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## LAMPIRAN A

### HASIL KUESIONER PENGUJIAN TERHADAP PENGGUNA

**KUESIONER PENGUJIAN APLIKASI  
“SISTEM OTOMASI ADMINISTRASI JARINGAN  
BERBASIS WEBSITE”**

Mohon diisi dengan memberi tanda  pada jawaban yang sesuai dengan pendapat anda.

Keterangan : SS : Sangat Sesuai      KS : Kurang Sesuai  
S : Sesuai      TS : Tidak Sesuai  
CS : Cukup Sesuai      STS : Sangat Tidak Sesuai

**STAF ADMINISTRASI BARANG**

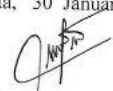
1. Tampilan Aplikasi

No	Pernyataan	SS	S	CS	KS	TS	STS
1	Tampilan mudah dipahami	<input checked="" type="checkbox"/>					
2	Tampilan menarik (desain dan warna selaras)		<input checked="" type="checkbox"/>				
3	Font yang digunakan sesuai		<input checked="" type="checkbox"/>				
4	Button (tombol) yang tersedia mudah dipahami	<input checked="" type="checkbox"/>					
5	Sistem nyaman digunakan		<input checked="" type="checkbox"/>				

2. Proses Aplikasi

No	Pernyataan	SS	S	CS	KS	TS	STS
1	Proses menambah, mengubah, dan menghapus area lokasi tidak membutuhkan waktu yang lama	<input checked="" type="checkbox"/>					
2	Proses menambah, mengubah, dan menghapus area lokasi tidak membutuhkan waktu yang lama	<input checked="" type="checkbox"/>					
3	Proses menambah, mengubah, dan menghapus area lokasi tidak membutuhkan waktu yang lama	<input checked="" type="checkbox"/>					
4	Seluruh fitur sistem dapat berfungsi dengan baik dan benar		<input checked="" type="checkbox"/>				
5	Sistem membantu proses pencatatan perangkat jaringan menjadi lebih mudah dan terdokumentasi dengan baik	<input checked="" type="checkbox"/>					
6	Sistem telah sesuai dengan kebutuhan staf administrasi barang		<input checked="" type="checkbox"/>				

Jakarta, 30 Januari 2023

  
 Dirga Tri Hutomo

Gambar A.1 Hasil Kuesioner Pengujian - Staf Administrasi Barang

**KUESIONER PENGUJIAN APLIKASI**  
**“SISTEM OTOMASI ADMINISTRASI JARINGAN**  
**BERBASIS WEBSITE”**

Mohon diisi dengan memberi tanda  $\checkmark$  pada jawaban yang sesuai dengan pendapat anda.

Keterangan : SS : Sangat Sesuai                      KS : Kurang Sesuai  
 S : Sesuai    TS : Tidak Sesuai  
 CS : Cukup Sesuai                                      STS : Sangat Tidak Sesuai

**TEKNISI JARINGAN**

1. Tampilan Aplikasi

No	Pernyataan	SS	S	CS	KS	TS	STS
1	Tampilan mudah dipahami	$\checkmark$					
2	Tampilan menarik (desain dan warna selaras)		$\checkmark$				
3	Font yang digunakan sesuai		$\checkmark$				
4	Button (tombol) yang tersedia mudah dipahami		$\checkmark$				
5	Sistem nyaman digunakan		$\checkmark$				

2. Proses Aplikasi

No	Pernyataan	SS	S	CS	KS	TS	STS
1	Proses menambah data pemasangan perangkat (area lokasi, detail lokasi, dan IP Manajemen) tidak membutuhkan waktu yang lama	$\checkmark$					
2	Seluruh fitur sistem dapat berfungsi dengan baik dan benar	$\checkmark$					
3	Sistem membantu proses pencatatan pemasangan perangkat jaringan menjadi lebih mudah dan terdokumentasi dengan baik	$\checkmark$					
4	Sistem telah sesuai dengan kebutuhan teknisi jaringan		$\checkmark$				

PRO PATRIA

Jakarta, 30 Januari 2023

*Andika Lucky Prasetya*  
 Andika Lucky Prasetya

**Gambar A.2 Hasil Kuesioner Pengujian - Teknisi Jaringan**



**KUESIONER PENGUJIAN APLIKASI  
“SISTEM OTOMASI ADMINISTRASI JARINGAN  
BERBASIS WEBSITE”**

Mohon diisi dengan memberi tanda ✓ pada jawaban yang sesuai dengan pendapat anda.

Keterangan : SS : Sangat Sesuai                      KS : Kurang Sesuai  
S : Sesuai    TS : Tidak Sesuai  
CS : Cukup Sesuai                                      STS : Sangat Tidak Sesuai

KOORDINATOR PENGELOLAAN JARINGAN

1. Tampilan Aplikasi

No	Pernyataan	SS	S	CS	KS	TS	STS
1	Tampilan mudah dipahami	✓					
2	Tampilan menarik (desain dan warna selaras)	✓					
3	Font yang digunakan sesuai	✓					
4	Button (tombol) yang tersedia mudah dipahami	✓					
5	Sistem nyaman digunakan		✓				

2. Proses Aplikasi

No	Pernyataan	SS	S	CS	KS	TS	STS
1	Proses verifikasi pemasangan perangkat tidak membutuhkan waktu yang lama	✓					
2	Seluruh fitur sistem dapat berfungsi dengan baik dan benar	✓					
3	Sistem membantu proses pengecekan perangkat yang telah dipasang dan akan dikonfig menjadi lebih mudah dan terdokumentasi dengan baik	✓					
4	Sistem telah sesuai dengan kebutuhan koordinator pengelolaan jaringan		✓				

PRO PATRIA

Jakarta, 30 Januari 2023

*Hedy*

Hedy Pamungkas

**Gambar A.3 Hasil Kuesioner Pengujian – Koordinator Pengelolaan Jaringan**

## KUESIONER PENGUJIAN APLIKASI “SISTEM OTOMASI ADMINISTRASI JARINGAN BERBASIS WEBSITE”

Mohon diisi dengan memberi tanda  $\checkmark$  pada jawaban yang sesuai dengan pendapat anda.  
 Keterangan : SS : Sangat Sesuai                      KS : Kurang Sesuai  
                   S : Sesuai                                        TS : Tidak Sesuai  
                   CS : Cukup Sesuai                            STS : Sangat Tidak Sesuai

### ADMINISTRATOR JARINGAN

#### 1. Tampilan Aplikasi

No	Pernyataan	SS	S	CS	KS	TS	STS
1	Tampilan mudah dipahami	$\checkmark$					
2	Tampilan menarik (desain dan warna selaras)		$\checkmark$				
3	Font yang digunakan sesuai		$\checkmark$				
4	Button (tombol) yang tersedia mudah dipahami		$\checkmark$				
5	Sistem nyaman digunakan		$\checkmark$				

#### 2. Proses Aplikasi

No	Pernyataan	SS	S	CS	KS	TS	STS
1	Proses menambah, mengubah, dan menghapus VLAN tidak membutuhkan waktu yang lama	$\checkmark$					
2	Proses konfigurasi VLAN tidak membutuhkan waktu yang lama	$\checkmark$					
3	Proses konfigurasi Interface Port tidak membutuhkan waktu yang lama	$\checkmark$					
4	Seluruh fitur sistem dapat berfungsi dengan baik dan benar		$\checkmark$				
5	Sistem membantu proses konfigurasi perangkat jaringan menjadi lebih mudah dan terdokumentasi dengan baik	$\checkmark$					
6	Sistem telah sesuai dengan kebutuhan administrator jaringan			$\checkmark$			

Jakarta, 30 Januari 2023

  
Gumilar S. Mukti

**Gambar A.4 Hasil Kuesioner Pengujian – Administrator Jaringan**

**LAMPIRAN B**  
**DAFTAR PERBAIKAN SEMINAR AKHIR PENELITIAN**




No Dokumen	: FM.FIK.06.08
Tgl. Berlaku	: 01 Oktober 2018
Revisi	: 00
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**DAFTAR PERBAIKAN SEMINAR AKHIR PENELITIAN/RISET**

NIM : 04217008  
 Nama : GUMILAR SANTIOKO MUKTI  
 Pembimbing 1 : Made Kamisutara ST., M.Kom  
 Pembimbing 2 :  
 Judul Penelitian : Implementasi Otomasi Administrasi Jaringan Berbasis Website di Lingkungan  
 Kementerian Sosial

NO	BENTUK PERBAIKAN	BAB	HALAMAN

Surabaya, 02 februari 2023  
 Sekretaris

  
Made Kamisutara ST., M.Kom

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**Gambar B.1 Daftar Perbaikan Skripsi Penguji 1**

**DAFTAR PERBAIKAN SEMINAR AKHIR PENELITIAN/RISET**

NIM : 04217008  
 Nama : GUMILAR SANTIOKO MUKTI  
 Pembimbing 1 : Made Kamisutara ST., M.Kom  
 Pembimbing 2 :  
 Judul Penelitian : Implementasi Otomasi Administrasi Jaringan Berbasis Website di Lingkungan Kementerian Sosial

NO	BENTUK PERBAIKAN	BAB	HALAMAN
1.	Radu vlecek diagram ditambah aktor admin	III	
2.	Konfigurasi VLAN dan Perangko ditambahkan banyak nya	IV	
3.	Hasil (hard copy) quisioner di pindah ke lampiran	IV	

Surabaya, 02 februari 2023  
Ketua

  
 Eman Setiawan, S.Kom., MM

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**Gambar B.2 Daftar Perbaikan Skripsi Penguji 2**



**DAFTAR PERBAIKAN SEMINAR AKHIR PENELITIAN/RISET**

NIM : 04217008  
 Nama : GUMILAR SANTIOKO MUKTI  
 Pembimbing 1 : Made Kamisutara ST., M.Kom  
 Pembimbing 2 :  
 Judul Penelitian : Implementasi Otomasi Administrasi Jaringan Berbasis Website di Lingkungan  
 Kementerian Sosial

NO	BENTUK PERBAIKAN	BAB	HALAMAN
1.	Pilih dan sesuaikan sitasi yg digunakan.		
2.	Setiap tabel dan gambar diberikan keterangan		
3.	Caption gambar <del>harus</del> letakkan di atas gambar		

Surabaya, 02 februari 2023  
 Anggota

Latipah S.T., M.IT

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**Gambar B.3 Daftar Perbaikan Skripsi Penguji 3**

## LAMPIRAN C

### HASIL CEK PLAGIASI

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Gambar C.1 Hasil Cek Plagiasi

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# LAMPIRAN D

## ARTIKEL PENELITIAN

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Inspirasi Profesional Sistem Informasi  
Jurnal SISFO Vol.08 No.01 (2023) 1–12



### Implementation of Website-Based Network Administration Automation within the Ministry of Social Affairs

Gumilar Santioko Mukti, Made Kamisutara

*Information Systems Department, Faculty of Computer Science, Universitas Narotama, Surabaya, Indonesia*

#### Abstract

Today the use of computer networks has been implemented in almost every organization to communicate with parties who need them by granting access permissions. As a network management organization with a large number of devices, the challenge that currently has to be faced by the Data and Information Center of the Ministry of Social Affairs is that the administrative records of network devices and the installation of network devices are not well documented so it's difficult for network administrators every configure network device with different types and brands. Therefore, this research focuses on implementing a website-based network administration automation system so the data storage system is integrated and becomes a solution for carrying out complex network tasks that can be completed much more quickly and efficiently. The research method consists of identifying requirement, designing, implementing, and testing network administration automation systems. The results of this study indicate that a network administration automation system can facilitate device administration staff in managing device data; technicians in managing device installation data; coordinator in verifying device installation; and network administrators in configuring devices therefore minimizing the time needed by network administrators in configuring and reduce the possibility of network administrators making configuration errors.

*Keywords:* Network Automation, Configuration, Python, Laravel

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*Histori Artikel:* Disubmit 29-07-2018; Direvisi 22-08-2018; Diterima 06-09-2018; Tersedia online 26-09-2018

#### 1. Introduction

Today the use of information and communication technology (ICT) has covered all aspects of life. This can be seen from all aspects of life that cannot be separated from the use of the internet or computer networks. The use of computer networks has been implemented in almost every company or organization to communicate with parties who need them by granting access permissions [1]. This computer network makes it easy for everyone to access and share data and information using wired or wireless (wireless). Data access services via computer networks are essential in daily activities [2]. In line with the need for data access, the use of computer networks in today's organizations is increasingly complex and dynamic. The Data and Information Center of the Ministry of Social Affairs or commonly referred to as Pusdatin Kesos is a work unit under the Indonesian Minister of Social Affairs whose job is to carry out the management and dissemination of social welfare data and information, management and development of information systems and technology.

**Gambar D.1 Artikel Penelitian**

With this inherent task, Pusdatin Kesos is responsible for managing all computer networks within the Ministry of Social Affairs. As a network management organization with a large number of devices, some of the challenges currently faced by Pusdatin Kesos in network management are administration records of new devices, administration of device installation records, and configuration of network devices of different types, types and brands. Currently the work area within the Ministry of Social Affairs has geographical conditions that are separated into 2 large locations (areas) and consists of separate buildings. In each of these locations there are around 120 devices of different types, types and brands.

Administrative records of new network devices and the installation of network devices are currently not well documented, making it difficult or a significant obstacle for network administrators every time they make configurations. The absence of complete and valid data regarding the type and brand of the device, the serial number of the device, the device management IP, as well as the area and details of the device installation location causes the network administrator to manually search for these data every time he makes a configuration.

In the use of complex computer networks, it certainly requires many network components or devices used in building computer networks such as routers, access switches, core switches, farm switches and other supporting devices with different types, types and brands of devices. In addition, leadership level policies will also result in different configurations being implemented. The addition of devices and an increase in the number of users are some of the reasons why the network is dynamic or constantly changing. This complex and dynamic computer network makes it increasingly difficult for network administrators to configure because they have to always adjust network configurations in response to changing network conditions [3]. The number of scattered devices and the number of users is currently only managed by 2 network administrators by manually typing configuration commands using the command line interface (CLI) environment on devices of different types, types and brands every time there is a change in policy. Network administrators must log in every time they change devices, so the more devices, the more time it takes to configure. The manual or traditional method by remotely processing each of these devices will take a long time [4]. As a result of frequent configuration changes, network administrators must always require high concentration in every configuration. Such conditions increase the possibility that network administrators often make configuration errors on each device.

In line with previous research, network automation is a solution for doing complex network jobs and can be implemented on devices that support the SSH protocol so that work can be completed much faster and also efficient in network maintenance with procedures that are easier to follow and implement on the network large scale [4]. Therefore, based on the conditions described above, it is necessary to have a website-based network administration automation system with an integrated graphical interface or GUI so that the data storage system is centralized. The network administration automation system in this study covers the recording of new network devices and new location areas by item admin staff; recording of network device installation by network technicians; verification of the installation of network devices by the goods management coordinator; and configuration of network devices by network administrator staff.

## **2. Literature Review**

### *2.1 Network Automation*

Network Automation is an automation method for network administration. The automation method on the network is commonly known as Network Automation. Network automation is a way to configure network devices more quickly. The principles of network automation are the same as in other types of automation such as in applications, systems, storage and telephony. Network automation can reduce time when developing, changing configurations, and backup/restore network configurations [5]. Network automation is a solution for saving operational costs, not only reducing the time spent configuring network devices, but



also network maintenance efficiency with procedures that are easier to follow and implement on a large scale [6]. Network automation has the main goal of simplifying the tasks associated with configuring, managing and operating network equipment, network topology, network services, and network connectivity [7]. In addition, the concept of network automation is also developing, namely where setting (configuration), managing, testing and operating both physical and virtual network devices is carried out using software or applications automatically by sending configuration commands to network devices via a secure shell (SSH) connection. 8][9][2].

## 2.2 Python

Python is a multipurpose interpretive programming language or one that can execute a number of multipurpose instructions directly with an object oriented method (Object Oriented Programming) and uses dynamic semantics to provide a level of readability of code or syntax (easy to understand and learn). The Python language was designed by Guido van Rossum appeared in 1991 and is still being developed by the Python Software Foundation [10]. Python has several advantages over other programming languages, Python is an open source programming language that can be used on a variety of different platforms such as Windows, Mac, Linux, Raspberry Pi, and others. Python has a simple syntax like English and allows developers to write programs with fewer lines than some other programming languages. Python codes are easy to read, uncomplicated, and easy for users to learn [11][12].

Automation can be done using a programming language like python. Python is becoming the most popular programming language in automation because it is not as complex as java and C. When it comes to automation or controlling network devices, Python scripts are based on the Netmiko and Paramiko libraries. Both use SSH connection to control the device. SSH (Secure Shell) is a cryptographic network protocol for operating network services securely [6]. Paramiko is a Python implementation of the SSHv2 protocol that provides both client and server functionality. Netmiko is a multi-vendor library, developed based on Paramiko, simplifying connections across multiple vendors and network platforms [6]. The difference between Netmiko and Paramiko is that Netmiko uses an easier way to connect to the switch using ConnectHandler which also uses SSH on the backend. In addition, when using Netmiko, you must specify the type of device you want to control. Netmiko uses Paramiko but also creates new interfaces and methods needed to work on various network devices.[python] For scripts using Netmiko, the important functions used are ConnectHandler(), send\_command(), and disconnect().

This study uses Python because it is a high-level programming language that is easy to learn, becomes an integral part of large-scale networks, is a solution to streamline operations on networks, and network administrators do not need to type CLI commands to configure repetitive networks because with Python they can create interfaces automatically. graphics [13]. Python is a full-featured programming language with well-documented libraries. A network programmer will easily retrieve and request data from a web, and easily extract data into a common format via the web using only Python.

## 2.3 Laravel

Laravel is a PHP-based framework that is used in making websites and was created by Taylor Otwell and released under the MIT license with source code provided by Github or open source [14][15][16][17]. Laravel is an application framework with an elegant syntax and has extensive functions such as security, password storage, reminder and reset password, encryption, and validation [18]. Laravel summarizes program code because several lines of code used in php, are summarized in Laravel. Apart from that, Developers also don't need to write the same code to use, but just set it up in the controller so that it makes the code more concise. With Laravel which makes the code more concise and several modules (artisan, authentication and controller) provided to developers in website development, the time needed for making this website is faster. Laravel has complete documentation which can be accessed at id-laravel.com, learninglaravel.net, laracast.com and Laravel-news.com. Laravel can be used easily so it is said to be user

friendly. Apart from that, Laravel guarantees the security of this framework. Solving problems related to using Laravel is quite a lot and easy to find because there is a Laravel community [15]. Just like other frameworks, Laravel is built on the MVC (Model-Controller-View) concept to make website development easier [16].

This study uses the Laravel framework because there are several advantages that Laravel has, namely Laravel is an expressive PHP framework because the syntax in Laravel uses language that is easy to understand so even novice programmers will easily understand the use of a syntax; Laravel has quite complete documentation where each version has its own documentation, starting from how to install it to using its features; Laravel is used by many programmers so many libraries that support Laravel are created by programmers; Laravel is supported by Composer so libraries can be obtained easily from the internet using Composer; Laravel has its own template engine called blade which makes it easy to display data in HTML templates [19].

#### *2.4 Penelitian Sebelumnya*

There are several studies related to network automation. Rheza conducted research related to the development of website-based network administration automation applications in terms of static, dynamic routing configurations, VLAN creation, maintenance in the form of backup and restore and can be accessed centrally so that it will be better managed [4]. This research uses the Rapid Application Development (RAD) method with Ubuntu as a server, Python 3.6. for application development, the Paramiko 2.4 library for automation, Django as a web framework, and GNS3 2.1 as a simulation tool. Prof. . The design of network automation using the Network Development Life Cycle (NDLC) research method uses Python scripts and the Paramiko library which runs on a Linux Ubuntu server. Donny Rahardika conducted research in the form of designing and building a command-line-based network automation system to increase the productivity of the network operator center so as to save time and resources in configuring new network devices at once with just a few easy steps [21]. This research uses the Network Development Life Cycle (NDLC) method and the Python programming language with the help of the Netmiko library. Abdul Aziz designed network automation related to configuration updates, operating system updates, username and password updates, as well as performing backup restore configurations on customer routers simultaneously with commands typed in one web dashboard so that configurations can be carried out more effectively [22]. The system development method is structured, namely the waterfall model. Yoel Chandra created a website-based network automation application that provides convenience in accessing and configuring the addition of new users quickly without taking a long time due to manual configuration in every alley RT (Rukun Tetangga) and RW (Rukun Warga) [23]. The design of this network automation website uses the Waterfall development method with Python programming and the Django framework.

This research focuses on implementing website-based network administration automation which consists of recording new network devices and new location areas, recording network device installation, verifying network device installation, and network device configuration in the form of VLAN configurations and network port interface configurations. This study uses the Laravel framework, HTML, PHP, and JavaScript for web-based system development and Python programming and the Netmiko library to connect network devices with web-based systems. Even though several previous studies have developed network automation systems, most of the current research uses only Mikrotik devices, so research is still needed to find out how network automation is implemented on other devices such as Aruba and Cisco.

### **3. Methodology**

The stages of the research conducted consisted of 4 main processes which are presented in Figure 1. The four processes consist of identifying needs, designing, implementing, and testing.



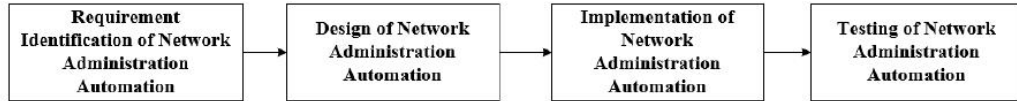


Figure 1 Research Methodology

### 3.1 Requirement Identification of Network Administration Automation

The requirement identification of network administration automation consists of several activities, namely conducting literature studies on previous studies related to network automation as a basis for conducting research; identify hardware and software requirements to be used; and identify functional requirements for network administration automation systems.

### 3.2 Design of Network Administration Automation

The design of network administration automation consists of several activities, namely designing UML diagram models in the form of use case diagrams and activity diagrams; designing the appearance of the GUI (Graphical user interface (GUI)); and designing the database.

### 3.3 Implementation of Network Administration Automation

Implementation of network administration automation consists of implementing or building a website-based network administration automation system using the Laravel web framework, HTML, PHP, JavaScript, and Python with the main Netmiko library to connect servers with network devices via the SSH protocol.

### 3.4 Testing of Network Administration Automation

Testing network administration automation consists of two activities, namely testing based on scenarios using the Black-Box Testing method to determine the success of the application system functions to run properly and final testing on users using the Application Testing Questionnaire method to validate that the system meets user needs.

## 4. Results and Discussion

### 4.1 Requirement Identification Result

Based on the ongoing business processes, there are several problems within the Ministry of Social Affairs, namely as follows:

- a. Data details for each network device contained in the warehouse such as brand, type, and serial number are not documented.
- b. Network device installation data is not well documented because it is not integrated or the data is fragmented based on the Network Technician team.
- c. Administrative recording of new network devices and installation of network devices that are not well documented in points 1 and 2 make it difficult or hinder the network administrator every time they make configurations. The absence of complete, valid and integrated data regarding the type and brand of the device, the serial number of the device, the IP of the device management, as well as the area and details of the device installation location causes the network administrator to manually search for these data so that it takes a long time every time to do so. configuration.
- d. Configuration that is carried out by network administrators manually by typing configuration commands using the command line interface (CLI) environment requires more time when more and more devices

are configured, thus requiring high concentration and increasing the possibility of network administrators frequently making configuration errors on each device.

With the existence of business processes and problems in the Ministry of Social Affairs above, the proposed business processes initiated by researchers are as follows:

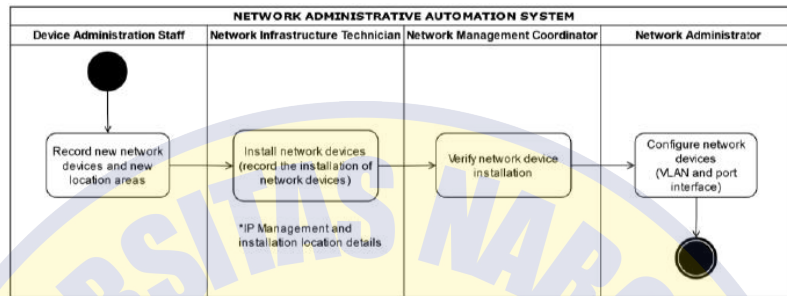


Figure 2 Proposed Business Process Network Administration Automation System

- Device Administration Staff records new network devices and new location areas using an automated network administration system.
- The Network Infrastructure Technician records the installation of network devices using an automated network administration system after installing the devices.
- The Network Management Coordinator verifies the installation of network devices that have been carried out by the Network Technician using an automated network administration system and forwards it to the Network Administrator for configuration.
- The Network Administrator performs VLAN configuration and port interface configuration on each verified network device using a network administration automation system.

#### 4.2 Hasil Perancangan

Based on the problems and proposed business processes, a use case diagram modeling with 19 menu features (9 main features) is produced. These features are interrelated and are used when recording network devices to configuring network devices. The following figure is a detailed use case diagram in a website-based network administration automation system.

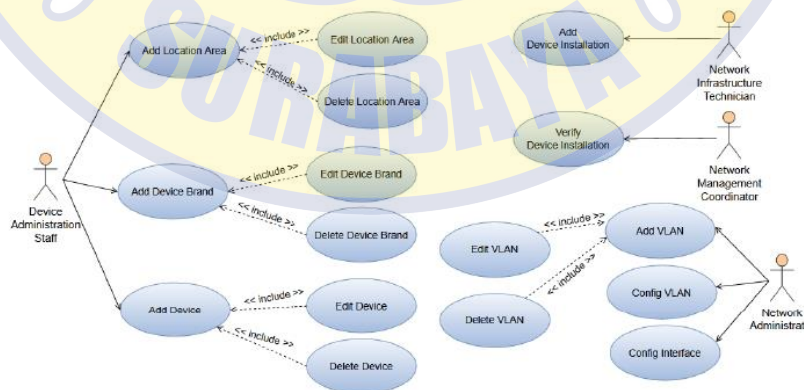


Figure 3 Network Administration Automation System Use Case Diagram

To simplify the process of implementing the system that has been modeled in the use case above, a workflow is created that contains the actions performed by the system based on the input provided by the user. In the following figure is a workflow that contains network and system administrator actions in configuring VLANs and port interfaces on selected network devices.

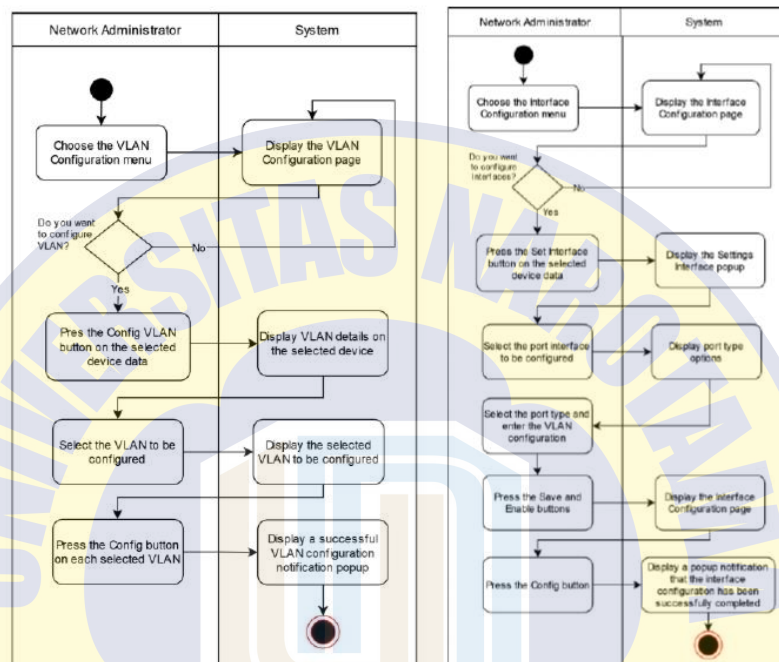


Figure 4 Network Administration Automation System Activity Diagram

To support the implementation of a network administration automation system, database modeling is required in the form of a Physical Data Model (PDM). The PDM in the following figure is a physical description of the database to be created by considering DBMS that will be used.

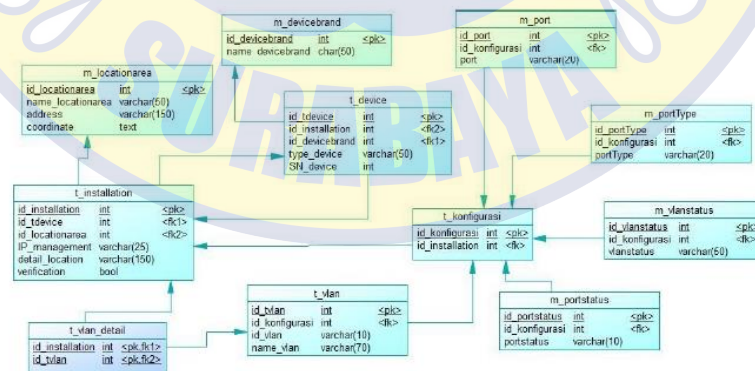


Figure 5 Physical Data Model of Network Administration Automation System







The Interface Settings page is used by network administrators to configure interfaces on devices whose VLANs have been configured. The set interface menu display is used by the network administrator to select the VLAN type on each interface port. In addition, in the Config Interface menu display, the network administrator can press the Config button to run the interface configuration on the interface ports that have selected the VLAN type.

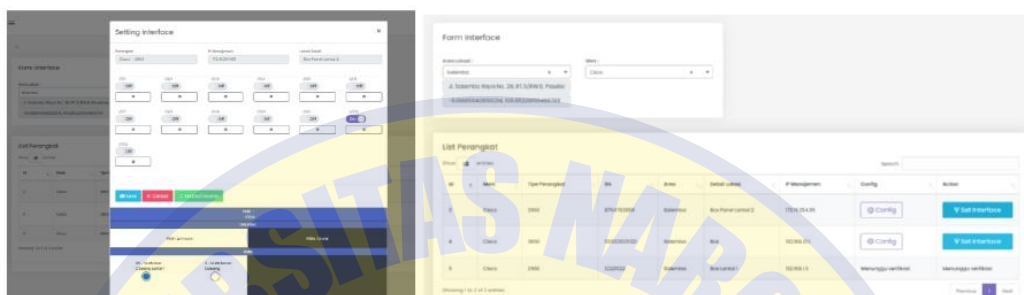


Figure 9 Interface Configuration Page - Set Interface and Config Interface Menu

#### 4.4 Testing Result

The results of testing the network administration automation system using the blackbox testing method show that all features can function properly and correctly as expected. For the test results using a questionnaire testing the network administration automation system shows that the system view and system processes have met user needs.

Testing Activity	Test Case	Expected Realization	Test Result
Access Rights: Network Administrator			
Add new VLAN ID and VLAN name data	ID VLAN : 2 Name : VLAN Server	The system stores new device brand data and displays the results of adding new device brand data	Correct (valid)
Modify VLAN name data (edit)	Name : VLAN Server Cawang	The system changes the device brand data correctly and displays the results of changing the device brand data	Correct (valid)
Delete VLAN data	ID VLAN : 2 Name : VLAN Server	The system deletes the device brand data correctly and displays the results of deleting the device brand data	Correct (valid)
Add new VLAN config on the selected network devices	Brand : Cisco Type : 2960 SN : 8764763999 Add VLAN : VLAN Server Cawang	The system saves the new VLAN configuration correctly and displays a notification that the new VLAN configuration on the selected device has been successful	Correct (valid)
Add port interface config by specifying VLAN based on selected port type	Interface port : 1/1/12 Port Type : Access VLAN : VLAN User Cawang Lantai 1	The system saves the new port interface configuration correctly and displays a notification that the new port interface configuration on the selected device has been successful	Correct (valid)

TESTING QUESTIONNAIRE "WEBSITE-BASED NETWORK ADMINISTRATIVE AUTOMATION SYSTEM"						
Please fill in by printing a mark "✓" on the answer that fits with your opinion						
Information : SA : Strongly Agree D : Disagree						
A : Agree SD : Strongly Disagree						
N : Neutral						
NETWORK ADMINISTRATOR						
1. System View						
Declaration						
1	The system has an easy-to-understand appearance	SA	A	N	D	SD
2	The system has an attractive appearance (matching design and color)	✓				
3	The font used in the system is appropriate	✓				
4	Available features are easy to understand	✓				
5	The system is comfortable to use	✓				
2. System Process						
Declaration						
1	The process of adding, editing, and deleting VLANs doesn't take a long time	✓				
2	The VLAN's configuration process doesn't take a long time	✓				
3	The interface Port configuration process doesn't take a long time	✓				
4	All system features can work properly and correctly		✓			
5	The system helps the configuration process of network devices become easier and well-documented	✓				
6	The system has met the needs of network administrators	✓				

Figure 10 System Test Results Using Black Box and Questionnaire

## 5. Conclusion

### 5.1 Conclusion

The implementation of a network administration automation system produced using the Laravel framework and the Python library shows that the system can make it easier for administrative staff to manage device data; technicians in managing device installation data; coordinator in verifying device installation; and network administrators in configuring devices. This results in valid and integrated network management data that minimizes the time needed by network administrators to configure and reduces the possibility that network administrators frequently make configuration errors on each device. The results of testing the network administration automation system using blackbox testing show that all features can function properly. The results of testing the network administration automation system using a questionnaire on users

consisting of goods administration staff, network technicians, coordinators, and network administrators show that the appearance of the system and system processes are in accordance with the needs of all users.

### 5.2 Suggestions

This research focuses on VLAN configuration and port interface configuration, so that for further research it is possible to develop device routing configuration features. In addition, this research focuses on website-based configuration automation, so that for further research it can be carried out to develop automation using social media by linking website-based network administration automation systems with social media so that configuration can be done using social media.

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# LAMPIRAN E

## POSTER PENELITIAN

### IMPLEMENTASI OTOMASI ADMINISTRASI JARINGAN BERBASIS WEBSITE DI LINGKUNGAN KEMENTERIAN SOSIAL

0812335324212  
**Gumilar Santioko Mukti**  
 Prodi. Sistem Informasi  
 Fakultas Ilmu Komputer



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#### Latar Belakang

Pencatatan administrasi perangkat jaringan baru dan pemasangan perangkat jaringan saat ini tidak terdokumentasi dengan baik sehingga menyulitkan atau menjadi hambatan yang cukup besar bagi tenaga administrator jaringan setiap melakukan konfigurasi

#### Rumusan Masalah

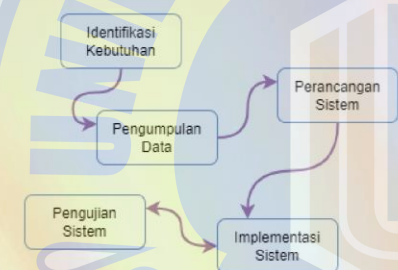
Implementasi sistem otomasi administrasi jaringan berbasis website terkait pencatatan perangkat jaringan baru serta area lokasi baru, pencatatan pemasangan perangkat jaringan, verifikasi pemasangan perangkat jaringan, dan konfigurasi perangkat jaringan di lingkungan Kementerian Sosial

#### Tujuan Masalah

Mengimplementasikan sistem otomasi administrasi jaringan berbasis website dalam hal pencatatan perangkat jaringan baru serta area lokasi baru, pencatatan pemasangan perangkat jaringan, verifikasi pemasangan perangkat jaringan, dan konfigurasi perangkat jaringan

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#### Metode Penelitian



### Metode manual atau tradisional dengan melakukan proses remote tiap perangkat tersebut akan memakan waktu yang lama.

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#### Kesimpulan

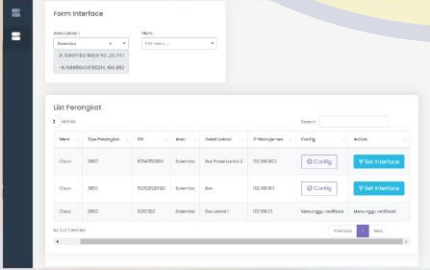
Sistem dapat memudahkan staf administrasi dalam mengelola data perangkat; teknisi dalam mengelola data pemasangan perangkat; koordinator dalam melakukan verifikasi pemasangan perangkat; dan administrator jaringan dalam melakukan konfigurasi perangkat. Hal tersebut menghasilkan data pengelolaan jaringan yang valid serta terintegrasi sehingga meminimalisir waktu yang dibutuhkan administrator jaringan dalam melakukan konfigurasi dan menurunkan kemungkinan administrator jaringan sering melakukan kesalahan konfigurasi pada setiap perangkat

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#### Hasil Penelitian



Pada gambar di atas menunjukkan bahwa perangkat telah berhasil di input maupun di konfigurasi. Dan dapat di integrasikan ke perangkat tanpa perlu melakukan remote ke dalam perangkat.

Gambar E.1 Poster Penelitian