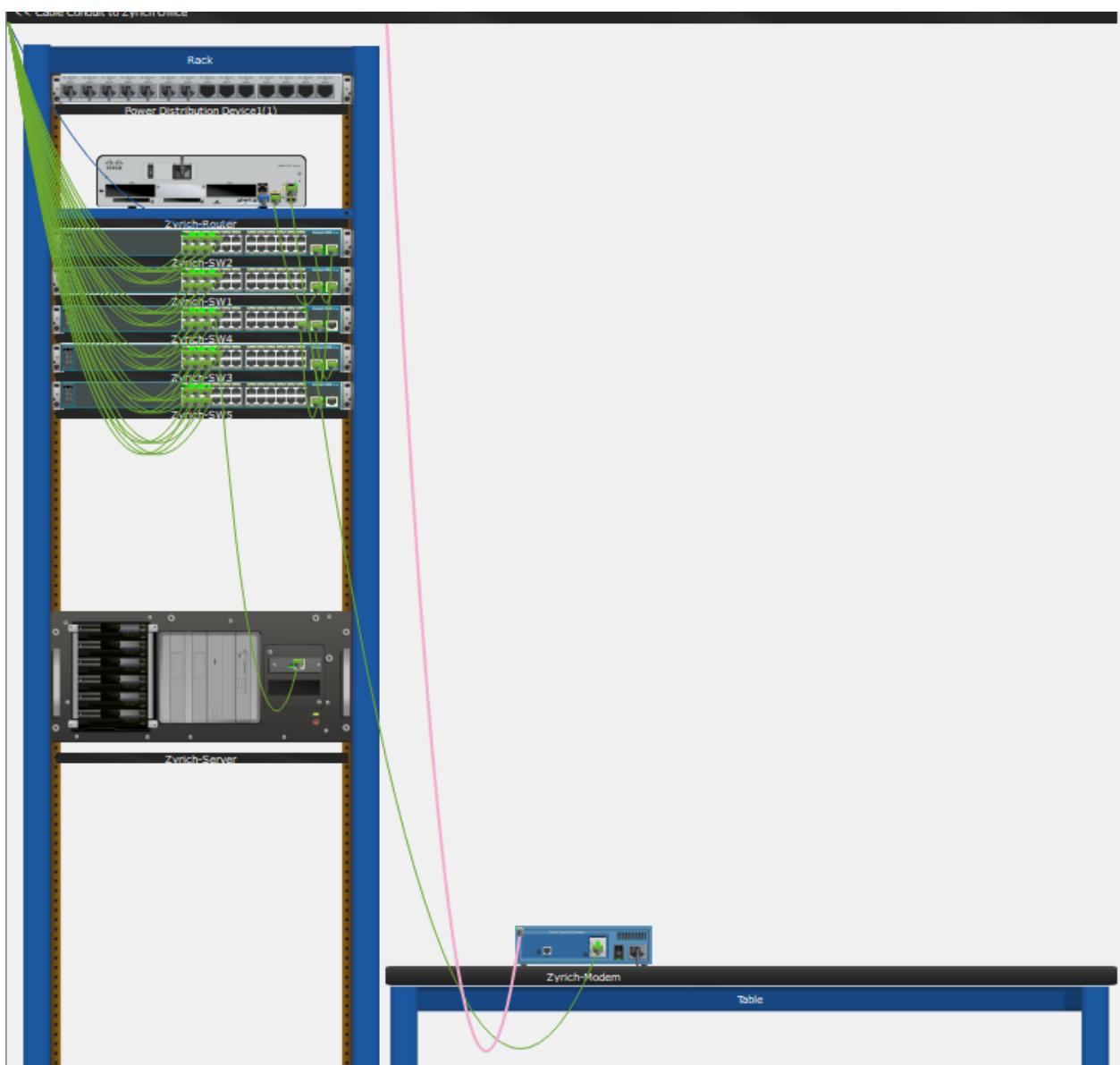


Third Branch – Zyrich



Zyrich Office + Rack





POP-ISP



Smart-Home



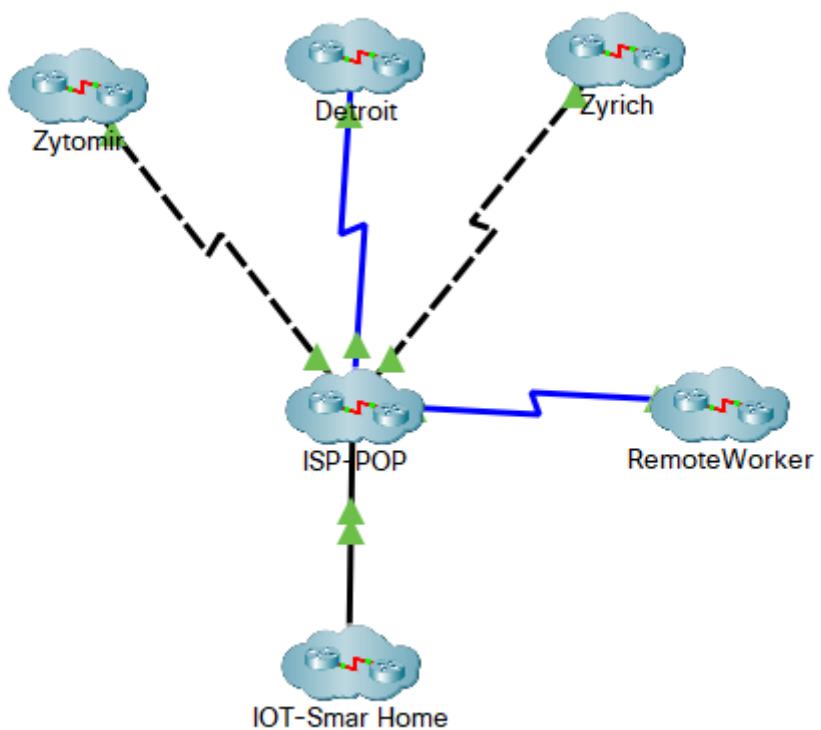
P.BOLOTOV

Remote Worker

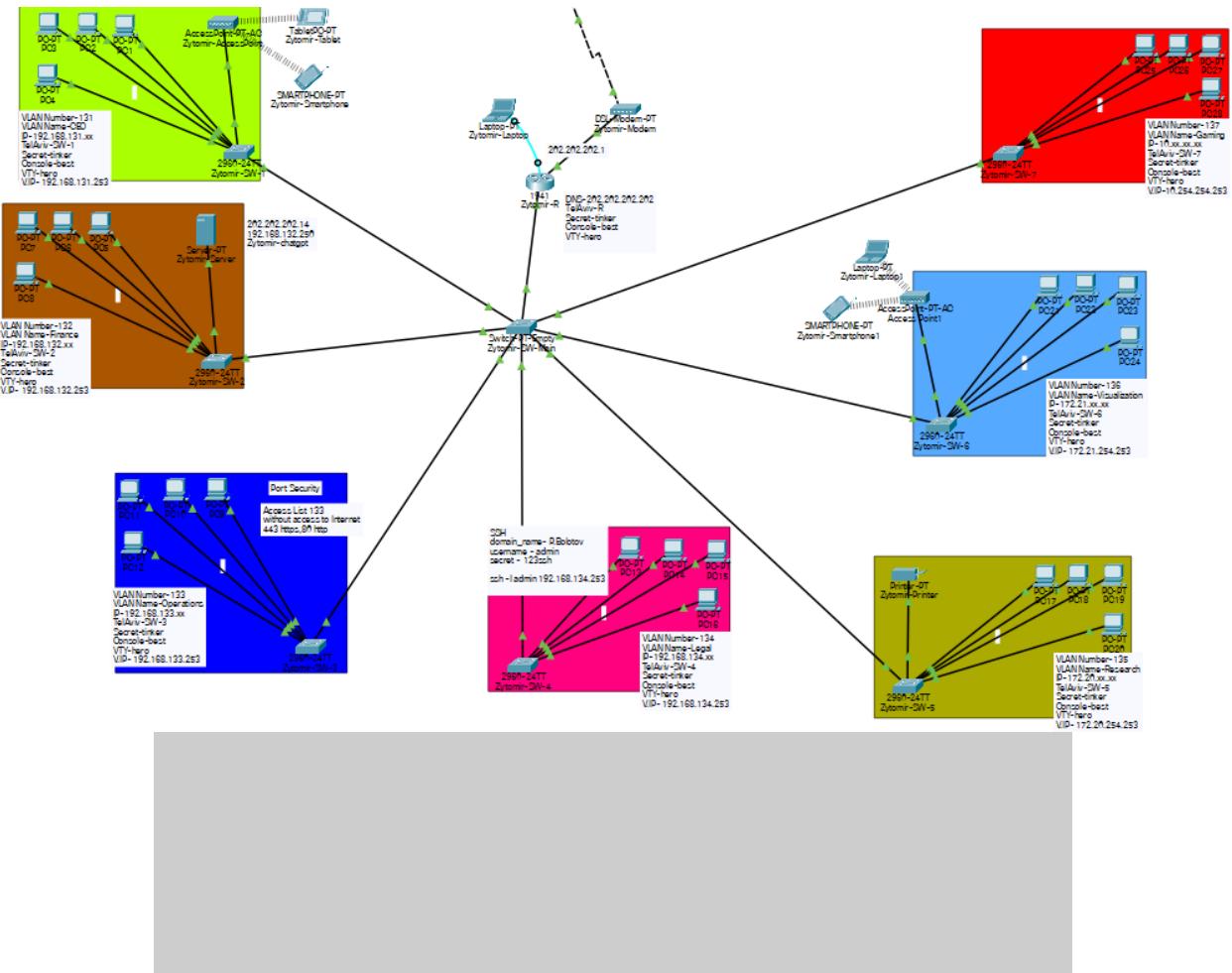


P.BOLOTOV

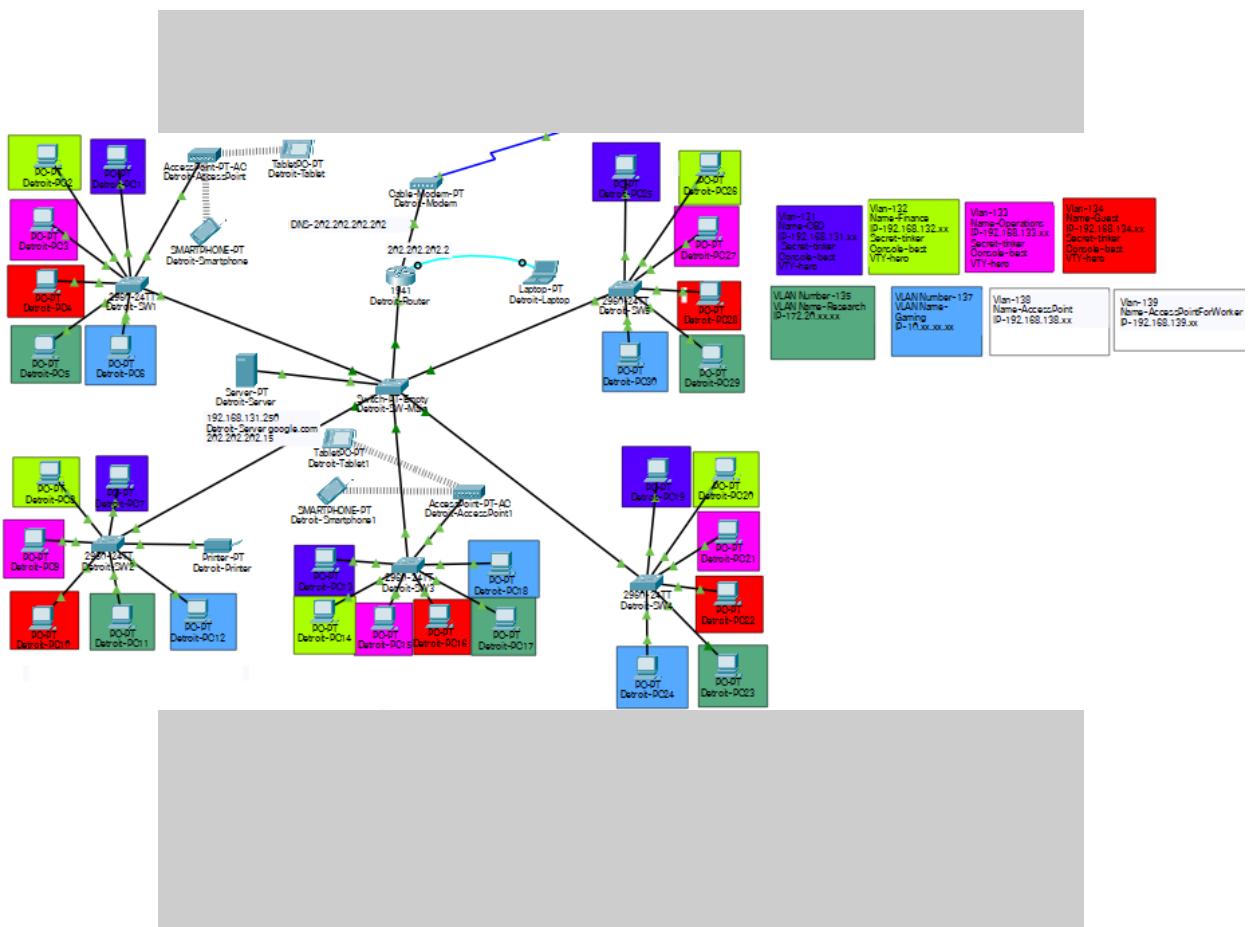
Logical Topology



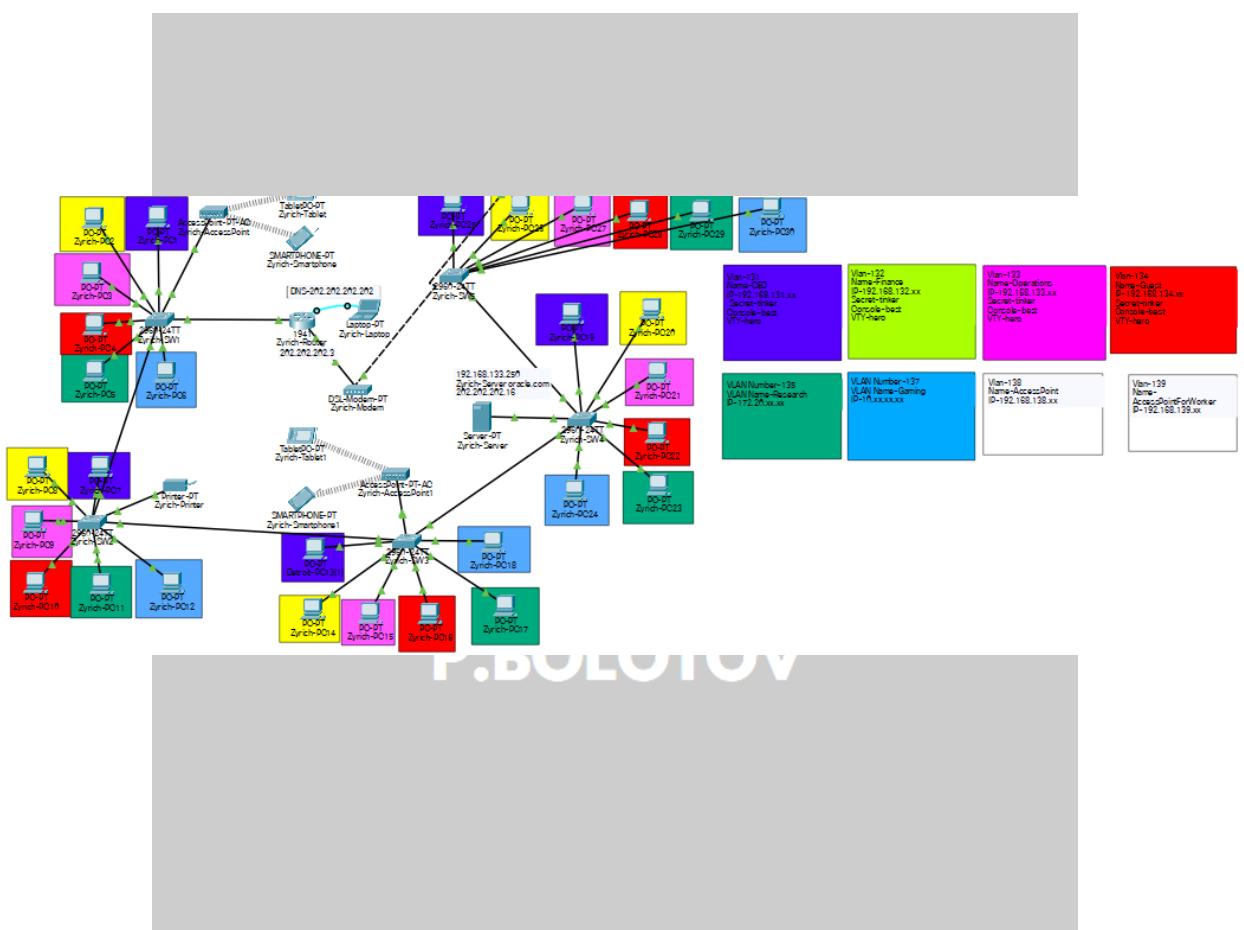
First Branch – Zytomir



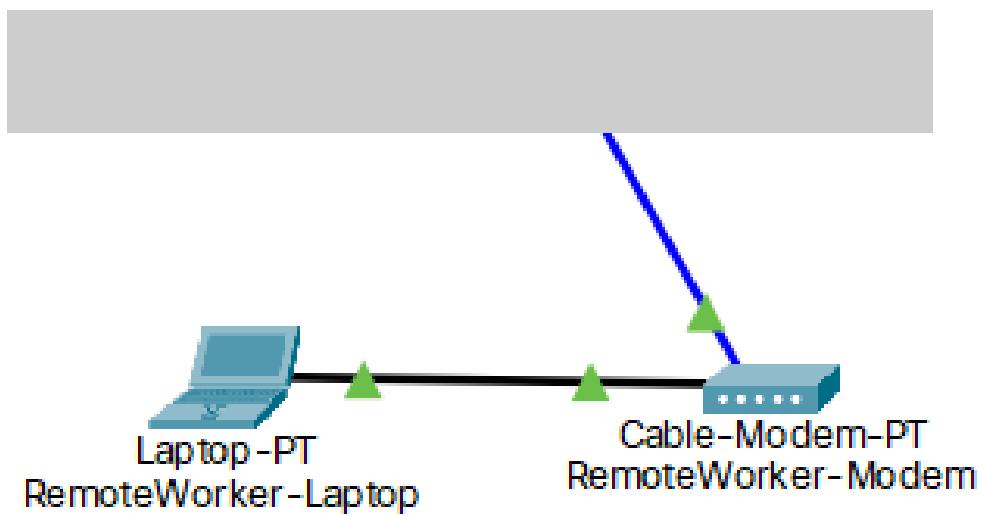
Second Branch – Detroit



Third Branch – Zyrich

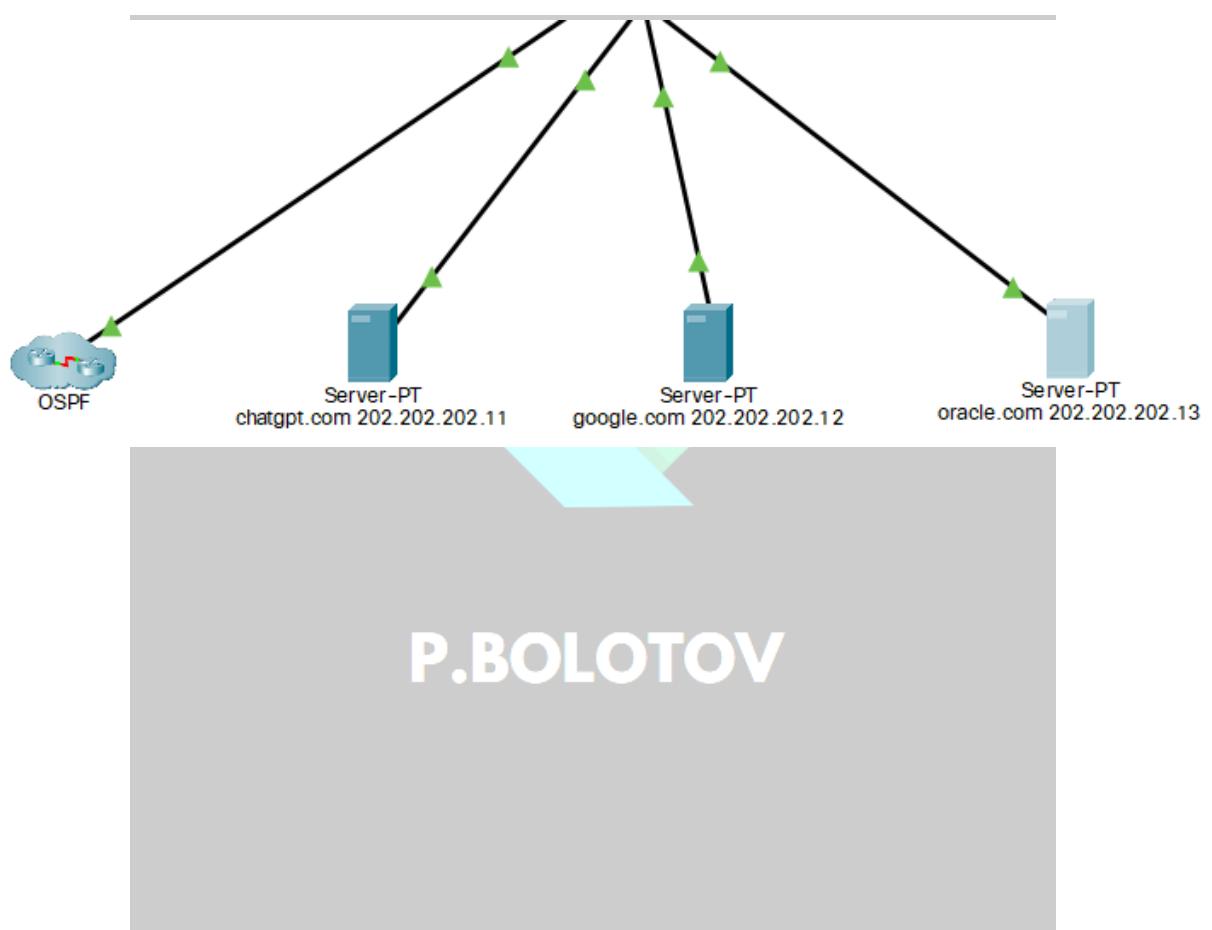


Fourth Branch – Remote Worker



Internet Simulation

Services outside the company,
Such as: ChatGpt, Google, Oracle



Technologies in the project

Email

Email Address	Password	Username
1@bolotov.com	1	1
2@bolotov.com	1	2
3@bolotov.com	1	3
4@bolotov.com	1	4

 ISP-DNS,DHCP,Email,IOT

— □ ×

Physical Config Services Desktop Programming Attributes

SERVICES

- HTTP
- DHCP
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL**
- FTP
- IoT
- VM Management
- Radius EAP

EMAIL

SMTP Service ON OFF

POP3 Service ON OFF

Domain Name: bolotov.com

User Setup

User Password

1
2
3
4

Top

PC1

Physical Config Desktop Programming Attributes

MAIL BROWSER X

Mails

Compose Reply Receive Delete Configure Mail

	From	Subject	Received
1	3@bolotov.com	1231	Sun Jan 26 2025 15:43:13
2	1@bolotov.com	1231	Sun Jan 26 2025 15:42:45
3	2@bolotov.com	231	Sun Jan 26 2025 15:41:31

< >

1231
3@bolotov.com
Sent : Sun Jan 26 2025 15:43:13

2014

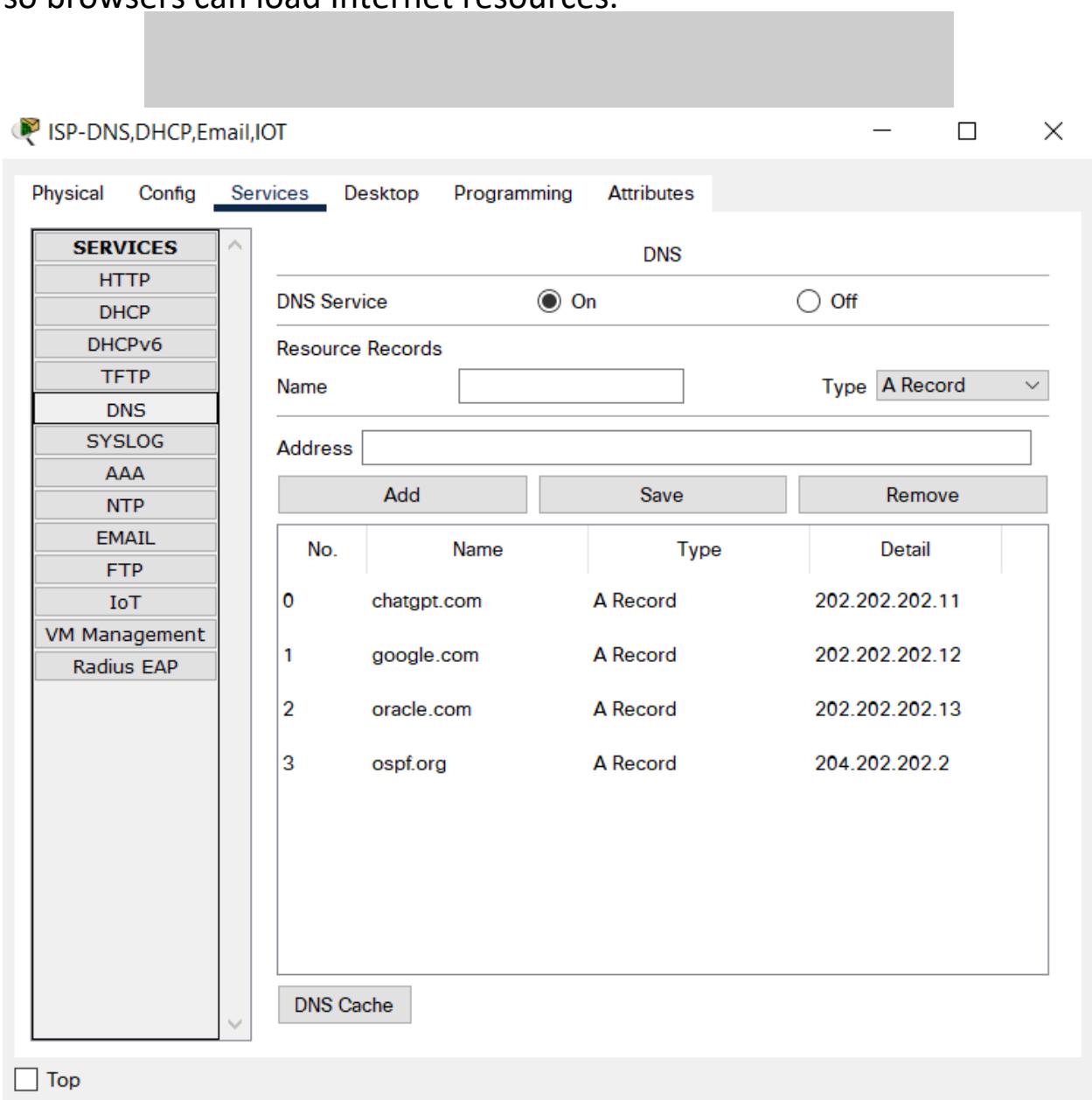
Receiving mail from POP3 Server
202.202.202.202
Receive Mail Success.

Cancel Send/Receive

Top

DNS

The Domain Name System (DNS) is **the phonebook of the Internet**. Humans access information online through domain names, like nytimes.com or espn.com. Web browsers interact through Internet Protocol (IP) addresses. DNS translates domain names to IP addresses so browsers can load Internet resources.



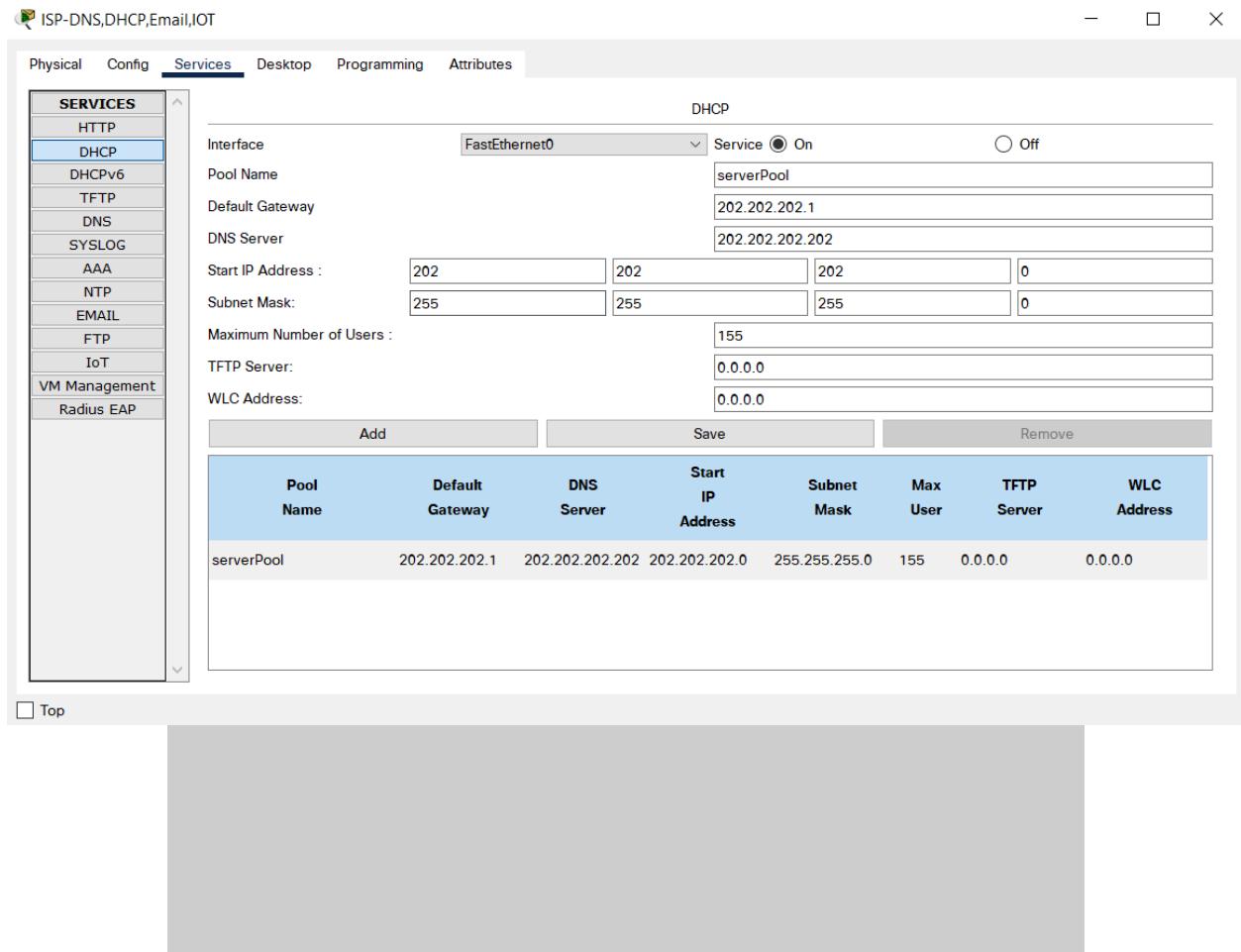
The screenshot shows a software interface for managing network services. The top navigation bar includes tabs for Physical, Config, Services, Desktop, Programming, and Attributes. The Services tab is currently selected, and the left sidebar lists various service modules: HTTP, DHCP, DHCPv6, TFTP, DNS, SYSLOG, AAA, NTP, EMAIL, FTP, IoT, VM Management, and Radius EAP. The main pane is titled 'DNS' and contains the following sections:

- DNS Service:** A radio button is selected for "On".
- Resource Records:** A table displays four entries:

No.	Name	Type	Detail
0	chatgpt.com	A Record	202.202.202.11
1	google.com	A Record	202.202.202.12
2	oracle.com	A Record	202.202.202.13
3	ospf.org	A Record	204.202.202.2
- Add, Save, Remove:** Buttons for managing new resource records.
- DNS Cache:** A button at the bottom of the table.

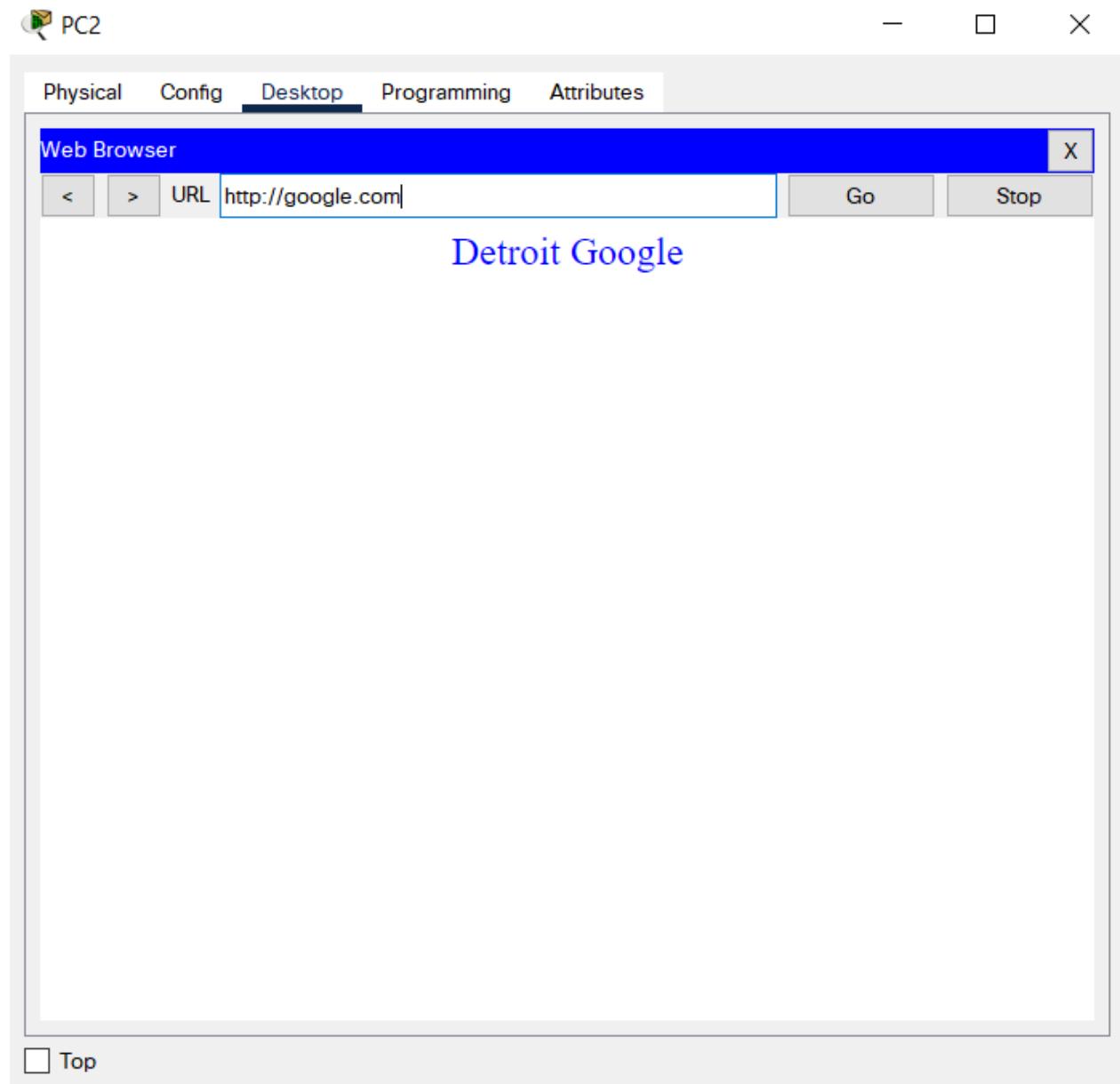
DHCP

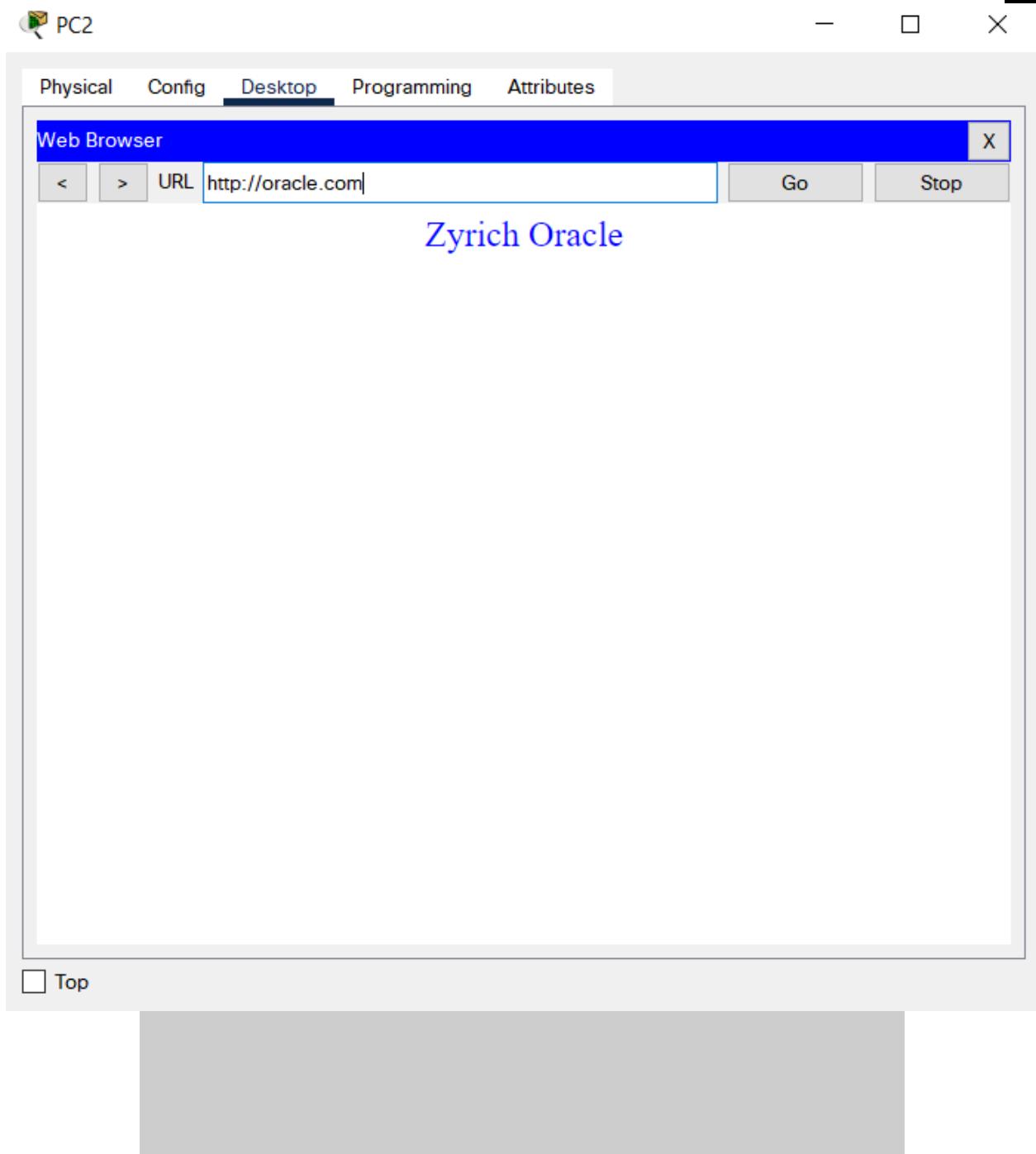
Dynamic Host Configuration Protocol (DHCP) is a network protocol used to automate the process of configuring devices on IP networks, thus allowing them to use network services such as DNS, NTP, and any communication protocol based on UDP or TCP.

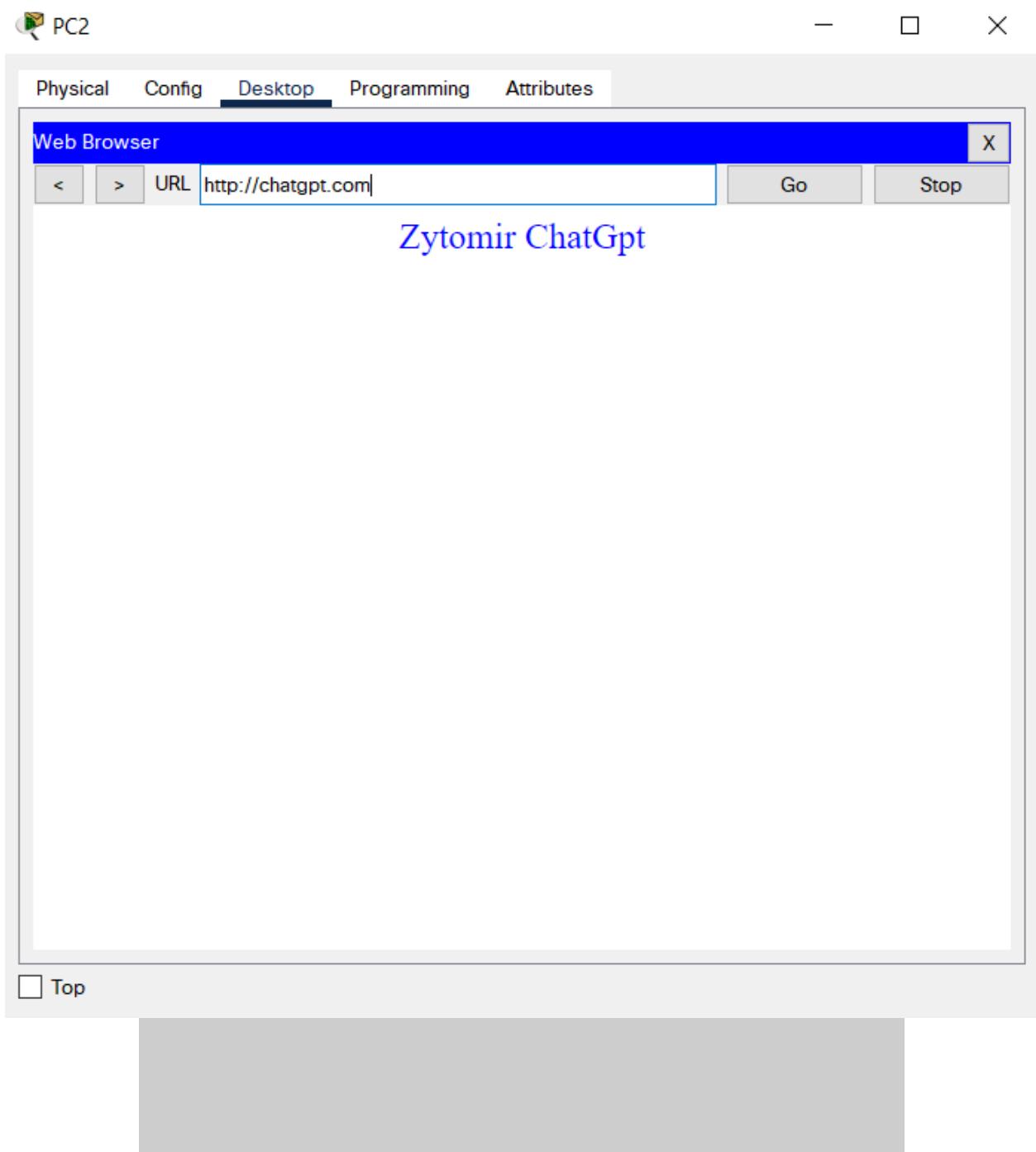


HTTP

The **Hypertext Transfer Protocol (HTTP)** is the foundation of the World Wide Web, and is used to load webpages using hypertext links. HTTP is an application layer protocol designed to transfer information between networked devices and runs on top of other layers of the network protocol stack.







Zyrich-PC26

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Physical Config Desktop Programming Attributes

Web Browser

X

<

>

URL http://ospf.org

Go

Stop

OSPF

Welcome to Cisco Packet Tracer. Opening doors to new opportunities. Mind Wide Open.

Quick Links:

[A small page](#)

[Copyrights](#)

[Image page](#)

[Image](#)

Top

TFTP

TFTP stands for **Trivial File Transfer Protocol**. It is a simple way to transfer files between servers and computers. TFTP is faster than some other protocols, but also less secure. It's generally used for transferring small files.

The screenshot shows a software interface for managing network services. The title bar reads "ISP-DNS,DHCP,Email,IOT". The top navigation bar includes tabs for Physical, Config, Services (which is selected), Desktop, Programming, and Attributes. On the left, a sidebar lists various services: HTTP, DHCP, DHCPv6, TFTP (selected), DNS, SYSLOG, AAA, NTP, EMAIL, FTP, IoT, VM Management, and Radius EAP. The main panel displays the configuration for the TFTP service. It has a header "TFTP" with a status switch showing "On" (radio button selected). Below this is a "File" list containing several binary files:

- asa842-k8.bin
- asa923-k8.bin
- c1841-advipservicesk9-mz.124-15.T1.bin
- c1841-ipbase-mz.123-14.T7.bin
- c1841-ipbasek9-mz.124-12.bin
- c1900-universalk9-mz.SPA.155-3.M4a.bin
- c2600-advipservicesk9-mz.124-15.T1.bin
- c2600-i-mz.122-28.bin
- c2600-ipbasek9-mz.124-8.bin
- c2800nm-advipservicesk9-mz.124-15.T1.bin
- c2800nm-advipservicesk9-mz.151-4.M4.bin
- c2800nm-ipbase-mz.123-14.T7.bin

A "Remove File" button is located at the bottom right of the file list. At the very bottom left is a "Top" button with a checkbox.

FTP

FTP (File Transfer Protocol) is a **standard network protocol used for the transfer of files from one host to another over a TCP-based network, such as the Internet**. FTP works by opening two connections that link the computers trying to communicate with each other.



Physical Config Services Desktop Programming Attributes

SERVICES

- HTTP
- DHCP
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP**
- IoT
- VM Management
- Radius EAP

FTP

Service On Off

User Setup

	Username	Password	Permission
1	cisco	cisco	RWDNL

Add **Save** **Remove**

File

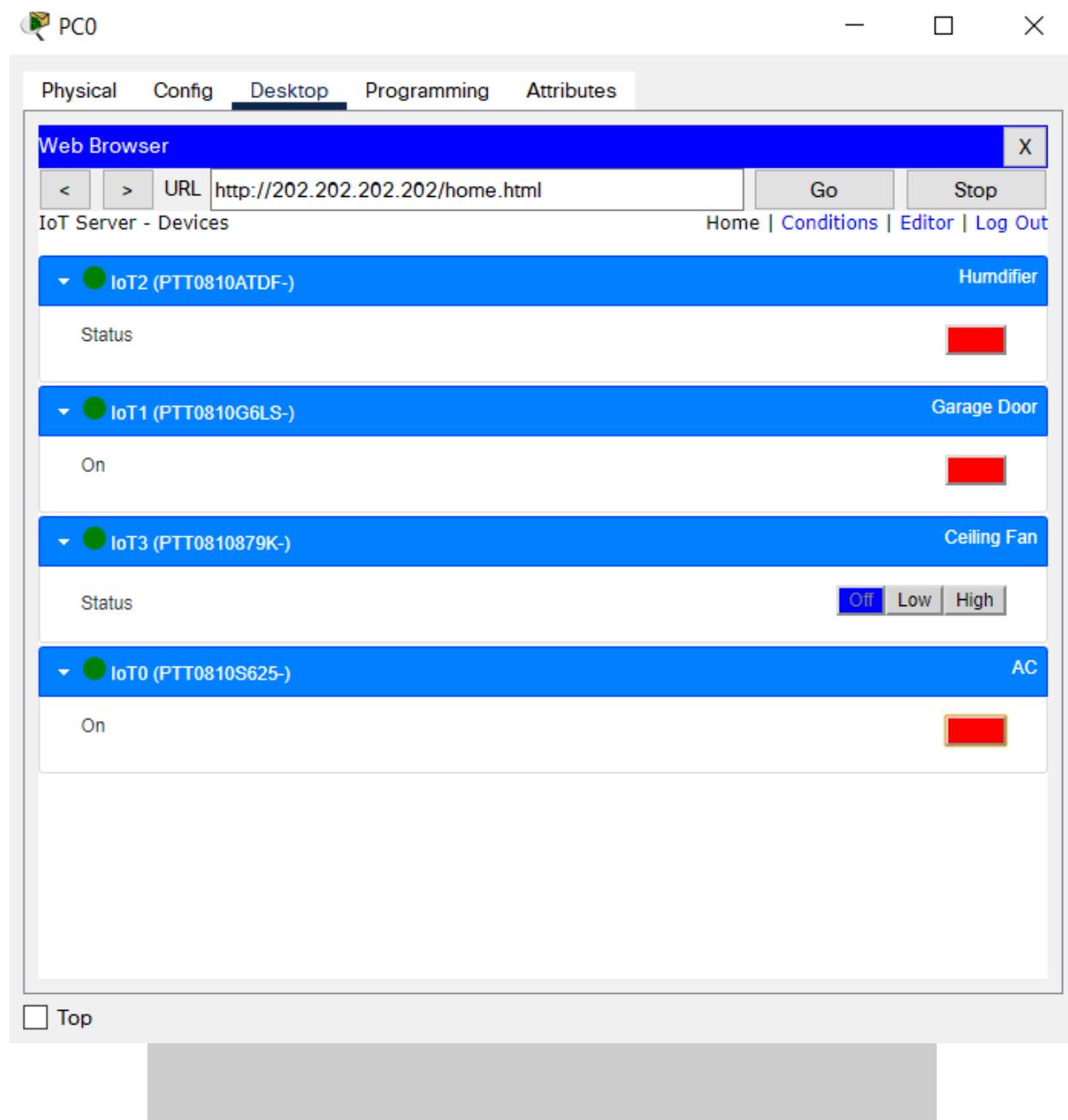
1	asa842-k8.bin
2	asa923-k8.bin
3	c1841-advipservicesk9-mz.124-15.T1.bin
4	c1841-ipbase-mz.123-14.T7.bin
5	c1841-ipbasek9-mz.124-12.bin
6	c1900-universalk9-mz.SPA.155-3.M4a.bin

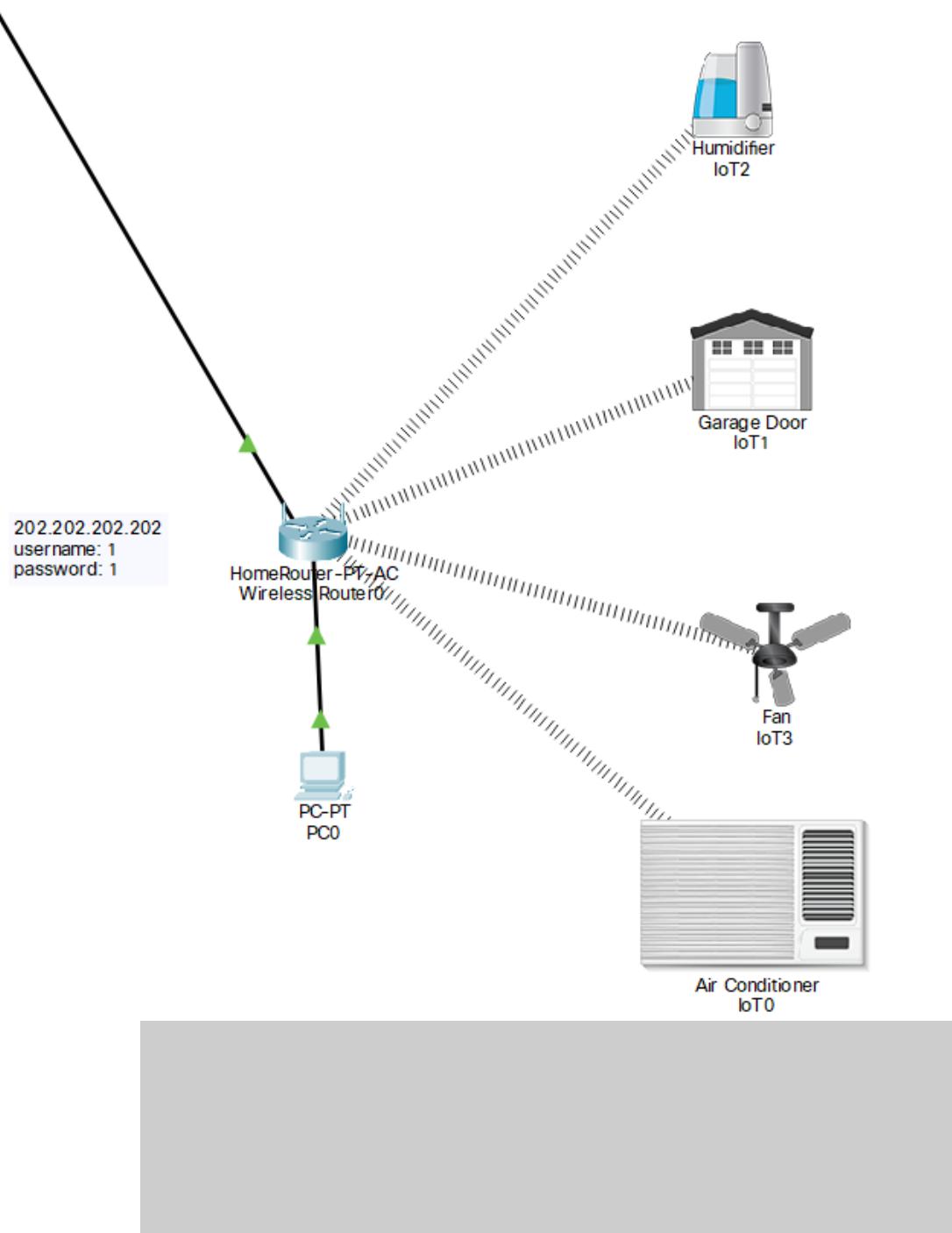
Remove

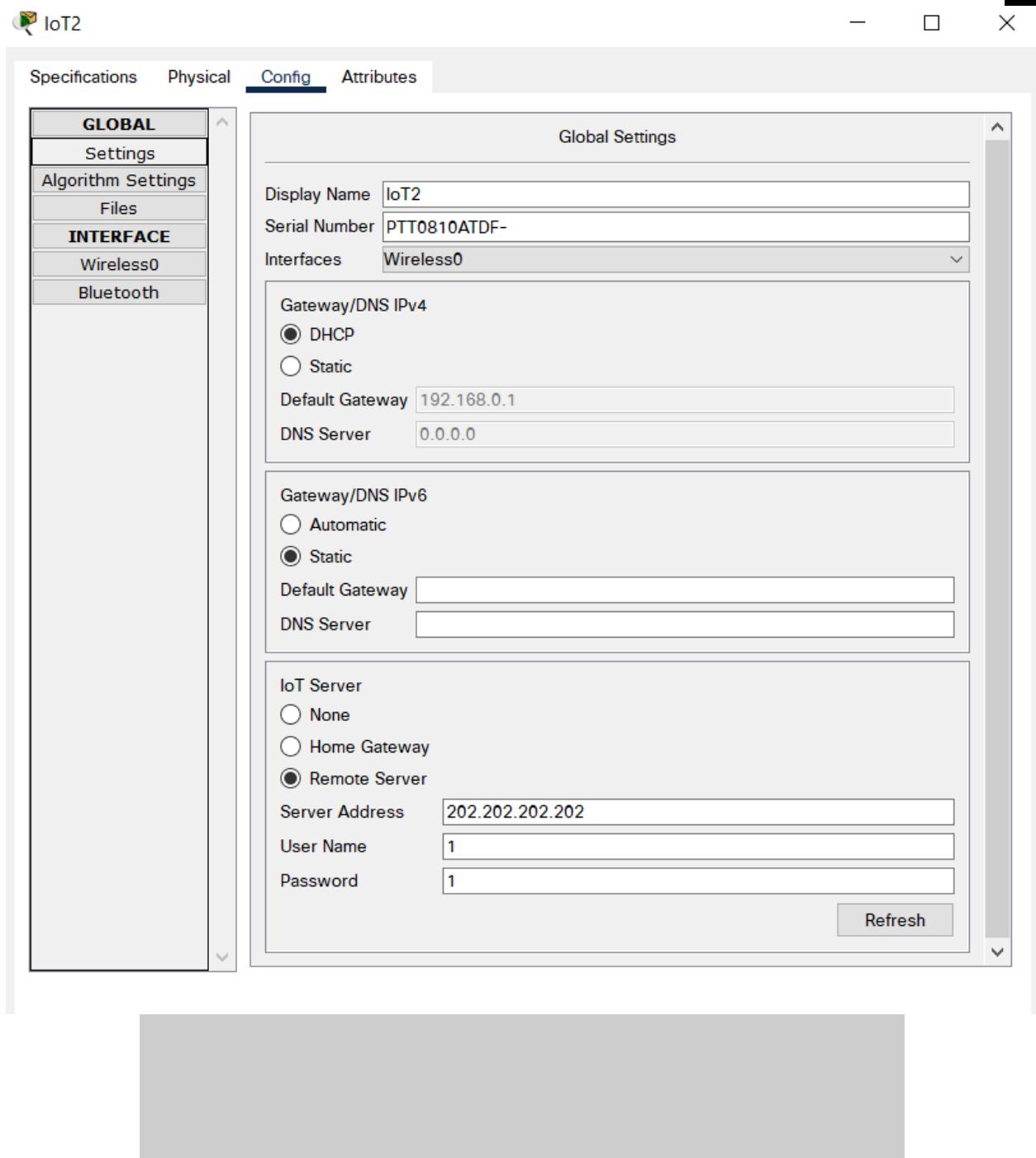
Top

IOT

Internet of Things (IoT) refers to a network of physical devices, vehicles, appliances, and other physical objects that are embedded with sensors, software, and network connectivity, allowing them to collect and share data.







IoT1

— □ ×

Specifications Physical Config Attributes

GLOBAL
Settings
Algorithm Settings
Files
INTERFACE
Wireless0
Bluetooth

Global Settings

Display Name IoT1

Serial Number PTT0810G6LS-

Interfaces Wireless0

Gateway/DNS IPv4

DHCP
 Static

Default Gateway 192.168.0.1

DNS Server 0.0.0.0

Gateway/DNS IPv6

Automatic
 Static

Default Gateway []

DNS Server []

IoT Server

None
 Home Gateway
 Remote Server

Server Address 202.202.202.202

User Name 1

Password 1

Refresh

IoT3

— □ ×

Specifications Physical Config Attributes

GLOBAL	
Settings	
Algorithm Settings	
Files	
INTERFACE	
Wireless0	
Bluetooth	

Global Settings

Display Name: IoT3

Serial Number: PTT0810879K-

Interfaces: Wireless0

Gateway/DNS IPv4

DHCP
 Static

Default Gateway: 192.168.0.1

DNS Server: 0.0.0.0

Gateway/DNS IPv6

Automatic
 Static

Default Gateway:

DNS Server:

IoT Server

None
 Home Gateway
 Remote Server

Server Address: 202.202.202.202

User Name: 1

Password: 1

Refresh

IoT

Specifications Physical Config Attributes

GLOBAL

Settings
Algorithm Settings
Files

INTERFACE

Wireless0
Bluetooth

Global Settings

Display Name IoT0
Serial Number PTT0810S625-
Interfaces Wireless0

Gateway/DNS IPv4

DHCP
 Static
Default Gateway 192.168.0.1
DNS Server 0.0.0.0

Gateway/DNS IPv6

Automatic
 Static
Default Gateway []
DNS Server []

IoT Server

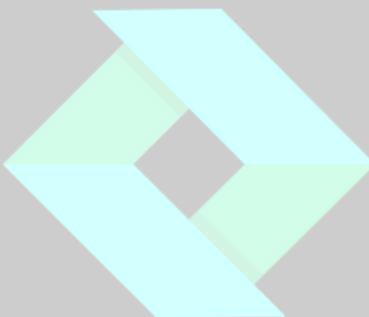
None
 Home Gateway
 Remote Server
Server Address 202.202.202.202
User Name 1
Password 1

Refresh

Top Advanced

VTP

VLAN Trunk Protocol (VTP) **reduces administration in a switched network**. When you configure a new VLAN on one VTP server, the VLAN is distributed through all switches in the domain. This reduces the need to configure the same VLAN everywhere.



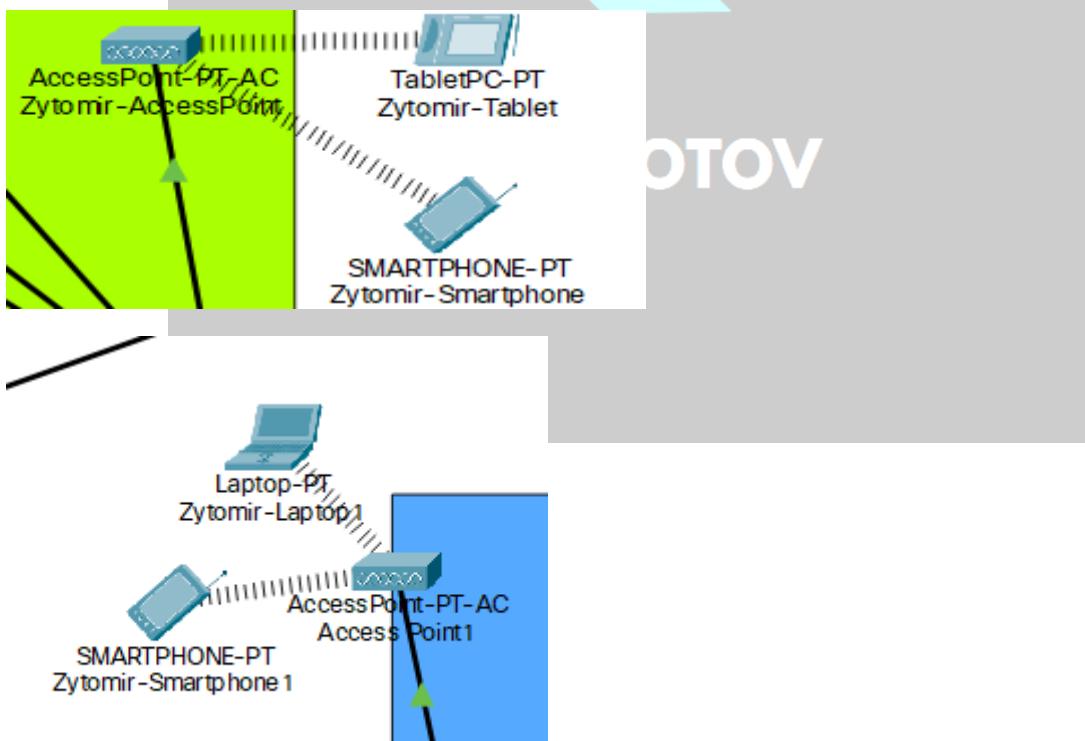
P.BOLOTOV

Access Point – Wireless Network

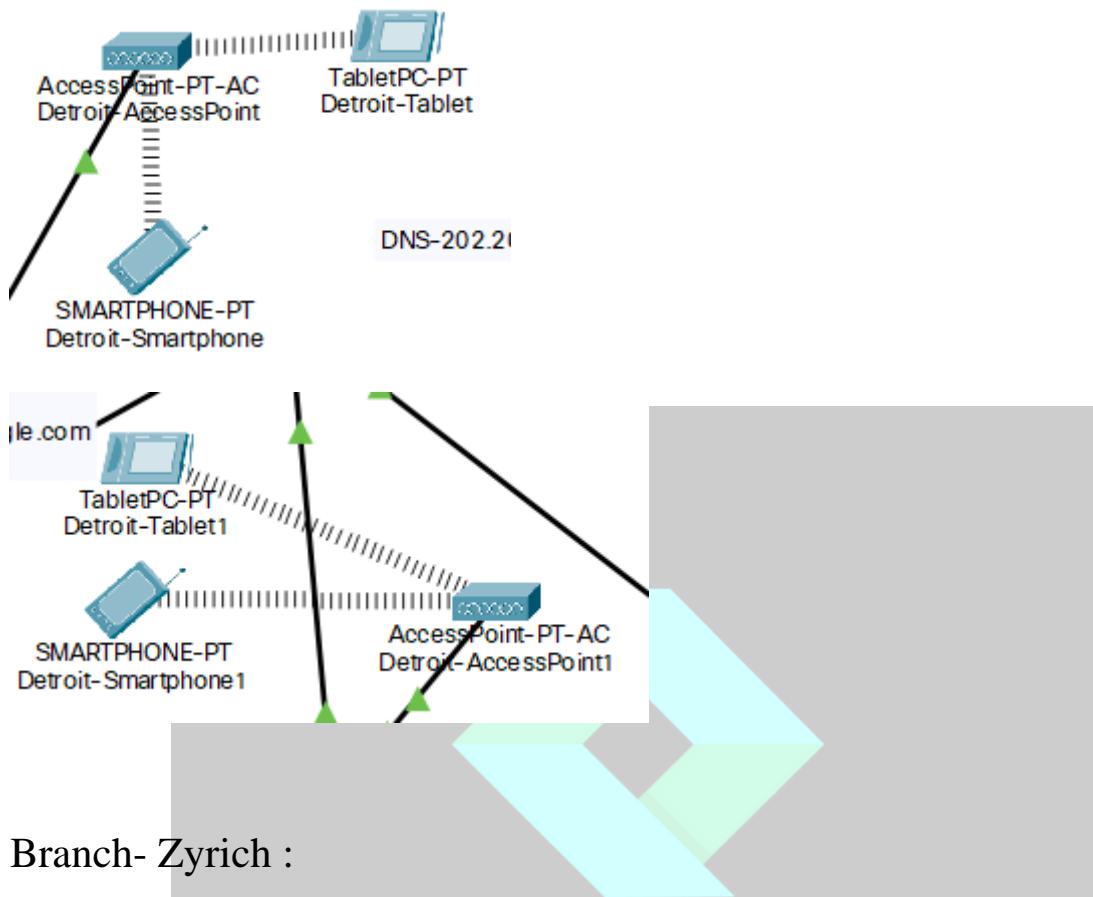
An access point works by **receiving data from your device and transmitting it to the network**. It converts the data into a wireless signal and broadcasts it over a specific frequency or channel. Your device then receives the signal and can communicate with other devices on the network.

Branch		SSID – Network Name	Password
Zytomir	Private	CEO	tinkerbesthero
Zytomir	Public	Visualization	-
Detroit	Public	AccessPoint	-
Detroit	Private	AccessPointForWorker	tinkerbesthero
Zyrich	Public	ABOBA	-
Zyrich	Private	AccessPointForWorker	tinkerbesthero

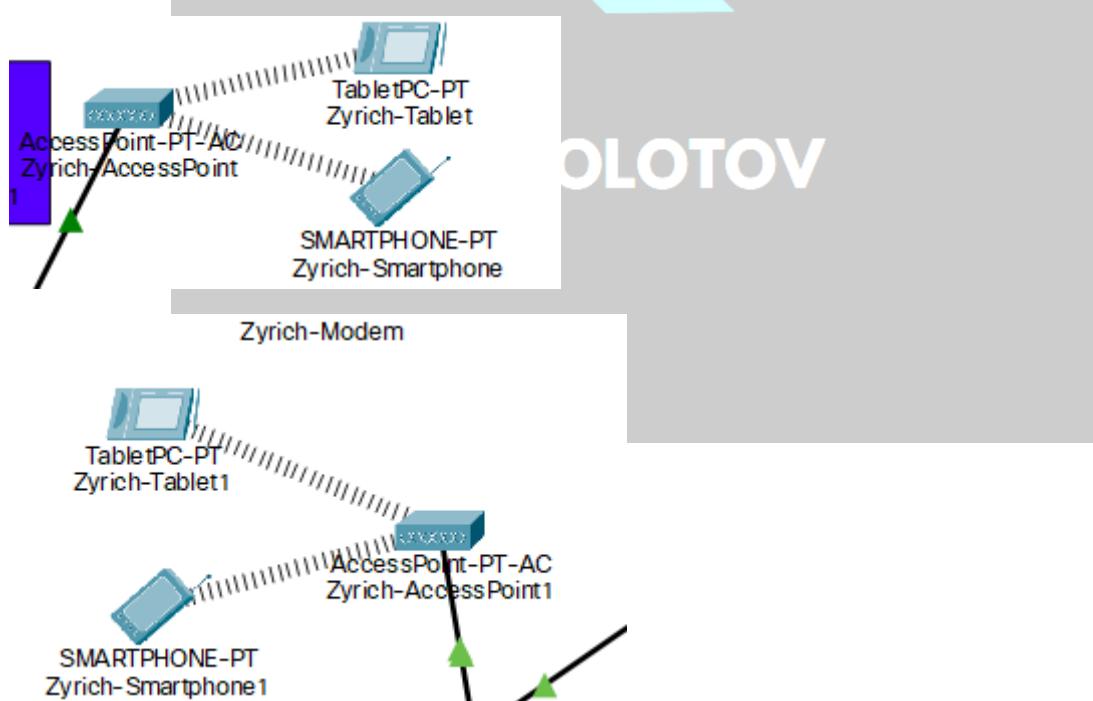
Branch – Zytomir :



Branch-Detroit :



Branch- Zyrich :



Branch – Zytomir :

Smartphone

Zytomir-Smartphone

Physical Config Desktop Programming Attributes

GLOBAL		Wireless0				
<input type="radio"/> Settings	<input checked="" type="checkbox"/> On	Port Status	300 Mbps			
<input type="radio"/> Algorithm Settings		Bandwidth	00E0.F7D2.141D			
INTERFACE		MAC Address	CEO			
<input type="radio"/> Wireless0		SSID				
<input type="radio"/> 3G/4G Cell1		Authentication				
<input type="radio"/> Bluetooth		<input type="radio"/> Disabled	<input type="radio"/> WEP	WEP Key		
		<input type="radio"/> WPA-PSK	<input checked="" type="radio"/> WPA2-PSK	PSK Pass Phrase	tinkerbesthero	
		<input type="radio"/> WPA	<input type="radio"/> WPA2	User ID		
		<input type="radio"/> 802.1X	Method:	Password		
			MD5	User Name		
				Password		
				Encryption Type	AES	
		IP Configuration				
		<input checked="" type="radio"/> DHCP				
		<input type="radio"/> Static				
		IPv4 Address	192.168.131.6			
		Subnet Mask	255.255.255.0			
		IPv6 Configuration				
		<input type="radio"/> Automatic				
		<input checked="" type="radio"/> Static				
		IPv6 Address				
		Link Local Address:	FE80::2E0:F7FF:FED2:141D			

Top

Tablet

Zytomir-Tablet

Physical Config Desktop Programming Attributes

GLOBAL	
Settings	
Algorithm Settings	
INTERFACE	
Wireless0	
3G/4G Cell1	
Bluetooth	

Wireless0

Port Status	<input checked="" type="checkbox"/> On	
Bandwidth	300 Mbps	
MAC Address	0010.11BA.A2AE	
SSID	CEO	
Authentication		
<input type="radio"/> Disabled	<input type="radio"/> WEP	WEP Key
<input type="radio"/> WPA-PSK	<input checked="" type="radio"/> WPA2-PSK	PSK Pass Phrase
<input type="radio"/> WPA	<input type="radio"/> WPA2	User ID
<input type="radio"/> 802.1X	Method:	Password
	MD5	User Name
		Password
Encryption Type		AES
IP Configuration		
<input checked="" type="radio"/> DHCP		
<input type="radio"/> Static		
IPv4 Address		192.168.131.5
Subnet Mask		255.255.255.0
IPv6 Configuration		
<input type="radio"/> Automatic		
<input checked="" type="radio"/> Static		
IPv6 Address		
Link Local Address: FE80::210:11FF:FEBA:A2AE		

Top

Smartphone

Zytomir-Smartphone1

Physical Config Desktop Programming Attributes

GLOBAL

Settings
Algorithm Settings

INTERFACE

Wireless0
3G/4G Cell1
Bluetooth

Wireless0

Port Status
Bandwidth: 300 Mbps
MAC Address: 0060.47A4.4804
SSID: Visualization

Authentication

Disabled WEP WEP Key
 WPA-PSK WPA2-PSK PSK Pass Phrase
 WPA WPA2 User ID
 802.1X Method: MD5 Password
User Name
Password

Encryption Type: Disabled

IP Configuration

DHCP
 Static
IPv4 Address: 172.21.0.4
Subnet Mask: 255.255.0.0

IPv6 Configuration

Automatic
 Static
IPv6 Address: FE80::260:47FF:FEA4:4804
Link Local Address: FE80::260:47FF:FEA4:4804

Top

Laptop

Zytomir-Laptop1

Physical Config Desktop Programming Attributes

GLOBAL	
Settings	
Algorithm Settings	
INTERFACE	
Wireless0	
Bluetooth	

Wireless0

Port Status	<input checked="" type="checkbox"/> On
Bandwidth	300 Mbps
MAC Address	0001.C7D3.C26B
SSID	Visualization
Authentication	
<input checked="" type="radio"/> Disabled	<input type="radio"/> WEP WEP Key
<input type="radio"/> WPA-PSK	<input type="radio"/> WPA2-PSK PSK Pass Phrase
<input type="radio"/> WPA	<input type="radio"/> WPA2 User ID
<input type="radio"/> 802.1X	Method: <input type="radio"/> MD5 Password
User Name	
Password	
Encryption Type	Disabled
IP Configuration	
<input checked="" type="radio"/> DHCP	
<input type="radio"/> Static	
IPv4 Address	172.21.0.6
Subnet Mask	255.255.0.0
IPv6 Configuration	
<input type="radio"/> Automatic	
<input checked="" type="radio"/> Static	
IPv6 Address	
Link Local Address:	FE80::201:C7FF:FED3:C26B

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Branch-Detroit :

Tablet

 Detroit-Tablet

Physical Config Desktop Programming Attributes

GLOBAL	
Settings	
Algorithm Settings	
INTERFACE	
Wireless0	
3G/4G Cell1	
Bluetooth	

Wireless0

Port Status	<input checked="" type="checkbox"/> On
Bandwidth	300 Mbps
MAC Address	000C.CF31.7ADD
SSID	AccessPoint
Authentication	
<input checked="" type="radio"/> Disabled	<input type="radio"/> WEP WEP Key
<input type="radio"/> WPA-PSK	<input type="radio"/> WPA2-PSK PSK Pass Phrase
<input type="radio"/> WPA	<input type="radio"/> WPA2 User ID
<input type="radio"/> 802.1X	Method: <input type="radio"/> MD5 Password
Encryption Type	
Disabled	
IP Configuration	
<input checked="" type="radio"/> DHCP	
<input type="radio"/> Static	
IPv4 Address	192.168.138.1
Subnet Mask	255.255.255.0
IPv6 Configuration	
<input type="radio"/> Automatic	
<input checked="" type="radio"/> Static	
IPv6 Address	
Link Local Address:	FE80::20C:CFFF:FE31:7ADD

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Smartphone

Detroit-Smartphone

Physical Config Desktop Programming Attributes

GLOBAL

Settings
Algorithm Settings
INTERFACE
Wireless0
3G/4G Cell1
Bluetooth

Wireless0

Port Status: On
Bandwidth: 300 Mbps
MAC Address: 00D0.FFB5.5948
SSID: AccessPoint

Authentication:

Disabled WEP WEP Key
 WPA-PSK WPA2-PSK PSK Pass Phrase
 WPA WPA2 User ID
 802.1X Method: MD5 Password
User Name
Password

Encryption Type: Disabled

IP Configuration:

DHCP
 Static
IPv4 Address: 192.168.138.2
Subnet Mask: 255.255.255.0

IPv6 Configuration:

Automatic
 Static
IPv6 Address: FE80::2D0:FFFF:FEB5:5948
Link Local Address: FE80::2D0:FFFF:FEB5:5948

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Tablet

Detroit-Tablet1

Physical Config Desktop Programming Attributes

GLOBAL

Settings
Algorithm Settings

INTERFACE

Wireless0
3G/4G Cell1
Bluetooth

Wireless0

Port Status
Bandwidth: 300 Mbps
MAC Address: 0001.6453.0983
SSID: AccessPointForWorker

Authentication:

Disabled WEP WEP Key:
 WPA-PSK WPA2-PSK PSK Pass Phrase:
 WPA WPA2
 802.1X Method:
User ID:
Password:
User Name:
Password:
Encryption Type:

IP Configuration:
 DHCP
 Static
IPv4 Address:
Subnet Mask:

IPv6 Configuration:
 Automatic
 Static
IPv6 Address: /
Link Local Address: FE80::201:64FF:FE53:983

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Smartphone

Detroit-Smartphone1

Physical Config Desktop Programming Attributes

GLOBAL

Settings
Algorithm Settings
INTERFACE
Wireless0
3G/4G Cell1
Bluetooth

Wireless0

Port Status: On
Bandwidth: 300 Mbps
MAC Address: 00D0.BA60.AC95
SSID: AccessPointForWorker

Authentication:
 Disabled WEP WEP Key
 WPA-PSK WPA2-PSK PSK Pass Phrase: tinkerbesthero
 WPA WPA2
 802.1X Method: MD5
User ID:
Password:
User Name:
Password:
Encryption Type: AES

IP Configuration:
 DHCP
 Static
IPv4 Address:
Subnet Mask:
IPv6 Configuration:
 Automatic
 Static
IPv6 Address:
Link Local Address: FE80::2D0:BAFF:FE60:AC95

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Branch- Zyrich :

Tablet

Zyrich-Tablet

Physical Config Desktop Programming Attributes

GLOBAL	
Settings	
Algorithm Settings	
INTERFACE	
Wireless0	
3G/4G Cell1	
Bluetooth	

Wireless0

Port Status	<input checked="" type="checkbox"/> On
Bandwidth	300 Mbps
MAC Address	00E0.F7DE.AB0D
SSID	ABOBA
Authentication	
<input checked="" type="radio"/> Disabled	<input type="radio"/> WEP WEP Key
<input type="radio"/> WPA-PSK	<input type="radio"/> WPA2-PSK PSK Pass Phrase
<input type="radio"/> WPA	<input type="radio"/> WPA2 User ID
<input type="radio"/> 802.1X	Method: <input type="button" value="MD5"/>
	User Name
	Password
Encryption Type	
<input type="button" value="Disabled"/>	
IP Configuration	
<input checked="" type="radio"/> DHCP	
<input type="radio"/> Static	
IPv4 Address	192.168.138.2
Subnet Mask	255.255.255.0
IPv6 Configuration	
<input type="radio"/> Automatic	
<input checked="" type="radio"/> Static	
IPv6 Address	<input type="text"/>
Link Local Address:	FE80::2E0:F7FF:FEDE:AB0D

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Smartphone

Zyrich-Smartphone

Physical Config Desktop Programming Attributes

GLOBAL		Wireless0	
Settings		Port Status	<input checked="" type="checkbox"/> On
Algorithm Settings		Bandwidth	300 Mbps
INTERFACE		MAC Address	0060.70A0.2DE1
Wireless0		SSID	ABOBA
3G/4G Cell1		Authentication	
Bluetooth		<input checked="" type="radio"/> Disabled	<input type="radio"/> WEP WEP Key
		<input type="radio"/> WPA-PSK	<input type="radio"/> WPA2-PSK PSK Pass Phrase
		<input type="radio"/> WPA	<input type="radio"/> WPA2 User ID
		<input type="radio"/> 802.1X	Method: MD5 Password
			User Name
			Password
		Encryption Type	Disabled
IP Configuration		IPv4 Address	
<input checked="" type="radio"/> DHCP		192.168.138.1	
<input type="radio"/> Static		Subnet Mask	
		255.255.255.0	
IPv6 Configuration		IPv6 Address	
<input type="radio"/> Automatic			
<input checked="" type="radio"/> Static		Link Local Address: FE80::260:70FF:FEA0:2DE1	

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Tablet

Zyrich-Tablet1

Physical Config Desktop Programming Attributes

GLOBAL

Settings
Algorithm Settings

INTERFACE

Wireless0
3G/4G Cell1
Bluetooth

Wireless0

Port Status: On
Bandwidth: 300 Mbps
MAC Address: 0002.4A6D.C4B0
SSID: AccessPointForWorker

Authentication:

Disabled WEP WEP Key
 WPA-PSK WPA2-PSK PSK Pass Phrase: tinkerbesthero
 WPA WPA2 User ID
 802.1X Method: MD5 Password
User Name:
Password:

Encryption Type: AES

IP Configuration:

DHCP
 Static
IPv4 Address: 192.168.139.1
Subnet Mask: 255.255.255.0

IPv6 Configuration:

Automatic
 Static
IPv6 Address: /
Link Local Address: FE80::202:4AFF:FE6D:C4B0

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Smartphone

Zyrich-Smartphone1

Physical Config Desktop Programming Attributes

GLOBAL			
Settings			
Algorithm Settings			
INTERFACE			
Wireless0			
3G/4G Cell1			
Bluetooth			
Wireless0			
Port Status	<input checked="" type="checkbox"/> On		
Bandwidth	300 Mbps		
MAC Address	000C.85C0.6BCE		
SSID	AccessPointForWorker		
Authentication			
<input type="radio"/> Disabled	<input type="radio"/> WEP	WEP Key	
<input type="radio"/> WPA-PSK	<input checked="" type="radio"/> WPA2-PSK	PSK Pass Phrase	tinkerbesthero
<input type="radio"/> WPA	<input type="radio"/> WPA2	User ID	
<input type="radio"/> 802.1X	Method:	Password	
	MD5	User Name	
		Password	
		Encryption Type	AES
IP Configuration			
<input checked="" type="radio"/> DHCP			
<input type="radio"/> Static			
IPv4 Address	192.168.139.2		
Subnet Mask	255.255.255.0		
IPv6 Configuration			
<input type="radio"/> Automatic			
<input checked="" type="radio"/> Static			
IPv6 Address			
Link Local Address:	FE80::20C:85FF:FEC0:6BCE		

Top

Port Security

Port Security **helps secure the network by preventing unknown devices from forwarding packets**. When a link goes down, all dynamically locked addresses are freed. The port security feature offers the following benefits: You can limit the number of MAC addresses on a given port.

```
Zytomir-SW-3 (config)# interface range fastEthernet 0/5-24
```

```
Zytomir-SW-3 (config-if-range)# shutdown
```

```
Zytomir-SW-3 (config)# interface gigabitEthernet 0/2
```

```
Zytomir-SW-3 (config-if)# shutdown
```

```
Zytomir-SW-3 (config)# interface range fastEthernet 0/1-4
```

```
Zytomir-SW-3 (config-if)# switchport mode access
```

```
Zytomir-SW-3 (config-if)# switchport port-security
```

```
Zytomir-SW-3 (config-if)# switchport port-security maximum 1
```

```
Zytomir-SW-3 (config-if)# switchport port-security mac-address sticky
```

```
Zytomir-SW-3 (config)# interface gigabitEthernet 0/2
```

```
Zytomir-SW-3 (config-if)# switchport mode access
```

```
Zytomir-SW-3 (config-if)# switchport port-security
```

```
Zytomir-SW-3 (config-if)# switchport port-security maximum 2
```

Zytomir-SW-3 (config-if)# switchport port-security mac-address sticky

Secure Mac Address Table			
--	Vlan	Mac Address	Type
	Remaining Age		Ports
(mins)			
----	-----	-----	-----
133	0009.7C04.AEB3	SecureSticky	FastEthernet0/1
133	0001.969D.1886	SecureSticky	FastEthernet0/2
133	00D0.9776.B6EE	SecureSticky	FastEthernet0/3
133	0001.C90D.3BB3	SecureSticky	FastEthernet0/4
	-		

P.BOLOTOV

NAT

Network Address Translation (NAT) is a process that enables one, unique IP address to represent an entire group of computers. In network address translation, a network device, often a router or NAT firewall, assigns a computer or computers inside a private network a public address.

show ip nat statistics

Zytomir

```
Zytomir-R#show ip nat statistics
Total translations: 8 (1 static, 7 dynamic, 7 extended)
Outside Interfaces: GigabitEthernet0/0
Inside Interfaces: GigabitEthernet0/1.131 , GigabitEthernet0/1.132 ,
GigabitEthernet0/1.133 , GigabitEthernet0/1.134 , GigabitEthernet0/1.135 ,
GigabitEthernet0/1.136 , GigabitEthernet0/1.137
Hits: 70 Misses: 36
Expired translations: 18
```

Detroit

```
Detroit-R#show ip nat statistics
Total translations: 1 (1 static, 0 dynamic, 0 extended)
Outside Interfaces: GigabitEthernet0/0
Inside Interfaces: GigabitEthernet0/1.131 , GigabitEthernet0/1.132 ,
GigabitEthernet0/1.133 , GigabitEthernet0/1.134 , GigabitEthernet0/1.135 ,
GigabitEthernet0/1.137 , GigabitEthernet0/1.138 , GigabitEthernet0/1.139
Hits: 0 Misses: 12
Expired translations: 0
Dynamic mappings:
```

Zyrich

```
Zyrich-Router#show ip nat statistics
Total translations: 4 (1 static, 3 dynamic, 3 extended)
Outside Interfaces: GigabitEthernet0/0
Inside Interfaces: GigabitEthernet0/1.131 , GigabitEthernet0/1.132 ,
GigabitEthernet0/1.133 , GigabitEthernet0/1.134 , GigabitEthernet0/1.135 ,
GigabitEthernet0/1.137 , GigabitEthernet0/1.138 , GigabitEthernet0/1.139
Hits: 26 Misses: 17
Expired translations: 3
Dynamic mappings:
```

Zytomir

```

Zytomir-R(config)# access-list 1 permit 192.168.0.0 0.0.255.255
Zytomir-R(config)# access-list 1 permit 172.16.0.0 0.15.255.255
Zytomir-R(config)# access-list 1 permit 10.0.0.0 0.255.255.255
Zytomir-R(config)#ip nat inside source list 1 interface gigabitEthernet 0/0
Zytomir-R(config)# interface gigabitEthernet 0/0
Zytomir-R(config-if)# ip nat outside
Zytomir-R(config-if)#exit
Zytomir-R(config)# interface GigabitEthernet 0/1.131
Zytomir-R(config-subif)# ip nat inside
Zytomir-R(config-subif)# interface GigabitEthernet 0/1.132
Zytomir-R(config-subif)# ip nat inside
Zytomir-R(config-subif)# interface GigabitEthernet 0/1.133
Zytomir-R(config-subif)# ip nat inside
Zytomir-R(config-subif)# interface GigabitEthernet 0/1.134
Zytomir-R(config-subif)# ip nat inside
Zytomir-R(config-subif)# interface GigabitEthernet 0/1.135
Zytomir-R(config-subif)# ip nat inside
Zytomir-R(config-subif)# interface GigabitEthernet 0/1.136
Zytomir-R(config-subif)# ip nat inside
Zytomir-R(config-subif)# interface GigabitEthernet 0/1.137
Zytomir-R(config-subif)# ip nat inside

```

Detroit

```

Detroit-R(config)# access-list 1 permit 192.168.0.0 0.0.255.255
Detroit-R(config)# access-list 1 permit 172.16.0.0 0.15.255.255
Detroit-R(config)# access-list 1 permit 10.0.0.0 0.255.255.255
Detroit-R(config)#ip nat inside source list 1 interface gigabitEthernet 0/0
Detroit-R(config)# interface gigabitEthernet 0/0
Detroit-R(config-if)# ip nat outside
Detroit-R(config-if)#exit

```

```

Detroit-R(config)# interface GigabitEthernet 0/1.131
Detroit-R(config-subif)# ip nat inside
Detroit-R(config-subif)# interface GigabitEthernet 0/1.132
Detroit-R(config-subif)# ip nat inside
Detroit-R(config-subif)# interface GigabitEthernet 0/1.133
Detroit-R(config-subif)# ip nat inside
Detroit-R(config-subif)# interface GigabitEthernet 0/1.134
Detroit-R(config-subif)# ip nat inside
Detroit-R(config-subif)# interface GigabitEthernet 0/1.135
Detroit-R(config-subif)# ip nat inside
Detroit-R(config-subif)# interface GigabitEthernet 0/1.137
Detroit-R(config-subif)# ip nat inside
Detroit-R(config-subif)# interface GigabitEthernet 0/1.138
Detroit-R(config-subif)# ip nat inside
Detroit-R(config-subif)# interface GigabitEthernet 0/1.139
Detroit-R(config-subif)# ip nat inside
  
```

Zyrich

```

Zyrich-R(config)# access-list 1 permit 192.168.0.0 0.0.255.255
Zyrich-R(config)# access-list 1 permit 172.16.0.0 0.15.255.255
Zyrich-R(config)# access-list 1 permit 10.0.0.0 0.255.255.255
Zyrich-R(config)#ip nat inside source list 1 interface gigabitEthernet 0/0
Zyrich-R(config)# interface gigabitEthernet 0/0
Zyrich-R(config-if)# ip nat outside
Zyrich-R(config-if)#exit
Zyrich-R(config)# interface GigabitEthernet 0/1.131
Zyrich-R(config-subif)# ip nat inside
Zyrich-R(config-subif)# interface GigabitEthernet 0/1.132
Zyrich-R(config-subif)# ip nat inside 105
Zyrich-R(config-subif)# interface GigabitEthernet 0/1.133
Zyrich-R(config-subif)# ip nat inside
  
```

```
Zyrich-R(config-subif)# interface GigabitEthernet 0/1.134
Zyrich-R(config-subif)# ip nat inside
Zyrich-R(config-subif)# interface GigabitEthernet 0/1.135
Zyrich-R(config-subif)# ip nat inside
Zyrich-R(config-subif)# interface GigabitEthernet 0/1.137
Zyrich-R(config-subif)# ip nat inside`  

Zyrich-R(config-subif)# interface GigabitEthernet 0/1.138
Zyrich-R(config-subif)# ip nat inside
Zyrich-R(config-subif)# interface GigabitEthernet 0/1.139
Zyrich-R(config-subif)# ip nat inside
```

Zytomir Static

```
Zytomir-R(config)#ip nat inside source static 192.168.132.250 202.202.202.14
```

Detroit Static

```
Detroit-R(config)# ip nat inside source static 192.168.131.250 202.202.202.15
```

Zyrich Static

P.BOLOTOV

```
Zyrich-R(config)# ip nat inside source static 192.168.133.250 202.202.202.16
```

Extended Access List

Zytomir

```
Zytomir-R(config)#access-list 133 deny tcp 192.168.133.0 0.0.0.255 any eq 80
Zytomir-R(config)#access-list 133 deny tcp 192.168.133.0 0.0.0.255 any eq 443
Zytomir-R(config)#access-list 133 permit ip any any
Zytomir-R(config)#interface gigabitEthernet 0/1.133
Zytomir-R(config-subif)#ip access-group 133 in
```

```
Zytomir-R#show access-lists
Standard IP access list 1
    10 permit 192.168.0.0 0.0.255.255
    20 permit 10.0.0.0 0.255.255.255
    30 permit 172.16.0.0 0.15.255.255
Extended IP access list 133
    10 deny tcp 192.168.133.0 0.0.0.255 any eq www
    20 deny tcp 192.168.133.0 0.0.0.255 any eq 443
    30 permit ip any any (8 match(es))
```

OSPF – Routing

OSPF, short for Open Shortest Path First, is a **dynamic routing protocol commonly used in large-scale IP networks**. It functions by determining the shortest path to route data packets between routers. OSPF calculates this path based on various metrics such as link bandwidth, delay, and cost.

Default-Gateway

```
Default-Gateway(config)#router ospf 1  
Default-Gateway(config-router)# network 202.202.202.0 0.0.0.255 area 0  
Default-Gateway(config-router)# network 203.202.202.0 0.0.0.255 area 0
```

Router1

```
Router1(config)# router ospf 1  
Router1 (config-router)# network 203.202.202.0 0.0.0.255 area 0  
Router1 (config-router)# network 204.202.202.0 0.0.0.255 area 0
```

Zytomir – Routing

```
Zytomir(config)# ip route 0.0.0.0 0.0.0.0 202.202.202.200
```

show ip route

```

 10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C   10.0.0.0/8 is directly connected, GigabitEthernet0/1.137
L   10.255.255.254/32 is directly connected, GigabitEthernet0/1.137
 172.20.0.0/16 is variably subnetted, 2 subnets, 2 masks
C   172.20.0.0/16 is directly connected, GigabitEthernet0/1.135
L   172.20.255.254/32 is directly connected, GigabitEthernet0/1.135
 172.21.0.0/16 is variably subnetted, 2 subnets, 2 masks
C   172.21.0.0/16 is directly connected, GigabitEthernet0/1.136
L   172.21.255.254/32 is directly connected, GigabitEthernet0/1.136
 192.168.131.0/24 is variably subnetted, 2 subnets, 2 masks
C   192.168.131.0/24 is directly connected, GigabitEthernet0/1.131
L   192.168.131.254/32 is directly connected, GigabitEthernet0/1.131
 192.168.132.0/24 is variably subnetted, 2 subnets, 2 masks
C   192.168.132.0/24 is directly connected, GigabitEthernet0/1.132
L   192.168.132.254/32 is directly connected, GigabitEthernet0/1.132
 192.168.133.0/24 is variably subnetted, 2 subnets, 2 masks
C   192.168.133.0/24 is directly connected, GigabitEthernet0/1.133
L   192.168.133.254/32 is directly connected, GigabitEthernet0/1.133
 192.168.134.0/24 is variably subnetted, 2 subnets, 2 masks
C   192.168.134.0/24 is directly connected, GigabitEthernet0/1.134
L   192.168.134.254/32 is directly connected, GigabitEthernet0/1.134
 202.202.202.0/24 is variably subnetted, 2 subnets, 2 masks
C   202.202.202.0/24 is directly connected, GigabitEthernet0/0
L   202.202.202.1/32 is directly connected, GigabitEthernet0/0
S*  0.0.0.0/0 [1/0] via 202.202.202.200

```

Detroit – Routing

```
Detroit-R(config)# ip route 0.0.0.0 0.0.0.0 202.202.202.200
```

```
show ip route
```

```
    10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C      10.0.0.0/8 is directly connected, GigabitEthernet0/1.137
L      10.255.255.254/32 is directly connected, GigabitEthernet0/1.137
    172.20.0.0/16 is variably subnetted, 2 subnets, 2 masks
C      172.20.0.0/16 is directly connected, GigabitEthernet0/1.135
L      172.20.255.254/32 is directly connected, GigabitEthernet0/1.135
    192.168.131.0/24 is variably subnetted, 2 subnets, 2 masks
C      192.168.131.0/24 is directly connected, GigabitEthernet0/1.131
L      192.168.131.254/32 is directly connected, GigabitEthernet0/1.131
    192.168.132.0/24 is variably subnetted, 2 subnets, 2 masks
C      192.168.132.0/24 is directly connected, GigabitEthernet0/1.132
L      192.168.132.254/32 is directly connected, GigabitEthernet0/1.132
    192.168.133.0/24 is variably subnetted, 2 subnets, 2 masks
C      192.168.133.0/24 is directly connected, GigabitEthernet0/1.133
L      192.168.133.254/32 is directly connected, GigabitEthernet0/1.133
    192.168.134.0/24 is variably subnetted, 2 subnets, 2 masks
C      192.168.134.0/24 is directly connected, GigabitEthernet0/1.134
L      192.168.134.254/32 is directly connected, GigabitEthernet0/1.134
    192.168.138.0/24 is variably subnetted, 2 subnets, 2 masks
C      192.168.138.0/24 is directly connected, GigabitEthernet0/1.138
L      192.168.138.254/32 is directly connected, GigabitEthernet0/1.138
    192.168.139.0/24 is variably subnetted, 2 subnets, 2 masks
C      192.168.139.0/24 is directly connected, GigabitEthernet0/1.139
L      192.168.139.254/32 is directly connected, GigabitEthernet0/1.139
    202.202.202.0/24 is variably subnetted, 2 subnets, 2 masks
C      202.202.202.0/24 is directly connected, GigabitEthernet0/0
L      202.202.202.2/32 is directly connected, GigabitEthernet0/0
S*   0.0.0.0/0 [1/0] via 202.202.202.200
```

Zyrich – Routing

```
Zyrich-R(config)# ip route 0.0.0.0 0.0.0.0 202.202.202.200
```

```
show ip route
```

```
 10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
S   10.0.0.0/8 is directly connected, GigabitEthernet0/1.137
L   10.255.255.254/32 is directly connected, GigabitEthernet0/1.137
  172.20.0.0/16 is variably subnetted, 2 subnets, 2 masks
S   172.20.0.0/16 is directly connected, GigabitEthernet0/1.135
L   172.20.255.254/32 is directly connected, GigabitEthernet0/1.135
  192.168.131.0/24 is variably subnetted, 2 subnets, 2 masks
S   192.168.131.0/24 is directly connected, GigabitEthernet0/1.131
L   192.168.131.254/32 is directly connected, GigabitEthernet0/1.131
  192.168.132.0/24 is variably subnetted, 2 subnets, 2 masks
S   192.168.132.0/24 is directly connected, GigabitEthernet0/1.132
L   192.168.132.254/32 is directly connected, GigabitEthernet0/1.132
  192.168.133.0/24 is variably subnetted, 2 subnets, 2 masks
S   192.168.133.0/24 is directly connected, GigabitEthernet0/1.133
L   192.168.133.254/32 is directly connected, GigabitEthernet0/1.133
  192.168.134.0/24 is variably subnetted, 2 subnets, 2 masks
S   192.168.134.0/24 is directly connected, GigabitEthernet0/1.134
L   192.168.134.254/32 is directly connected, GigabitEthernet0/1.134
  192.168.138.0/24 is variably subnetted, 2 subnets, 2 masks
S   192.168.138.0/24 is directly connected, GigabitEthernet0/1.138
L   192.168.138.254/32 is directly connected, GigabitEthernet0/1.138
  192.168.139.0/24 is variably subnetted, 2 subnets, 2 masks
S   192.168.139.0/24 is directly connected, GigabitEthernet0/1.139
L   192.168.139.254/32 is directly connected, GigabitEthernet0/1.139
  202.202.202.0/24 is variably subnetted, 2 subnets, 2 masks
S   202.202.202.0/24 is directly connected, GigabitEthernet0/0
L   202.202.202.3/32 is directly connected, GigabitEthernet0/0
S*  0.0.0.0/0 [1/0] via 202.202.202.200
```

Web Devices

Default-Gateway

```
Default-Gateway (config)#interface GigabitEthernet0/0
Default-Gateway (config-if)#ip address 202.202.202.200 255.255.255.0
```

```
Default-Gateway(config)#interface GigabitEthernet0/1
Default-Gateway(config-if)#ip address 203.202.202.1 255.255.255.0
```

```
Default-Gateway(config)#router ospf 1
Default-Gateway(config-router)# network 202.202.202.0 0.0.0.255 area 0
Default-Gateway(config-router)# network 203.202.202.0 0.0.0.255 area 0
```

```
show ip route
```

```
-
```

```
202.202.202.0/24 is variably subnetted, 2 subnets, 2 masks
C      202.202.202.0/24 is directly connected, GigabitEthernet0/0
L      202.202.202.200/32 is directly connected, GigabitEthernet0/0
      203.202.202.0/24 is variably subnetted, 2 subnets, 2 masks
C      203.202.202.0/24 is directly connected, GigabitEthernet0/1
L      203.202.202.1/32 is directly connected, GigabitEthernet0/1
O      204.202.202.0/24 [110/2] via 203.202.202.2, 00:47:33, GigabitEthernet0/1
```

Router1

```
Router(config)#interface GigabitEthernet0/0  
Router(config-if)#ip address 203.202.202.2 255.255.255.0
```

```
Router(config)#interface GigabitEthernet0/1  
Router(config-if)#ip address 204.202.202.1 255.255.255.0
```

```
Router1(config)# router ospf 1  
Router1 (config-router)# network 203.202.202.0 0.0.0.255 area 0  
Router1 (config-router)# network 204.202.202.0 0.0.0.255 area 0
```

```
show ip route
```

```
O 202.202.202.0/24 [110/2] via 203.202.202.1, 00:04:16, GigabitEthernet0/0  
  203.202.202.0/24 is variably subnetted, 2 subnets, 2 masks  
C    203.202.202.0/24 is directly connected, GigabitEthernet0/0  
L    203.202.202.2/32 is directly connected, GigabitEthernet0/0  
  204.202.202.0/24 is variably subnetted, 2 subnets, 2 masks  
C    204.202.202.0/24 is directly connected, GigabitEthernet0/1  
L    204.202.202.1/32 is directly connected, GigabitEthernet0/1
```

P.BOLOTOV

SSH / Telnet

SSH or Secure Shell is a **network communication protocol** that enables two computers to communicate (c.f http or hypertext transfer protocol, which is the protocol used to transfer hypertext such as web pages) and share data.

Zytomir-SW-4

```
Zytomir-SW-4(config)#username admin privilege 15 secret 123ssh
Zytomir-SW-4(config)#ip domain-name P.Bolotov.com
Zytomir-SW-4(config)#crypto key generate rsa
Zytomir-SW-4(config)#line vty 0 15
Zytomir-SW-4(config-line)#transport input ssh
Zytomir-SW-4(config-line)#login local
```

For checking SSH Status:

...# show ip SSH

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For enter to the SHH:

>ssh -l admin(name of the user) 192.168.134.253(ip address)

```
Packet Tracer PC Command Line 1.0
C:\>ssh -l admin 192.168.134.253

Password:
!!!!!!!!!!!!!! Warning!!! Warning!!! Unauthorized access prohibited
!!!!!!!!!!!!!! !!!!!!!!!

Zytomir-SW-4>
```

MetroEthernet

What's Metro Ethernet. Metro Ethernet is a **network that uses Ethernet standards to interconnect sites in a metropolitan area network (MAN)**. It's a cost-effective, scalable way to connect multiple locations across a city or urban area.



P.BOLTOV

Feedback on Packet Tracer Project

During the Packet Tracer project, I successfully applied networking concepts to design and configure a functional network. I demonstrated a strong understanding of device configurations, IP addressing, and troubleshooting. Through this project, I developed new skills, including VLAN setup, routing protocols, and network security measures. Additionally, I improved my problem-solving abilities by troubleshooting connectivity issues. Overall, this project enhanced my confidence in using Packet Tracer and deepened my understanding of networking principles.

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Bibliography

Link to the website	Topics
http://google.com	Google
http://chatgpt.com	ChatGpt
http://oracle.com	Oracle



Configuration Switches and Routers

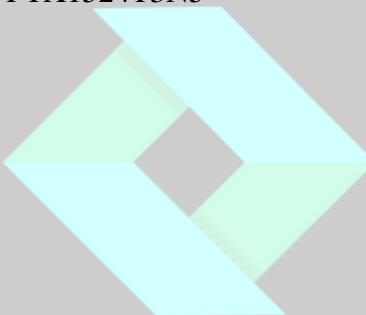
show running-config

Zytomir-R

```
!
version 15.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Zytomir-R
!
!
!
enable secret 5 $1$mERr$ZaPiq3.NRJhTYGD.lFyDm0
!
!
ip dhcp excluded-address 192.168.131.240 192.168.131.254
ip dhcp excluded-address 192.168.132.240 192.168.132.254
ip dhcp excluded-address 192.168.133.240 192.168.133.254
ip dhcp excluded-address 192.168.134.240 192.168.134.254
ip dhcp excluded-address 172.20.0.240 172.20.0.254
ip dhcp excluded-address 172.21.0.240 172.21.0.254
ip dhcp excluded-address 10.0.0.240 10.0.0.254
!
ip dhcp pool vlan131-CEO
network 192.168.131.0 255.255.255.0
default-router 192.168.131.254
dns-server 202.202.202.202
ip dhcp pool vlan132-Finance
network 192.168.132.0 255.255.255.0
default-router 192.168.132.254
dns-server 202.202.202.202
ip dhcp pool vlan133-Operations
network 192.168.133.0 255.255.255.0
default-router 192.168.133.254
dns-server 202.202.202.202
ip dhcp pool vlan134-Legal
network 192.168.134.0 255.255.255.0
default-router 192.168.134.254
dns-server 202.202.202.202
ip dhcp pool vlan135-Research
network 172.20.0.0 255.255.0.0
default-router 172.20.255.254
dns-server 202.202.202.202
```

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```
ip dhcp pool vlan136-Visualization
network 172.21.0.0 255.255.0.0
default-router 172.21.255.254
dns-server 202.202.202.202
ip dhcp pool vlan137-Gaming
network 10.0.0.0 255.0.0.0
default-router 10.255.255.254
dns-server 202.202.202.202
!
!
!
ip cef
no ipv6 cef
!
!
!
!
license udi pid CISCO1941/K9 sn FTX1524T3N5-
!
!
!
!
!
!
!
!
no ip domain-lookup
!
!
spanning-tree mode pvst
!
!
!
!
!
!
interface GigabitEthernet0/0
ip address 202.202.202.1 255.255.255.0
ip nat outside
duplex auto
speed auto
!
interface GigabitEthernet0/1
no ip address
duplex auto
speed auto
!
interface GigabitEthernet0/1.131
encapsulation dot1Q 131
```

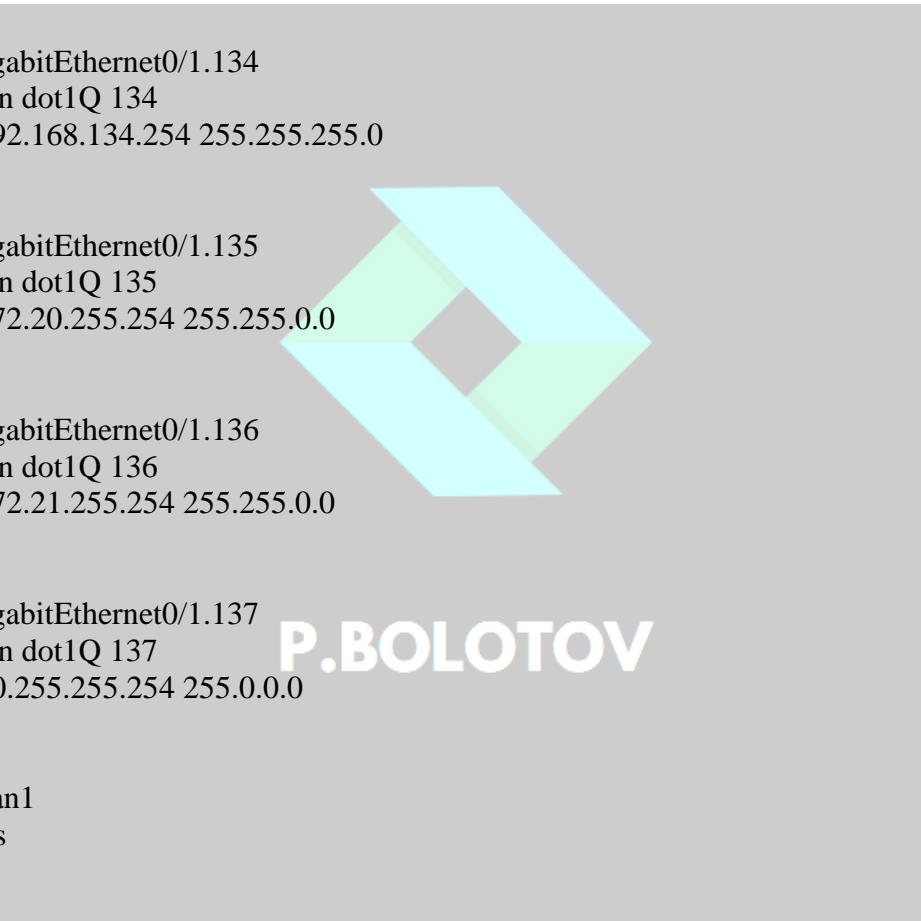


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```

ip address 192.168.131.254 255.255.255.0
ip nat inside
!
interface GigabitEthernet0/1.132
encapsulation dot1Q 132
ip address 192.168.132.254 255.255.255.0
ip nat inside
!
interface GigabitEthernet0/1.133
encapsulation dot1Q 133
ip address 192.168.133.254 255.255.255.0
ip access-group 133 in
ip nat inside
!
interface GigabitEthernet0/1.134
encapsulation dot1Q 134
ip address 192.168.134.254 255.255.255.0
ip nat inside
!
interface GigabitEthernet0/1.135
encapsulation dot1Q 135
ip address 172.20.255.254 255.255.0.0
ip nat inside
!
interface GigabitEthernet0/1.136
encapsulation dot1Q 136
ip address 172.21.255.254 255.255.0.0
ip nat inside
!
interface GigabitEthernet0/1.137
encapsulation dot1Q 137
ip address 10.255.255.254 255.0.0.0
ip nat inside
!
interface Vlan1
no ip address
shutdown
!
ip nat inside source list 1 interface GigabitEthernet0/0 overload
ip nat inside source static 192.168.132.250 202.202.202.14
ip classless
ip route 0.0.0.0 0.0.0.0 202.202.202.200
!
ip flow-export version 9
!
!
access-list 1 permit 192.168.0.0 0.0.255.255
access-list 1 permit 10.0.0.0 0.255.255.255
access-list 1 permit 172.16.0.0 0.15.255.255
access-list 133 deny tcp 192.168.133.0 0.0.0.255 any eq www

```



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```

access-list 133 deny tcp 192.168.133.0 0.0.0.255 any eq 443
access-list 133 permit ip any any
!
no cdp run
!
!
!
!
!
!
line con 0
password best
login
!
line aux 0
!
line vty 0 4
login
!
!
!
End

```

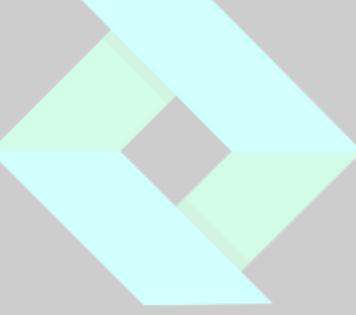
Zytomir-SW-Main

```

!
version 12.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Zytomir-SW-Main
!
enable secret 5 $1$mERr$ZaPiq3.NRJhTYGD.lFyDm0
!
!
!
no ip domain-lookup
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface GigabitEthernet0/1
switchport mode trunk
!
interface GigabitEthernet1/1
switchport access vlan 131

```

```
!
interface GigabitEthernet2/1
switchport access vlan 132
!
interface GigabitEthernet3/1
switchport access vlan 133
!
interface GigabitEthernet4/1
switchport access vlan 134
!
interface GigabitEthernet5/1
switchport access vlan 135
!
interface GigabitEthernet6/1
switchport access vlan 136
!
interface GigabitEthernet7/1
switchport access vlan 137
!
interface GigabitEthernet8/1
shutdown
!
interface GigabitEthernet9/1
shutdown
!
interface Vlan1
no ip address
shutdown
!
!
!
!
line con 0
password best
login
!
line vty 0 4
password hero
login
line vty 5 9
password hero
login
line vty 10 15
login
!
!
!
!
end
```



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Detroit-R

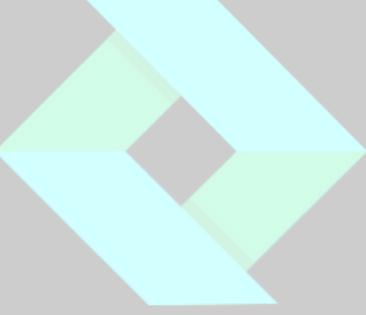
```

!
version 15.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
service password-encryption
!
hostname Detroit-R
!
!
!
enable secret 5 $1$mERr$ZaPiq3.NRJhTYGD.lFyDm0
!
!
!
ip dhcp excluded-address 192.168.131.240 192.168.131.254
ip dhcp excluded-address 192.168.132.240 192.168.132.254
ip dhcp excluded-address 192.168.133.240 192.168.133.254
ip dhcp excluded-address 192.168.134.240 192.168.134.254
ip dhcp excluded-address 172.20.0.240 172.20.0.254
ip dhcp excluded-address 10.0.0.240 10.0.0.254
!
ip dhcp pool vlan131-CEO
network 192.168.131.0 255.255.255.0
default-router 192.168.131.254
dns-server 202.202.202.202
ip dhcp pool 132-Finance
network 192.168.132.0 255.255.255.0
default-router 192.168.132.254
dns-server 202.202.202.202
ip dhcp pool 133-Operations
network 192.168.133.0 255.255.255.0
default-router 192.168.133.254
dns-server 202.202.202.202
ip dhcp pool 134-Guest
network 192.168.134.0 255.255.255.0
default-router 192.168.134.254
dns-server 202.202.202.202
ip dhcp pool 135-Research
network 172.20.0.0 255.255.0.0
default-router 172.20.255.254
dns-server 202.202.202.202
ip dhcp pool 137-Gaming
network 10.0.0.0 255.0.0.0
default-router 10.255.255.254
dns-server 202.202.202.202
ip dhcp pool vlan138-AccessPoint
network 192.168.138.0 255.255.255.0
default-router 192.168.138.254
dns-server 202.202.202.202
ip dhcp pool vlan139-AccessPointForWorker

```

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```
network 192.168.139.0 255.255.255.0
default-router 192.168.139.254
dns-server 202.202.202.202
!
!
!
ip cef
no ipv6 cef
!
!
!
!
!
license udi pid CISCO1941/K9 sn FTX1524123U-
!
!
!
!
!
!
!
!
!
!
no ip domain-lookup
!
!
spanning-tree mode pvst
!
!
!
!
!
interface GigabitEthernet0/0
ip address 202.202.202.2 255.255.255.0
ip nat outside
duplex auto
speed auto
!
interface GigabitEthernet0/1
no ip address
duplex auto
speed auto
!
interface GigabitEthernet0/1.131
encapsulation dot1Q 131
ip address 192.168.131.254 255.255.255.0
ip nat inside
!
interface GigabitEthernet0/1.132
encapsulation dot1Q 132
```



P.BOLOTOV

```

ip address 192.168.132.254 255.255.255.0
ip nat inside
!
interface GigabitEthernet0/1.133
encapsulation dot1Q 133
ip address 192.168.133.254 255.255.255.0
ip nat inside
!
interface GigabitEthernet0/1.134
encapsulation dot1Q 134
ip address 192.168.134.254 255.255.255.0
ip nat inside
!
interface GigabitEthernet0/1.135
encapsulation dot1Q 135
ip address 172.20.255.254 255.255.0.0
ip nat inside
!
interface GigabitEthernet0/1.137
encapsulation dot1Q 137
ip address 10.255.255.254 255.0.0.0
ip nat inside
!
interface GigabitEthernet0/1.138
encapsulation dot1Q 138
ip address 192.168.138.254 255.255.255.0
ip nat inside
!
interface GigabitEthernet0/1.139
encapsulation dot1Q 139
ip address 192.168.139.254 255.255.255.0
ip nat inside
!
interface Vlan1
no ip address
shutdown
!
ip nat inside source list 1 interface GigabitEthernet0/0 overload
ip nat inside source static 192.168.131.250 202.202.202.15
ip classless
ip route 0.0.0.0 0.0.0.0 202.202.202.200
!
ip flow-export version 9
!
!
access-list 1 permit 192.168.0.0 0.0.255.255
access-list 1 permit 172.16.0.0 0.15.255.255
access-list 1 permit 10.0.0.0 0.255.255.255
!
no cdp run

```

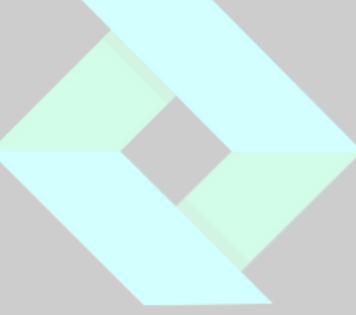
```
!  
banner motd  
^C!!!!!!!!!!!!!!  
Warning!!! Warning!!! Unauthorized access prohibited !!!!!!!  
!!!!!!^C  
!  
!  
!  
!  
!  
line con 0  
password 7 0823495D1D  
login  
!  
line aux 0  
!  
line vty 0 4  
password 7 0829495C06  
login  
line vty 5 8  
password 7 0829495C06  
login  
!  
!  
!  
end
```



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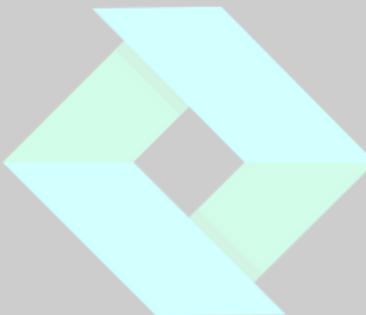
Detroit-SW-Main

```
!
version 12.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Detroit-SW-Main
!
enable secret 5 $1$mERr$ZaPiq3.NRJhTYGD.lFyDm0
!
!
!
no ip domain-lookup
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface GigabitEthernet0/1
switchport mode trunk
!
interface GigabitEthernet1/1
switchport mode trunk
!
interface GigabitEthernet2/1
switchport mode trunk
!
interface GigabitEthernet3/1
switchport mode trunk
!
interface GigabitEthernet4/1
switchport mode trunk
!
interface GigabitEthernet5/1
switchport mode trunk
!
interface GigabitEthernet6/1
switchport access vlan 131
switchport mode access
!
interface GigabitEthernet7/1
!
interface GigabitEthernet8/1
!
interface GigabitEthernet9/1
!
interface Vlan1
no ip address
```



P.BOLOTOV

```
shutdown
!
banner motd
^C!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Warning!!! Warning!!! Unauthorized access prohibited !!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!^C
!
!
!
line con 0
password best
login
!
line vty 0 4
password hero
login
line vty 5 8
password hero
login
line vty 9 15
login
!
!
!
!
end
```



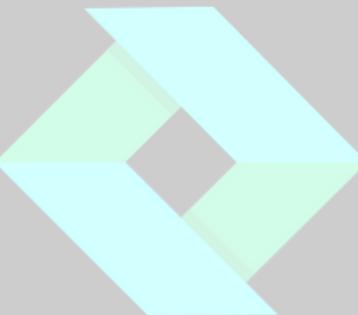
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Zyrich-R

```
!
version 15.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
service password-encryption
!
hostname Zyrich-Router
!
!
!
enable secret 5 $1$mERr$ZaPiq3.NRJhTYGD.lFyDm0
!
!
!
ip dhcp excluded-address 192.168.131.240 192.168.131.254
ip dhcp excluded-address 192.168.132.240 192.168.132.254
ip dhcp excluded-address 192.168.133.240 192.168.133.254
ip dhcp excluded-address 192.168.134.240 192.168.134.254
ip dhcp excluded-address 172.20.0.240 172.20.0.254
ip dhcp excluded-address 10.0.0.240 10.0.0.254
ip dhcp excluded-address 192.168.138.240 192.168.138.254
ip dhcp excluded-address 192.168.139.240 192.168.139.254
!
ip dhcp pool vlan131-CEO
network 192.168.131.0 255.255.255.0
default-router 192.168.131.254
dns-server 202.202.202.202
ip dhcp pool 132-Finance
network 192.168.132.0 255.255.255.0
default-router 192.168.132.254
dns-server 202.202.202.202
ip dhcp pool 133-Operations
network 192.168.133.0 255.255.255.0
default-router 192.168.133.254
dns-server 202.202.202.202
ip dhcp pool 134-Guest
network 192.168.134.0 255.255.255.0
default-router 192.168.134.254
dns-server 202.202.202.202
ip dhcp pool 135-Research
network 172.20.0.0 255.255.0.0
default-router 172.20.255.254
dns-server 202.202.202.202
ip dhcp pool 137-Gaming
network 10.0.0.0 255.0.0.0
default-router 10.255.255.254
dns-server 202.202.202.202
ip dhcp pool vlan138-AccessPoint
network 192.168.138.0 255.255.255.0
default-router 192.168.138.254
```

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```
dns-server 202.202.202.202
ip dhcp pool vlan139-AccessPointForWorker
network 192.168.139.0 255.255.255.0
default-router 192.168.139.254
dns-server 202.202.202.202
!
!
!
ip cef
no ipv6 cef
!
!
!
!
license udi pid CISCO1941/K9 sn FTX1524C2C6-
!
!
!
!
!
!
!
!
no ip domain-lookup
!
!
spanning-tree mode pvst
!
!
!
!
!
interface GigabitEthernet0/0
ip address 202.202.202.3 255.255.255.0
ip nat outside
duplex auto
speed auto
!
interface GigabitEthernet0/1
no ip address
duplex auto
speed auto
!
interface GigabitEthernet0/1.131
encapsulation dot1Q 131
ip address 192.168.131.254 255.255.255.0
ip nat inside
!
```

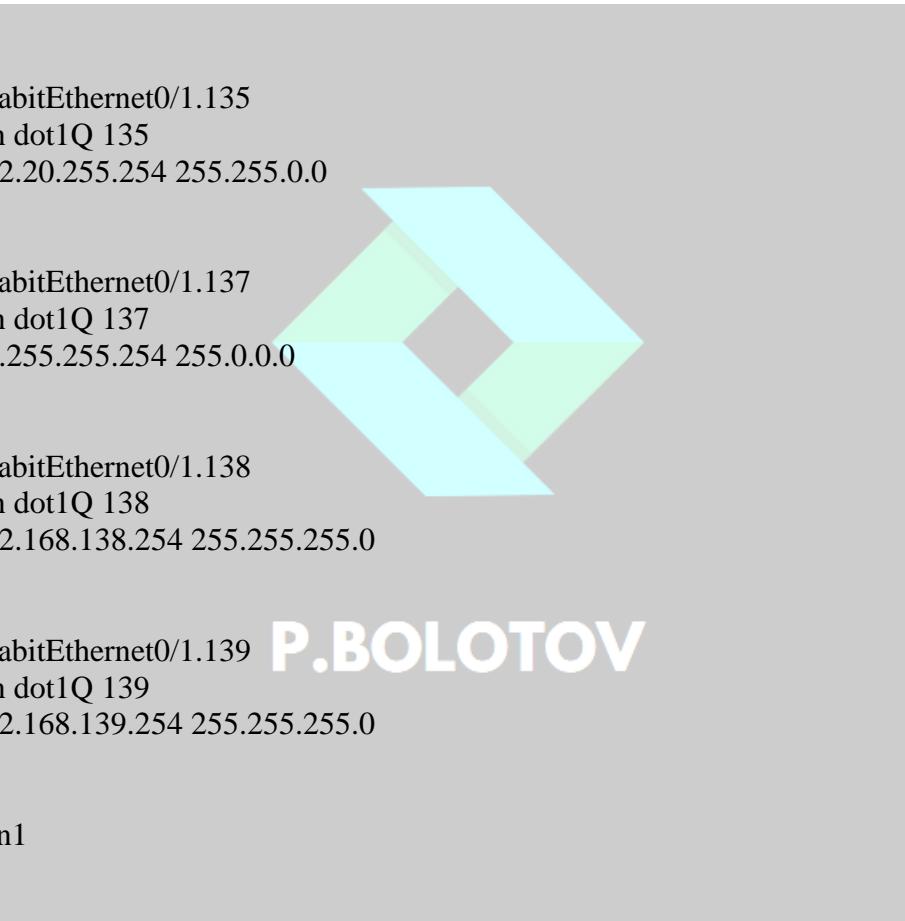


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```

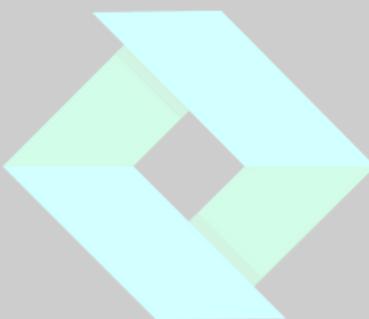
interface GigabitEthernet0/1.132
encapsulation dot1Q 132
ip address 192.168.132.254 255.255.255.0
ip nat inside
!
interface GigabitEthernet0/1.133
encapsulation dot1Q 133
ip address 192.168.133.254 255.255.255.0
ip nat inside
!
interface GigabitEthernet0/1.134
encapsulation dot1Q 134
ip address 192.168.134.254 255.255.255.0
ip nat inside
!
interface GigabitEthernet0/1.135
encapsulation dot1Q 135
ip address 172.20.255.254 255.255.0.0
ip nat inside
!
interface GigabitEthernet0/1.137
encapsulation dot1Q 137
ip address 10.255.255.254 255.0.0.0
ip nat inside
!
interface GigabitEthernet0/1.138
encapsulation dot1Q 138
ip address 192.168.138.254 255.255.255.0
ip nat inside
!
interface GigabitEthernet0/1.139
encapsulation dot1Q 139
ip address 192.168.139.254 255.255.255.0
ip nat inside
!
interface Vlan1
no ip address
shutdown
!
ip nat inside source list 1 interface GigabitEthernet0/0 overload
ip nat inside source static 192.168.133.250 202.202.202.16
ip classless
ip route 0.0.0.0 0.0.0.0 202.202.202.200
!
ip flow-export version 9
!
!
access-list 1 permit 192.168.0.0 0.0.255.255
access-list 1 permit 172.16.0.0 0.15.255.255
access-list 1 permit 10.0.0.0 0.255.255.255

```



P.BOLOTOV

```
!
no cdp run
!
banner motd
^C!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Warning!!! Warning!!! Unauthorized access prohibited !!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!^C
!
!
!
!
!
!
line con 0
password 7 0823495D1D
login
!
line aux 0
!
line vty 0 4
password 7 0829495C06
login
line vty 5 8
password 7 0829495C06
login
!
!
!
end
```

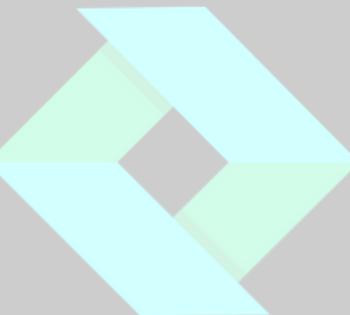


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Web Devices

IPS-Switch

```
!
version 12.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Switch
!
!
!
!
!
!
!
!
spanning-tree mode pvst
spanning-tree extend system-id
!
interface GigabitEthernet0/1
!
interface GigabitEthernet1/1
!
interface GigabitEthernet2/1
!
interface GigabitEthernet3/1
!
interface GigabitEthernet4/1
!
interface GigabitEthernet5/1
!
interface GigabitEthernet6/1
!
interface GigabitEthernet7/1
!
interface GigabitEthernet8/1
!
interface GigabitEthernet9/1
!
interface Vlan1
no ip address
shutdown
!
!
!
!
line con 0
!
```

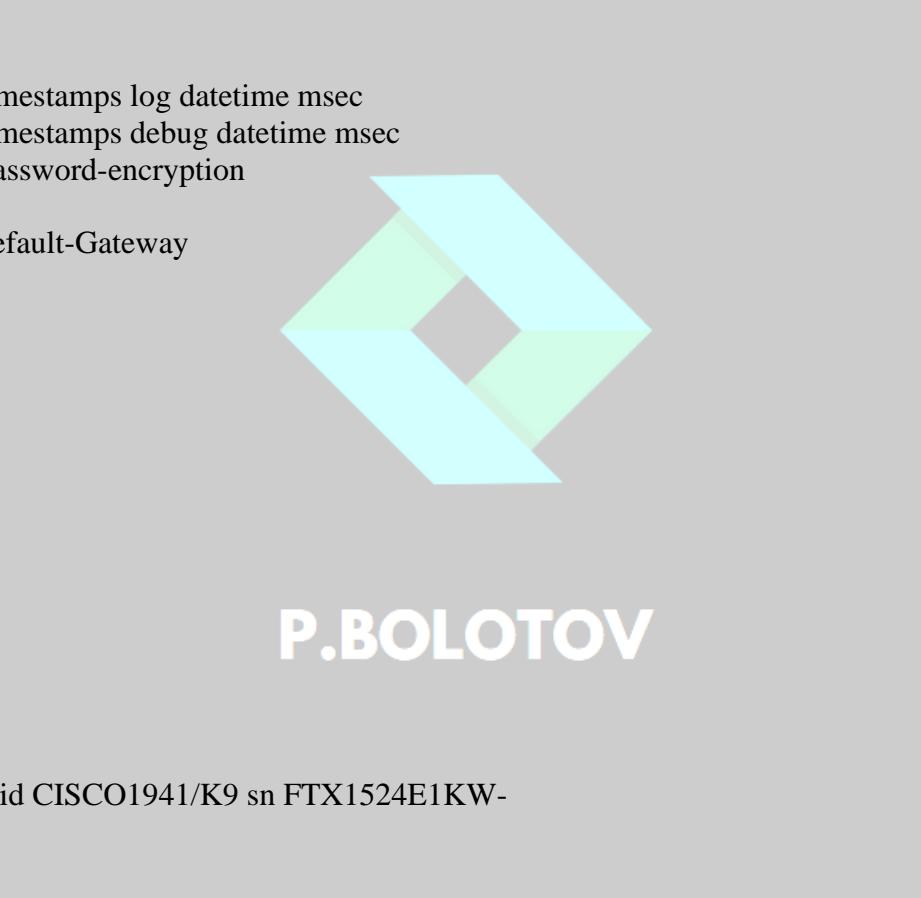


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```
line vty 0 4
login
line vty 5 15
login
!
!
!
!
End]
```

Default-Gateway

```
!
version 15.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Default-Gateway
!
!
!
!
!
!
!
!
ip cef
no ipv6 cef
!
!
!
!
license udi pid CISCO1941/K9 sn FTX1524E1KW-
!
!
!
!
!
!
!
spanning-tree mode pvst
!
!
```



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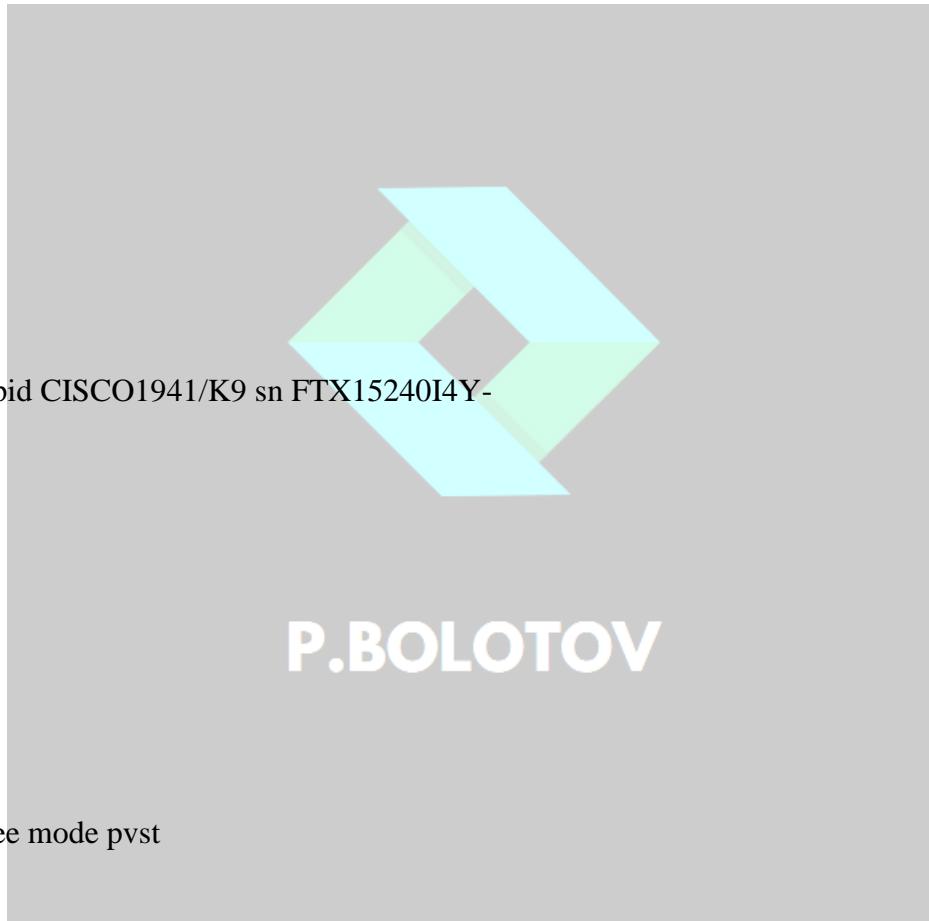
```
!
!
!
interface GigabitEthernet0/0
ip address 202.202.202.200 255.255.255.0
duplex auto
speed auto
!
interface GigabitEthernet0/1
ip address 203.202.202.1 255.255.255.0
duplex auto
speed auto
!
interface Vlan1
no ip address
shutdown
!
router ospf 1
log-adjacency-changes
network 202.202.202.0 0.0.0.255 area 0
network 203.202.202.0 0.0.0.255 area 0
!
ip classless
!
ip flow-export version 9
!
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
login
!
!
!
end
```



P.BOLOTOV

Router1

```
!
version 15.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Router
!
!
!
!
!
!
ip cef
no ipv6 cef
!
!
!
!
!
license udi pid CISCO1941/K9 sn FTX15240I4Y-
!
!
!
!
!
!
!
!
!
!
!
!
!
spanning-tree mode pvst
!
!
!
!
!
interface GigabitEthernet0/0
ip address 203.202.202.2 255.255.255.0
duplex auto
speed auto
!
interface GigabitEthernet0/1
ip address 204.202.202.1 255.255.255.0
duplex auto
speed auto
```



P.BOLOTOV

```
!  
interface Vlan1  
no ip address  
shutdown  
!  
router ospf 1  
log-adjacency-changes  
network 203.202.202.0 0.0.0.255 area 0  
network 204.202.202.0 0.0.0.255 area 0  
!  
router rip  
!  
ip classless  
!  
ip flow-export version 9  
!  
!  
!  
!  
!  
!  
!  
!  
line con 0  
!  
line aux 0  
!  
line vty 0 4  
login  
!  
!  
!  
end
```



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