

## BORANG PENGESAHAN STATUS TESIS

JUDUL: Enhance Simplified Router Configuration Method System

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**ENHANCE SIMPLIFIED ROUTER CONFIGURATION METHOD SYSTEM**

**MOHD HANAFEYAH BIN YAHYA**

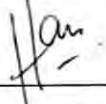
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**2006**

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I hereby declare that this project report entitled  
**ENHANCE SIMPLIFIED ROUTER CONFIGURATION METHOD SYSTEM**  
is written by me and is my own effort and that no part has been plagiarized without  
citations.

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## **DEDICATION**

Specially dedicated to  
my beloved parents who have encouraged, guide and inspired me throughout my journey  
of education. Also I would like to dedicate this special thank to my friends and my  
colleagues.

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## ABSTRACT

Enhance Simplified Router Configuration Method System (ESRCMS) is an extended project for the current system that has been developed by one of the Faculty of Information and Communication Technology (FTMK) PSM student Mohd Najwan Bin Md Khambari in the year of 2005. This project is an enhancement of the current SRCMS system. SRCMS system is a graphical user interface (GUI) design system for routers configuration. The ESRCMS features are more advance configuration with the completed router configuration. Configure the routers using the ESRCMS graphical user interface (GUI) design method is to make the router configuration is easier that the command line interface (CLI). User will be able to configure the router completely including the routing protocols and the router security configuration options. No more command lines to be typed but only buttons that generated the command for the configurations, this given the users totally graphical system router configurations. In this new system, command line interface is still provided for more router configurations.

## ABSTRAK

Penambahbaikan Sistem Konfigurasi *Router* Termudah (PSKRT) adalah merupakan suatu projek penambahbaikan ke atas sistem yang telah sedia ada. Sistem yang sedia ada telah dibina oleh seorang pelajar Sarjana Muda daripada Fakulti Teknologi Maklumat dan Komunikasi (FTMK) Mohd Najwan Bin Md Khambari pada tahun 2005. Di dalam projek ini akan melakukan suatu penambahbaikan ke atas sistem yang sedia ada. Sistem Konfigurasi *Router* Termudah adalah merupakan suatu sistem yang menggunakan grafik antaramuka pengguna untuk melakukan konfigurasi ke atas *router*. Ciri-ciri PSKRT ialah boleh melakukan konfigurasi yang lengkap serta lebih daripada konfigurasi asas ke atas *router*. Konfigurasi ke atas *router* dengan menggunakan PSKRT akan membuatkan konfigurasi *router* akan lebih mudah berbanding dengan penggunaan antaramuka pengarah. Pengguna boleh melakukan konfigurasi yang lengkap termasuklah *routing* protokol dan keselamatan. Tiada lagi penggunaan antaramuka pengarah tetapi hanya dengan menggunakan butang-butang yang akan menghasilkan aturcaraan untuk konfigurasi tersebut. Di dalam sistem baru ini, penggunaan antaramuka pengarah tetap disediakan untuk kemudahan melakukan konfigurasi *router* yang lebih banyak.

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## LIST OF ABBREVIATIONS

ASCII	-	American Standard Code for Information Interchange
AUT	-	Application Under Test
HT	-	HyperTerminal
IP	-	Internet Protocol
IT	-	Information Protocol
KUTKM	-	Kolej Universiti Teknikal Kebangsaan Malaysia
LAN	-	Local Area Network
MAN	-	Metropolitan Area Network
NIC	-	Network Interface Card
GB	-	Giga Byte
GHZ	-	Giga Hertz
GUI	-	Graphical User Interface
PC	-	Personal Computer
PSM I	-	Projek Sarjana Muda 1
PSM II	-	Projek Sarjana Muda 2
RAM	-	Random Access Memory
SDLC	-	Software Development Life Cycle
SRCMS	-	Simplified Router Configuration Method System
ESRCMS	-	Enhance Simplified Router Configuration Method System
STP	-	Software Test Plan
UAT	-	User Acceptance Test
UTP	-	Unshielded Twisted Par
WAN	-	Wide Area Network

**LIST OF APPENDICES****APPENDIX NO.****TITLE****A****Project Gantt Chart**

# CHAPTER I

## INTRODUCTION

### 1.1 Overview

A router is a computer networking device that forwards data packets across an Inter network toward their destinations, through a process known as routing. Routing occurs at layer 3 of the OSI seven-layer protocol stack. A router acts as a junction between two or more networks to transfer data packets among them. A router is different from a switch. A switch connects devices to form a local area network (LAN). One easy illustration for the different functions of routers and switches is to think of switches as neighborhood streets, and the router as the intersections with the street signs. Each house on the street has an address within a range on the block. In the same way, a switch connects various devices each with their own IP address on a LAN. However, the switch knows nothing about IP addresses except its own management address. Routers connect networks together the way that on-ramps or major intersections connect streets to both highways and freeways, etc. The street signs at the intersection (routing table) show which way the packets need to flow.

Normally network administrator or network engineer configure the router are using the Microsoft HyperTerminal Software which mean using a Command Line Interface (CLI) technique. When using the CLI technique is required a basic router commands knowledge. This is a very difficult to the beginner user to configure the

router. The Simplified Router Configuration Method System (SRCMS) are design to help network administrator to configure a router in an effective and easy way. The SRCMS is a system that uses to help and facilitate user to configure router even for the beginner user that had no experience in configuring the router.

SRCMS is a Graphic User Interface (GUI) type system. GUI is a method of interacting with a computer through a metaphor of direct manipulation of graphical images and widgets in addition to text. GUI display visual elements such as icons, windows and other gadgets. GUI is important parts of many operating systems, where the user uses a mouse and pointer to move an onscreen object, click on icons and objects. GUIs were introduced in reaction to the steep learning curve of Command Line Interfaces (CLI), text-based user interfaces requiring commands to be typed on the keyboard. Since the command words in CLI are usually numerous and composable, very complicated operations can be invoked using a relatively short sequence of words and symbols. This leads to high levels of efficiency once the many commands are learned, but reaching this level can take some time, because the command words are not easily discoverable. WIMP ("window, icon, menu, pointing device"), on the other hand, present the user with numerous widgets that represent and can trigger some of the system's available commands. With the GUI technology of computing system interface design, configuring the router becomes more handy and easy. This because GUI technology help the network administrator configure the router in a minimum time and a very effective way.

In this project is an enhancement the current SRCMS system. SRCMS is a graphical user interface (GUI) design system for a routers configuring. These enhance system of the SRCMS features is more advance with the completed router configuration. This project is called Enhance of SRCMS (ESRCMS). The current SRCMS are included only the basic router configuration such as enabling, IP addressing, hostname, password and login. This project is more on configuration setup for the router included the router routing type. This is because the current system only contains the basic router configuration features and that makes a user or network administrator still need to use

the CLI for the advance configuration method. In this project also improve the system interface design to more professional look to more user friendly mode and easy to used. In this new systems are included the entire basic router configuration that required making the router operate completely.

## **1.2 Problem statements**

Router configuration using the SRCMS is very handy and useful but the system only contains several basic router configuration components. For the others or advance configuration user still have to use the command line interface as an alternative way to configure it. This make router configuration using the current system is not completely done by using only the system GUI interface. Users still need a command line beside the current system. The current system also does not have routing protocols configuration components. The current system also does not have a menu option for adding the others configuration components.

## **1.3 Objective**

This project objective is:

- a) To enhance of the current SRCM system function capability. In the new ESRCMS system is added more router configuration features.
- b) To redesign the current SRCM system more user friendly and to make the new system is easier to used event for the beginner user.
- c) To make the completed router configuration including the routing protocols

configuration for the router.

- d) To make the router configuration process is diminutive and easy.

## 1.4 Scopes

The project scope is:

- a) Adding more router configuration options including the advance router configuration such as security configuration and routing protocol configuration options.
- b) Adding a menu option for creating a components configurations button. This menu option function is to generated a new button for others router configuration that is not available on the default system interface. Users can customize their own configuration button on the system.
- c) Redesign the current system to more users friendly and easy to use. This new system design is be included the user guideline help.

## 1.5 Project Significance

This project is giving a great benefit to the network administrator or network engineer when setup the Wide Area Network (WAN). Configuring the routers using the ESRCMS system graphical user interface (GUI) make the router configuration is easier than the command prompt. User is able to configure the router completely including the routing protocols and the router security configuration options. No more command lines

to be typed but only buttons that generated the command for configurations, this is give the users totally graphical system router configurations.

The primary functions of this ESRCMS is to help user to configure the router in easy way which mean only using the graphical user interface with button that generated a command for the router configurations.

Users now have a many router configuration option unlike to the current system that only contains a basic router configurations options.

## **1.6 Expected output**

The expected output for this project is a enhance of the current system configuration components. The new system is be able to configure the router completely including the basic configuration, advance configuration, security configuration and the routing protocols options.

Upon completing this project, it is expected that the system is be widely used as a tools for network administrator to configure the router.

## **1.7 Conclusion**

Configuring the router using Command Line Interface (CLI) is a difficult to the beginner user even to the experience user. When configuring the router using the command line, user may be missing configure the router components. But with the ESRCMS is a Graphical User Interface technology system, configuring the router is become so much handy and easy. This system target user is an administrator, network

engineer and even for the beginner user. Besides using the graphical interfaces user also is able to using the command line interface with the ESRCMS.