

Web-Based GIS System Integrated With SMS and MMS Technology

by

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A progress report submitted in partial fulfillment of
the requirements for the
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CERTIFICATION OF APPROVAL

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A dissertation submitted to the
Information System Programme
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in partial fulfillment of the requirement for the
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Approved by,



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JAN 2005

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the references and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.



DAYANG MIRAFFIORRY BINTI ABU HUSAIN

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ABSTRACT

As the technology move, the Location Based Services (LBS) also faced a lot of changes. Now the Location Based Services (LBS) already use in mobile environment which known as Mobile Location Services (MLS). The purpose of this paper is to explain the architecture and the development process of Web-Based GIS System Integrated With SMS and MMS Technology. The main objective of this project is to develop web-based GIS System integrated with SMS and MMS technology. The purpose of this system is to provide accurate information to the user about location direction in Malacca town. The spatial information such distance, direction, road name, building name and map (JPG) will be provided to end user by MMS. By having this MLS, the user can view the map based on their request at their mobile phone. The methodology use in the project development is combination of extreme programming and a part of waterfall model. As the conclusion, the Web-Based GIS System hopefully can cater the need of MLS to provide direction information to the user.

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ABBREVIATIONS

BMP	Bitmap
GIF	Graphic Interchange Format
GIS	Geographical Information System
JPEG	Joint Picture Expert Group
LBS	Location Based Services
MLS	Mobile Location Services
MMS	Multimedia Messaging Services
PHP	Hypertext Preprocessor
SMS	Short Messaging Services
WAP	Wireless Application Protocol
WML	Wireless Markup Language
XML	Extensible Markup Language
PHTML	Page is a Web page that includes a script written in PHP

CHAPTER ONE:

INTRODUCTION

1.1. Background Of Study

Web-Based Geographical Information System (GIS) develop to cater the several purposes, needs of information and to catch up with the movement of technologies now a day. As the technologies change rapidly, the need LBS in our life also increasing time to time. Three main areas of study in the project are:

- 1.1.1. GIS that provide the location based information. The web-based GIS system, admin by the administrator. It involves the area of managing the Malacca town map, the spatial data and reply the request from the client.
- 1.1.2. The connection between the GSM Modem and the computer as the air modem for the web based application. The wireless connection as a medium to transfer data from the main server to the client. The study will be including the use of SMS and MMS that will be implemented and integrated with the GIS web based system.
- 1.1.3. Malacca town is the area of study where the information of GIS will be gathered and used for this project. The research on the GIS also will be done and narrowed by performing simple spatial data search and the analysis of the process in preparing the information about the location.

The system will be demonstrated how the users use their MMS mobile phone by sending the request of the map or information through the SMS and receiving the answer through the MMS.

1.2. Problem Statement

1.2.1. Problem Identification

Several problems had been identified to clear out the project purpose and objectives to show the importance and the need of the wireless LBS (mobile location service) in getting location information:

- i. Hard to find the place located in Malacca town

Malacca town is one of the developing town and a tourism area. For the people who not familiar with Malacca town, they might be lose or take a long way to go to the next destination.

- ii. Limited details and difficulties in finding spatial information

Paper map is the traditional way of getting information about the location, street and the building available in the areas. The information of hardcopy where put together into a paper and too congested. There is no details and required time to find out about the street information to the next destination.

- iii. Utilize the capabilities of mobile phones

Mobile phones had come out with a lot of new technologies and enhancement. The user can easily adapt with the new features and utilize it. So it very beneficial to develop a web-based GIS system for user to find location spatial information that accessible via mobile phones.

1.2.2. Problem Significant

The significant and importance of the Web-Based GIS system integrated with SMS and MMS technology as follow:

- i. The high demand of information on LBS at Malacca (based on assumption).
- ii. There no any such system develop and implemented in Malaysia.
- iii. To supply tourism industry with the ease and interactive information.

The aim of this project is to cater those in MLS application. By implementing it using the web-based system, it ease administrator in doing their task and give ability to them working in any place. Enables the user to receive the map in the picture message format will help them in viewing the map and visualize the direction easily.

1.3. Objectives And Scope Of Study

1.3.1. The Objective of the Project

The objectives of this project:

- i. To prove that GIS and PHP can be integrated in windows platform.
- ii. Give ability to do a research on the elements and aspect involve in designing and developing the Web-Based Mobile Location Service (MLS).
- iii. To develop MLS with the integration of Web-based GIS System and wireless technology.
- iv. To provide an accurate data or information to the user about Malacca town.
- v. To view and display the image of the Malacca town based on request using the mobile phones with MMS features.

1.3.2. The Relevancy of The Project

The study is to cater the need of the Malacca citizen, visitor or tourist with establishment of the Mobile Location Services. This service will provided to mobile phone user with the capability of SMS and MMS. The main issue is the capabilities of the MLS integrate with MMS features in sending the spatial data and map. The user will send SMS and administrator will capture the map with the simple direction description to the location and distance. This will be send via MMS. Then the same request will be automatically search from the database. This project will help and assist local citizen, visitor or tourist that not familiar with Malacca town. It also bring a new dimensional of enhancement in utilize the mobile phone as the medium of communication and retrieving information.

1.3.3. Feasibility of the Project Within the Scope and Time Frame

The research on this project is more about to prove the MLS capability to integrate the GIS system with the wireless application (mobile phone). This project will be feasible to come out with the web-based GIS that are able to serve the user with the image of Malacca town map, direction and distance to go to the destination. The user will be the charge based on sending SMS (referring to the network provider used by them). There will be no charge in download the map as it will be one of the elements in the MMS send to the user.

CHAPTER 2

LITERATURE REVIEW AND THEORY

2. LIRATURE REVIEW

2.1. Introduction to Geographical Information System (GIS)

Geographical Information System is the system that includes the software, hardware, data and personnel in manipulate, analyze and present information on the spatial data of certain location. It contains the spatial data and non-spatial data of one location that being stored in one computer system. GIS is a computer base technology and methodology for collecting, managing, analyzing, modeling and presenting geographic data for a wide range of applications [Davis B.E, 2001]. By using the geographic data that already analyze and manipulate, the organization can performed well and run better. It can help organization in make decision on the business and others. In this project the purpose of the geographical information system is to provide the geographical information to the user. The basic geographical information such the coordinate of the location, the distance of the location, the name and the id of the location is to ease the information search later. In the geographical information such the coordinate for the corner of the polygon, the coordinate of the both end point of the line or the coordinate of the point are save and become a foreign key. For the user, they will be receiving the geographical information such as the location place and distance of the location from the current location.

2.2. Introduction to Location Based System (LBS)

LBS are offering services to deliver location dependent and context sensitive information to mobile users. It can be on the local map, weather information, traffic condition in the specific area, tour guide, shopping guide and others. The location information is vital up for much purpose not only as communication devices but also for navigation and system management. The basic services should be provided by this system are such to find the location of the specified located object or to find all located object by given location.

Initially, the location-based services are focused on consumers' requirements example tourism guide, road side assistance and entertainment appliances. However, as the technology is maturing and pervasive, we can witness that it will be extensively used in business, government and industry example mobile office, emergency response and traffic monitoring [Shioh-yang Wu and Kun-Ta Wu, 2003].

“LBS are services accessible with mobile devices through the mobile network and utilizing the ability to make use of the location of the terminals. Major part of the features Mobile Internet Services is expected to be LBS. LBS business is still early and evolving stage. Japanese operator have been offering special services such tracking children or demented people for a few years and since 1999 more complicated services are emerging. Currently, mobile service providers also in other part of world have introduced some basic LBS for general public and the number and versatility is steadily increasing.” [Virrantus, Markkula, Gramash, Terziyan, Veijalainen, Katanosav and Tirri, 2002].

Web-Based GIS system with SMS and MMS technology as the Location Based Service (LBS). It works with the web-based and connected to user with the

SMS and MMS technology. The general purpose of this application is for serve the user with the basic geographical information. Web based GIS system is developed to ease user in retrieving information about direction to go to the next location in the Malacca town. This project are dependent on the network that provided by the services provider use by the users. It needs the user to send SMS about their current location and the next location they want to go. The location specification such coordinates and other will be display by the GIS database that integrated with the web-based.

The key characteristic of LBS is the same services maybe requested but need to response with many different results which refer to the user location or the targets move. The problem that being address to the implementation of LBS are:

- The dynamic data management should be flexible enough to provide dynamic assess to both location dependent and location independent data.
- The need of employs judicious caching, proactive server pushing and neighborhood replication to improve service response time under changing user mobility and access patterns. [Shiow-Yang Wy, Kun Ta Wu, 2003]
- The time response toward the user request also being a challenge to the developer and wireless services provider.

Data management is more challenging in mobile computing environments is especially challenging for the need to process information on the move, to cope with resource limitation and to deal with heterogeneity. Data management is very important in any system development. It can bring to the successful or failure of the project. There are a few way in managing the database. LBS queries can be processed like ordinary queries except with the additional constraint on the location attributes. The caching techniques specially tailored for LBS or mobile computing environment in general. Semantic caching techniques employed semantic descriptions of cached items to facilitate better cache administration and replacement decisions that are responsive to the user movement [Shiow-Yang Wu, Kun-Ta Wu, 2003].

Based on the project develop (Web-based GIS system with SMS and MMS Technology) the project can be divided into two major group such the web server and the map-server. “The inconvenience with LBS is that there are lot of initiatives and different technical development for implementing those services. The actual LBS processes consist of two parts:

- i. How a device can get its geographical location information and send it to an application server (e.g. Web server). The first part considers the set of mechanisms that provide the device with the geographical data. They include the positioning mechanisms, protocols, sensors, and devices for calculating/transporting the actual geographic location. In the case where the positioning mechanism (e.g., GPS) is embedded in the device itself, there is no need for those additional protocols.
- ii. How the server can use the provided geographical information and either return back the appropriate response or activate relevant operations according to the service query. The second part considers the transaction between the device and the application server.” [Requena, Tang, Espigares, 2002].

The process of LBS in this system is divided into two main tasks which are:

- i. How the device can get the geographical location information and send it to the application server which also the web server. This first part may include the positioning mechanisms, protocols, sensors and device for calculating, transporting the actual geographical location. In the case where the positioning mechanism (e.g., GPS) is embedded in the device itself, there is no need for those additional protocols. Due to costs of those calculations, extra devices may be required for obtaining and processing location information, which requires those extra protocols and communications between the device and the positioning entities. In the next generation of wireless communications (3G or UMTS [3]), these

additional entities and mechanisms are standardized and they are known as Location Services (LCS) [Jose Costa-Requena, Haitao Tang and Inmaculada Espigares, 2002].

- ii. How the server can use the provided geographical information. For this part it also consist of either the application can provided the user with appropriate response or activate relevant operations according to services query. The second part considers the transaction between the device and the application server. There are different solutions for implementing LBSs and they comprise both wire and wireless technologies. The wireless communications are moving towards IP networks to provide a unified communications across wire and wireless boundaries. This is the All-IP system, which provides seamless integration of communication services and Internet applications. This increases the flexibility and rapidness of service creation and a clear example would be the LBSs. [Jose Costa-Requena, Haitao Tang and Inmaculada Espigares, 2002].

In developing the system, there are four dimensions of information services applications in mobile environment need to take into consideration:

- i. Source of data
There are two type of data source; it can be either central which is centrally broadcasting or local services station such for only specific country.
- ii. Period of validity
There are two type of period of validity either it static or dynamic. The example for the static period of validity such as various kind of traffic timetables and for dynamic is the current traffic condition.
- iii. Target audience
There are two group of target audience either public target audience which will like data such public announcement and the personal which more like data such as email or personalized news.

iv. Location dependency

Two type of nature of the queries and result which may be the location interdependency or location dependency. The location interdependency can be such as the stock pro and the location dependency can be such as the nearby restraint within a given range. In doing the architecture of the design the classification on four dimensions is very important in make it easily adapted to incorporate different data management strategies to fit the characteristic of different application domains.

2.3. Introduction to Mobile Location Services.

The movement of mobile technology had brought a lot of new enhancement in communication devices. Nowadays there a lot of small devices that has feature such a small computer. This device includes data capable mobiles phones, wireless personal digital assistants (PDAs) and in-vehicle computers. Those devices are capable of providing information and instant access to application anytime or anyplace while we are traveling. "Mobile Location Services are the intersection of the geographic information system (GIS) industry and wireless networking industry spatial analysis technologies developed in GIS have been repurposed for the speed and scalability required for mobile location services. The mobile operators wireless data network is used for application deployment and positioning technologies leverage wireless and satellite technologies to perform complex measurement to pinpoint the location of a mobile user." [Andrew Jagoe, 2002]. As the system, Web-Based GIS System with SMS and MMS Technology is integrated with the SMS and MMS technology the mobile features also need to take into consideration. The users of this system will be mobile users that have capabilities to send SMS and receive MMS. This system can be defined specifically as Mobile Location Services (MLS) as it works with the mobile users while their traveling or search for the location information.

Mobile location services have come with solutions that leverage positional and spatial analysis tools in delivering consumer applications on their mobile devices. There are five categories of mobile location services:

- i. Navigation and real time traffic
- ii. Emergency assistance
- iii. Concierge and travel services
- iv. Location based marketing and advertising
- v. Location based billing

The mobile location services can work with any environment like radio basic, wavebands, analog and digital radio systems, modulation encoding radio signals, cellular networks and wireless data. For this project, the MLS will work with the cellular networks which will be dependent on the network that provided by services provider uses by the users.

2.4. Short Messaging System (SMS) and Multimedia Messaging System (MMS)

Short Message Services (SMS) is a basic service allowing the exchange of short text messages between subscribers [Gwenael Le Bodic, 20002]. It was commercially introduced in the telecommunication market in 1992 but widely accepted during late 1990s. by referring to the telecommunication market research in 2001, an estimated 102.9 billion SMS were exchanged world wide. Based of the information from Gartner Dataquest, one of the industry's major research agencies, expects the number of SMS to grow to 146 billion in 2002 and to peak at around 168 billion on 2003 before it decline.

There are few categories for the consumer application based on SMS such as person to person messaging, information services, voice message and fax notifications, internet email alerts, download services, chat applications and smart

messaging. Person to person application is the major application for the SMS. Usually the message text is entered via the handset keyboard and echoed on the display. After the subscriber composes the message, it will be sends it to the serving network to the recipient number had been set by the subscriber. The message will be transported over one or more network before reaching recipient mobile network [Gwenael Le Bodic, 2002]. Information services is the features that allow user to receive the weather updates, financial reports, jokes or any other information throughout their mobiles phone using the SMS. To activate this services the user need to subscribe manually to the service prior to receiving associated reports and updates. The voice message and fax notification is widely supported in GSM mobile networks. The internet mail alert is the services that will alert the user with the new inbox are waiting to be retrieved. It will contain the address of the message originator, subject of the mail and the first few words from the email message body. The latest famous services provided by the SMS application is the download services that allow the user to download ring-tones, wallpapers, pictures, logos and others. This service is for the mobile phone users to customize their mobile phones. Smart messaging is the proprietary services develop by Nokia. This service enables the exchange various object via the SMS which including the transfer of internet configuration parameters, business cards from PIM updates and others. The most interesting features of this service are Picture Messaging which allows the association of one bitmap picture to the text of a message. For the project, the SMS services will be used by the user to send a request to the web-based application. This function is such a person to person SMS where as the user will need to send SMS to the number that attach to the GSM Modem. It needs the user to write a message about their current location and the next location they want to go. Once it sends to the number of the GSM Modem, it will put into the database and then reply by the administrator of the web-based or the system itself.

Two basic features of SMS are sending and receiving the short message. The additional features including the message submission, handling of status reports, requests for command execution, reply path and others.

From the research, the SMS basic transmission characteristics will assist in clarifying its effective prerogatives and limits are [S. Collesei, P. di Trai and G. Morena]:

- i. The maximum length of a short message is 140 bytes and no standardization efforts to extend these limits.
- ii. SMS uses a signaling channel as a GSM system transmission channel or specifically it uses the Slow Associated Control Channel (SACCH) if the mobile unit has a call in progress or Standalone Dedicated Control Channel (SDCCH) if the mobile unit has not assigned any traffic channel.

SMS has two major advantages over the conventional fixed network-based system:

- i. Flexibility given that cables are no longer required for the communication line to which the POS station is connected.
- ii. Security given that the radio link on which the GSM encryption algorithms work provides better assurance against fraudulent interception than the cable distribution network. [S. Collesei, P. di Trai and G. Morena]

“Multimedia Messaging Services (MMS) is a natural evolution of SMS. SMS has been very successful in the 2 generation (2G) of wireless communication systems. The MMS with richer contents and improved content creation and display capabilities can provide much more than what SMS can provide.” [Miraj E Mostafa, 2002]. Multimedia Messaging Services allow the exchange of multimedia messages in the context of person to person and machine to person scenarios. The environment of MMS is composed truly multimedia elements includes the possibility of composing the message as slideshow presentation which combination of text, audio and pictures. [Gwenaël Le Bodic,

2002] By using the MMS the subscriber also can compose the message and send it to the internet mail recipient or vice versa, retrieving from the mail internet user. The objective of MMS is to deliver a messaging service interoperable with existing mobile messaging systems such as SMS and MMS but which is also interoperable with existing fixed messaging system such as email services [Gwenael Le Bodic, 2002]. The most important features in MMS are composed, send and receipt of message. The other additional element in MMS such as required to route messages, to adapt the content of message to the capabilities of receiving devices and others. There are 8 interfaces of MMS in order to ensure interoperability between devices produced by various manufacturers such [Gwenael Le Bodic, 2002]:

- i. MM1 interface is a key interface in the MMS environment. It allows interaction between the MM user agent, hosted in the mobile devices and the MMSC. Operations such as message submission, message retrieval can be invoked over this interface.
- ii. The MM2 interface is the interface between MMS relay and the MMS server. Most commercial solutions offer a combined MMS relay and MMS server in the form of and MMSC.
- iii. MM3 interface is the interface between an MMSC and external servers. Operations over this interface allow the exchange of message between MMSCs and external servers such as Email servers and SMSes.
- iv. MM4 interface is the interface between two MMSCs. The interface is necessary for exchanging multimedia messages between distinct MMS environments.
- v. The MM5 interface is needed to allow interactions between the MMSC and network element such HLR. Through this interface an MMSC can request information maintained by HLR including the retrieval of routing information for forwarding message to another messaging domain or some information about particular subscriber.
- vi. MM6 interface allow interaction between MMSC and user databases.

- vii. MM7 interface fit between MMSC and external Value Added Service (VAS) application. This interface allows a VAS application to request services from MMSC and to obtain messages from remote MMS user agents.
- viii. MM8 interface is needed for allowing interactions between the MMSC and billing system.

In the project, the MMS will be used by the web-based in replying the user request and send them information with the map (.gif/.jpg). The reason of using MMS instead of SMS is to serve the user with the map (.gif/.jpg) with the text of description. The description will explain in details about the roads name, distance and duration. The map should be in the size of mobile phone display in the average resolution of the map pictures is 600x480. The size of the file send will be depends on the type or model of phone use by the users or depending on the size of memory card of the mobile phone. Most of the mobile phone will have at least 1.023Mb.

The advantages of MMS in comparison with the SMS and EMS are:

- i. Multimedia message can contain a wide rage of content formats such as colors images, animation, videos, text and sounds. It also can be organized into compact slideshow.
- ii. The interoperability between MMS and the Email services has been significantly improved.
- iii. MMS is well integrated with innovative devices or services such as camera accessories or remote photo albums.
- iv. MMS is future proof technology and will be the subject of many evolutions in the near future.

The disadvantages of MMS are:

- i. MMS is a very recent service and MMS capable devices are not yet widely available.

- ii. MMS requires several network infrastructure extensions in order to operate properly.

Even the MMS is sophisticated services been offer by the providers, it still not yet fully acceptable in the telecommunication markets as the devices for this MMS application not widely offered in the market.

2.5. Using Short Messaging System to Deliver LBS

Location information holds a key to enabling personalized and time sensitive via wireless mobile devices [Nindini Krishnamurthy, 2002]. Previously or traditionally the LBS was implemented by using the HTTP or XML approach where by the service provider has a generic service portal. The web page is displayed with the help of WAPG (WAP gateway) [Nindini Krishnamurthy, 2002]. The provider needs to make sure the user aware with this portal and browse it in order to get the information. The drop down menu is fro the user to various option and enter all information need by the system. When all had been specified by the user, the gateway will forward the request to the application development platform which acquires information of the mobile devices such as MIN/IMSI from the user request. The platform will be interacting with the core network to find the location request by the user. Then it interacts with a geographical content database and gets the required data. After all then the data being transfer back to the subscriber.

As the improvement and the enhancement of the technology devices and application, the HTTP or XML approach being replaced with the SMS approach. The subscribers need to send a request in form of SMS then through the SMS center the message will be sent to the integrator (application platform). This integrator will consist of the SME (Short Message Entity) emulator and the application server for the application. The SME emulator purpose is to extract the

mobile information and the request text from the sent message. Then the task of application server to make use if the data and request the location information from the location provider.

From the research paper title “Using SMS to Deliver Location Based Services” by Nandini Krishnamurthy it discuss about the architecture of the SMS approach. The architecture of SMS approach are divided into four main basic component such SMS center (SMSC), integrator, location provider and service.

i. SMS center (SMSC)

It responsible for relaying and store-and-forwarding of short message between SME and mobile station. User requests for this application in the form of SMS message reach the SMSC.

ii. Integrator

Divide into two main parts which are the SME emulator and an application server. The SME emulator will receive the messages from the SMSC and direct all of the messages to the application server towards a specific port. The SME emulator is connected to SMSC via socket. The Short Message Peer-to-Peer (SMPP Protocol) is an open industry standard, the SMSC will be accessing the protocol that defines the interface between the external entities and mobile network SMSC. The integrator will accept the user requests, processes them in application context specific way, and then return it back to the SME emulator to be delivered to user. The SME emulator will get the information such MSISDN information and specific application information from that process. All of this information will be sent back to the application server while the SME emulator will keep tack all those transaction.

iii. Location Provider

iv. Service

The different between the HTTP approach and SMS approach:

Step	HTTP approach	SMS approach
1	User knows of a service portal of that area. User browses the service portal. The web page is displayed with the help of WAP gateway.	User knows the SMS address of the application provider.
2	A drop down menu is available. And one of the contents is nearest Indian restaurant. User chooses that particular menu.	User sends a SMS message to this address with nearest Indian restaurant (service requested) as the content of the message.
3	The application needs location information of the user. WAPG forwards the request to the application development platform. Application development platform acquires information of the mobile like MIN/IMSI from the request.	The application needs location information of the user. SMSC (SMS center) directs the request to the application development platform. This platform acquires information of the mobile like MIN/IMSI from the request.
4	The platform interacts with the core network to find the location	The platform interacts with the core network to find the location
5	With this location information, it interacts with the geographic content database and gets the required data.	With this location information it interacts with the geographic content database and gets the required data.
6	This information is passed back to the user and directions/address of the nearest restaurant is displayed to the user.	This information is passed back to the user in the form of a SMS message.

Table 1: Different between HTTP approach and MMS approach

2.6. Integration of MMS and GIS in supporting LBS

As the project will be used MMS in getting the reply from the web-based, the user need to have the mobile phone with the MMS technology. In integrating the MMS and the GIS to support the LBS application, the study on the wireless GIS is important. Wireless application allows people to access spatial information using wireless environment [Mohammadi, Alesheikh and Ghorbani, 2003]. Wireless GIS develop under web GIS technology and there are many similarities between these two approaches. The wireless technology brings a lot of limitation towards the wireless GIS based on the limitation of the mobile devices, network and technologies itself. There are a few benefits as impact of the wireless technology:

- i. Inexpensive mobile terminal cost will allow larger number of people to use GIS on their business and improved return on investment.
- ii. GIS data will be referred to and updated in real time basis compared to current circumstances.
- iii. Not required a construction of new infrastructure since the basic of telecommunication method already standardized.
- iv. Mobile phone will include location service function in the near future. so the GIS application will expand to include dynamic location management, emergency disaster notification and others.

The research on the cost of sending the MMS is the done based on the service provider of the network (this price is for the within the same network and the current price, 30 April 2005):

Maxis – RM 1

Celcom – RM0.50

Digi – RM0.10

The MMS send will be used the GPRS but the cost of downloading the picture will be as same as cost of sending MMS. There will be no charge on downloading the image file because the method is such sending and receiving the MMS or SMS.

The development of network GIS should be:

- i. Allow access to single database from internet workstation and also from mobile phone terminals in the same way.
- ii. The personal computer as the hardware for internet device will allow the heavy load process to be performed on the client side. The personal computer will process or execute the user request which will decrease the workload on the server.

- iii. On the client side, they will have mobile phone that support the input and output process. While the server will be stored the application programs.

There also a problem in implementing the wireless GIS:

- i. Capacity of the mobile phone storage is low to be compared to personal computer. As example the size of java application program is allowed between the 10 to 30 KB and the data size should be only 5KB.
- ii. No application compatibility exists between career providers and types of mobile phone hardware.
- iii. A mechanism is required to effectively manage huge backend GIS data stored on server side.

CHAPTER 3

METHODOLOGY

3. METHODOLOGY / PROJECT FLOW

3.1. Procedure Identification

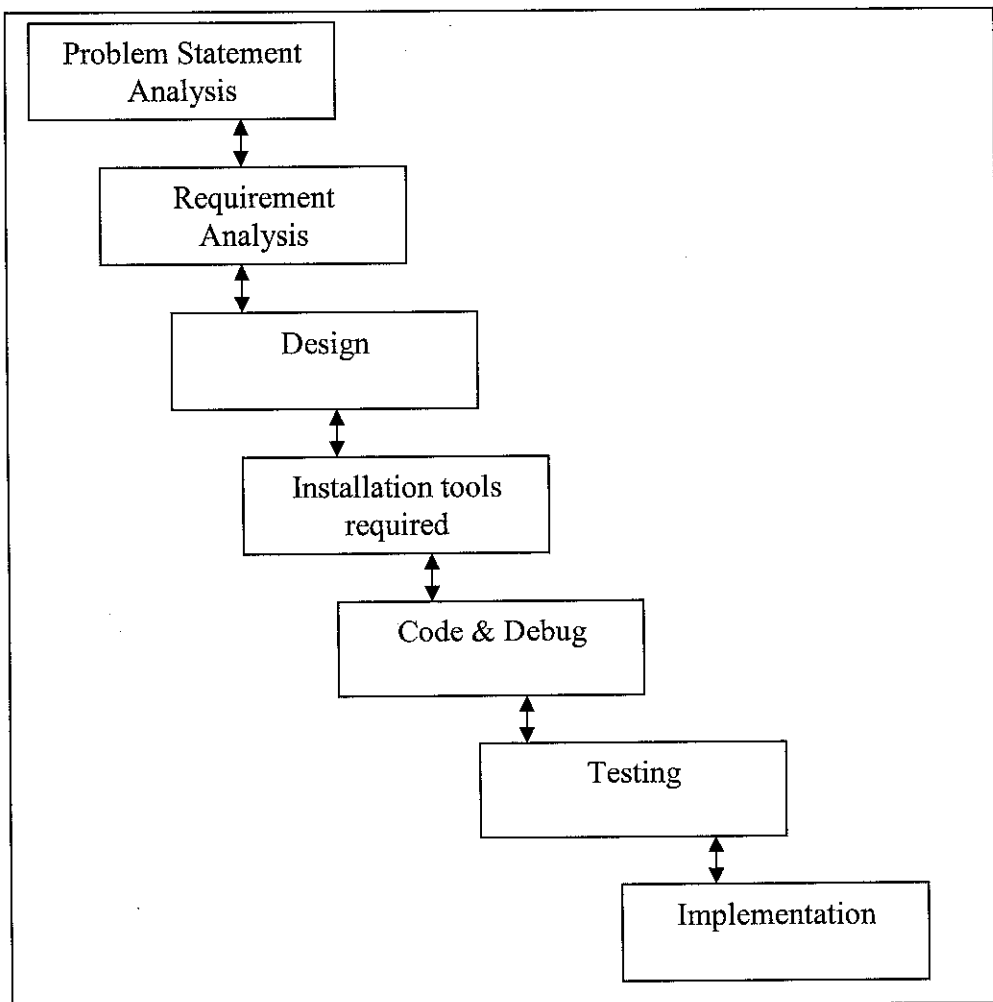


Figure 3.1: Analysis Process

3.1.1. Problem Analysis

Based on the diagram above, the author doing first stage of the project started with the problem analysis. This stage is the most important stage where the actual problem should be clarified by the author in order to get the exact solution for the problem. All areas that not clear should be identified as referring to client identification. Based on the discussion and research, major problems had been identified and highlighted.

The scope of project had been identified during this phase; Malacca town will be the area of study. The major problem that lead to this project are:

- i. Difficult for the new comers like tourist, visitors or people pass by to locate the street, building, place they want to go.
- ii. People easy to lost direction if they don't know direction in Malacca town because too many building, road and one-way direction.
- iii. There are no any Location Based Service (LBS) implemented yet for Malacca town.
- iv. Using the paper map very time consuming. It needs patience in find the building and road to go to the next destination. The user may also face a problem in unable to find out the road name or information.

3.1.2. Requirement Planning Phase (Analysis)

As the scope of the project being identified clearly about the location based services more specifically as “Web based GIS with SMS/MMS Technology”. A few areas involve had been identified such Location Based System, GIS, MMS, SMS, wireless communication, mobile phone as modem, web-based system for GIS, and other more. The studies also done in order to gather data by doing a research and read material such

journals, articles, books and other. The findings from those reading were used in completing the literature review and producing desired final product. During this phase I also did questionnaire to the potential end users around UTP student. A study also done about the connection between mobile phone and desktop where as the mobile phone will be used as the modem of this web based application. A few mobile phone brands had been select for the study and comparison which also including the GSM modem.

Below are the functional requirements:

1. Establish the connection between mobile phone and desktop.
2. A web-based system for the Malacca map services. This web-based system should be able to communicate automatically with the modem and pop up menu to alert the administrator with the new SMS from the user.
3. Establish the database connection and set it automatically respond and data transfer from the web-based system to the users' request.
4. The simple spatial data search query in the system based on the users' request in the form of plain text message (SMS).
5. Function of capture, view and generate Malacca spatial data to the image format such as JPG, GIF or BMP format to be sent to the user's mobile phone.

The non-functional requirement that being identified by the author based on the discussion and research:

1. Short response time between the Map web-based system and user.
2. Simple code sent to the system from the user, which more users friendly and easy for the user to communicate with the system.

3. Ability for the system to handle a larger number of request and transaction.
4. The reliability of data send to the user should be valid toward the time.
5. If the request can't be process it should be return the appropriate answer and continue process the next request.

3.1.3. Design Phase

For the design phase, the architecture of the web-application had been design first in order to understand the movement of the Web-based GIS System Integrated with SMS and MMS Technology.

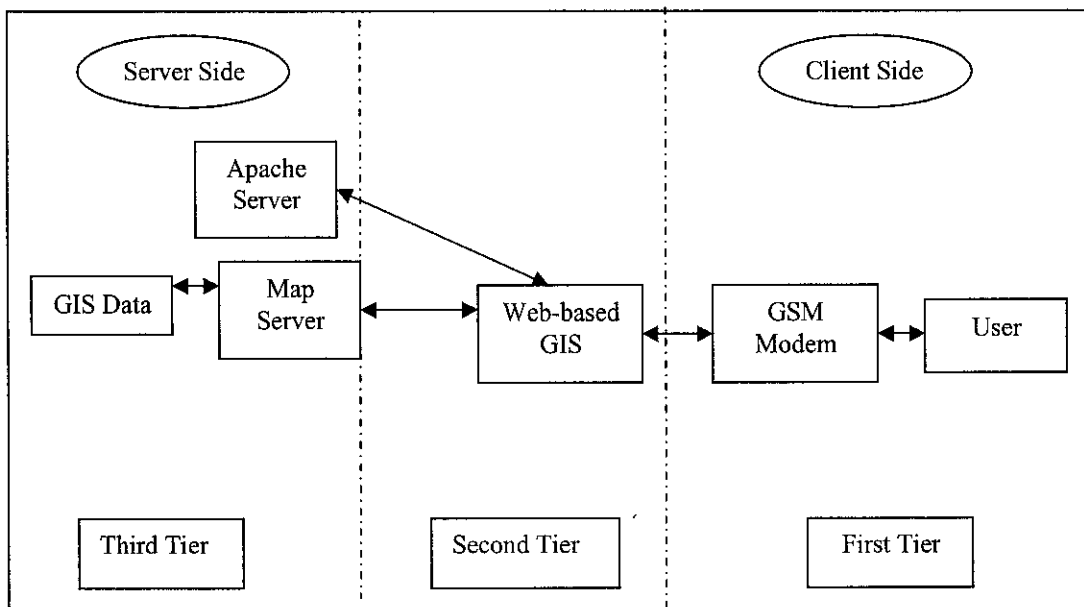


Figure 3.1.3.1: System Architecture of Web-Based GIS System with SMS and MMS Technology.

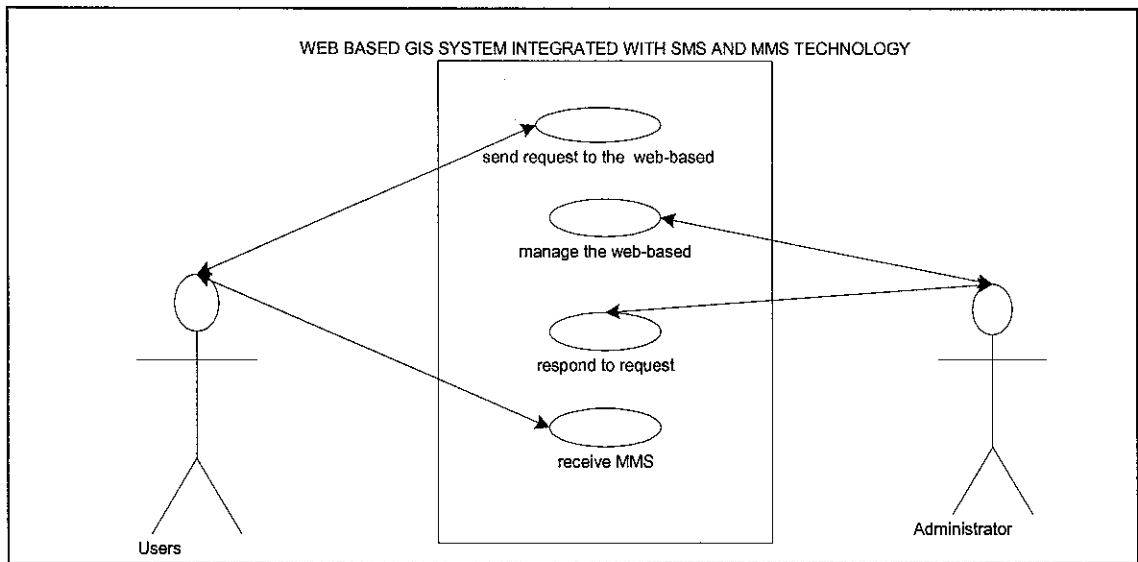


Figure 3.1.3.2: Use case of Web-Based GIS System with SMS and MMS Technology

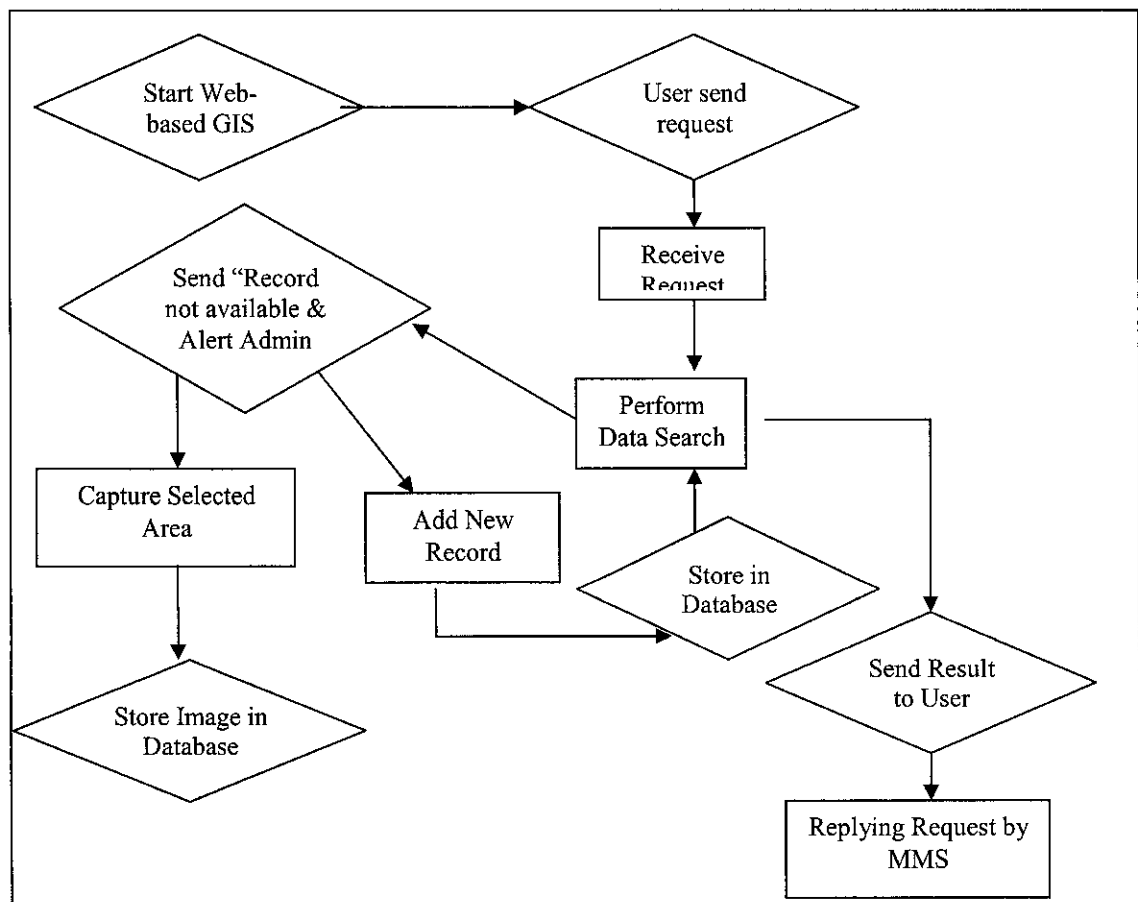


Figure 3.1.3.3: Workflow of Web-Based GIS System with SMS and MMS Technology

Interface design for the web-based system:

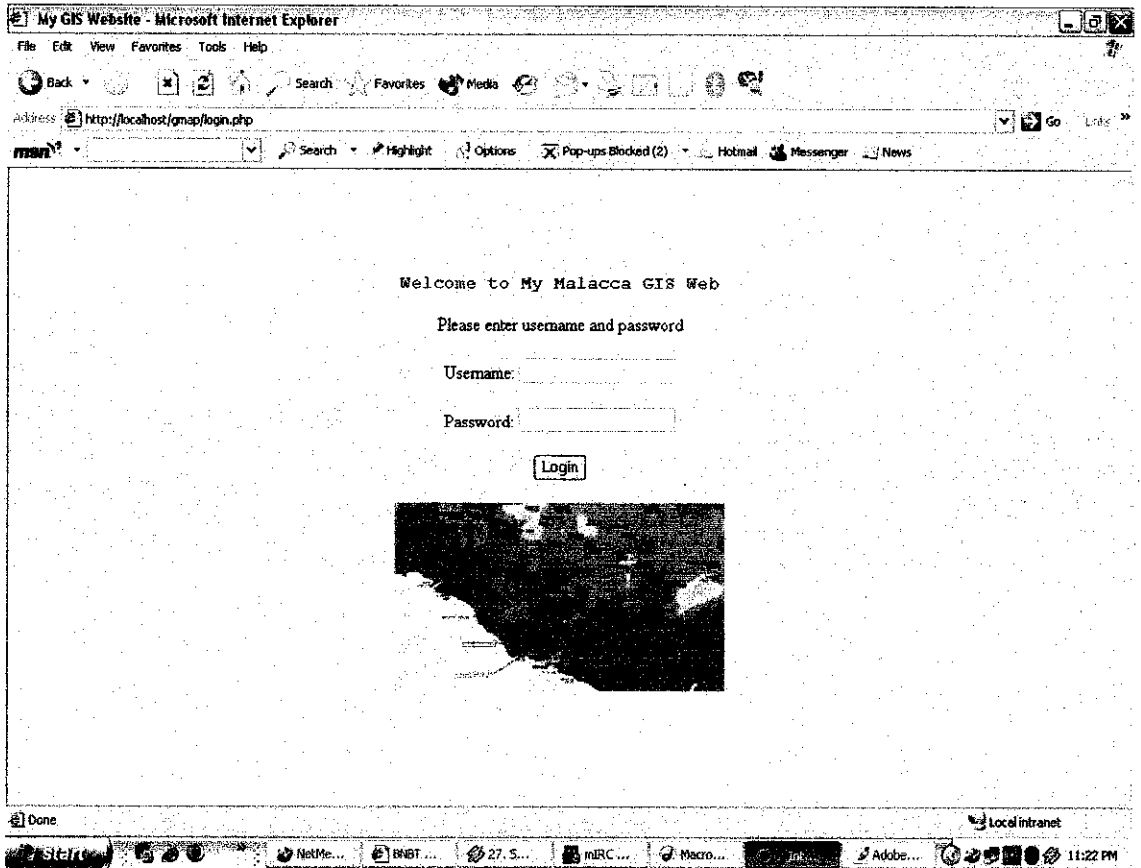
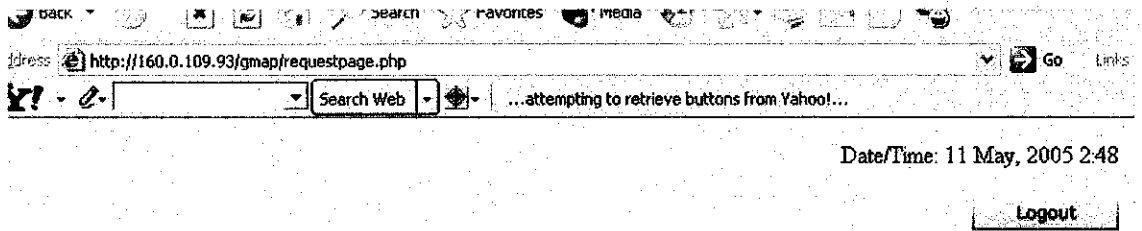


Figure 3.1.3.4: Interface 1 of the web-base GIS interface

Interface 1 is the main page of web-based GIS system. It displays the login window for the administrator.



Date/Time: 11 May, 2005 2:48

User Request Table

Request Number	Request From	Request To	Date	Time	Respond	
0122282726	Melaka Sentral	Mahkota Parade	010505	1200	<u>pending</u>	<u>Reply</u>

Figure 3.1.3.5: Interface 2 of the web-base GIS interface

Interface 2 is for the administrator to view the request SMS that send by the user. These retrieve from the database and give alert of new request come in.

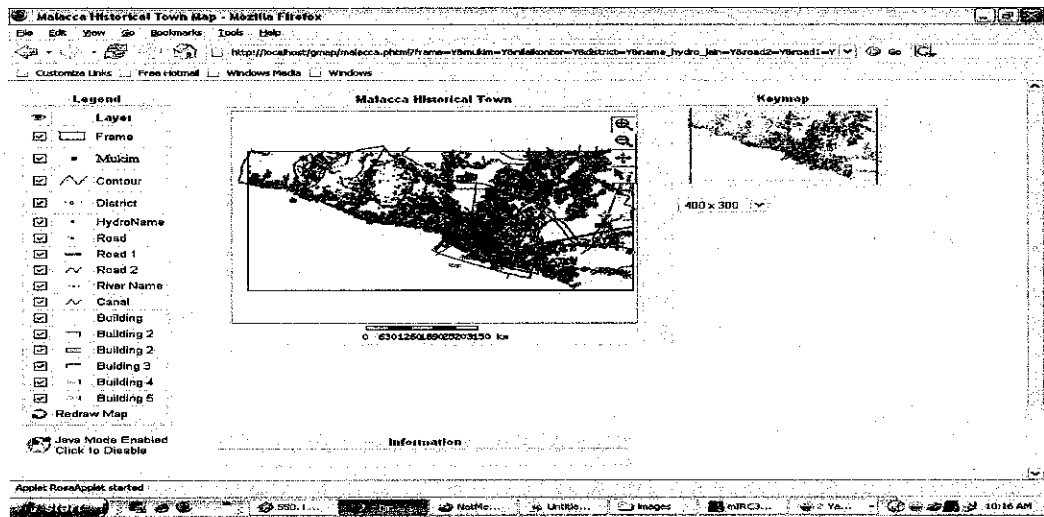


Figure 3.1.3.6: Interface 3 of the web-base GIS interface

Interface 3 is for the administrator to capture the map that request by the user and attach it to the MMS message that will be reply to the user. The administrator also needs to feel up the text of description. Then it will be save and send to the request user.

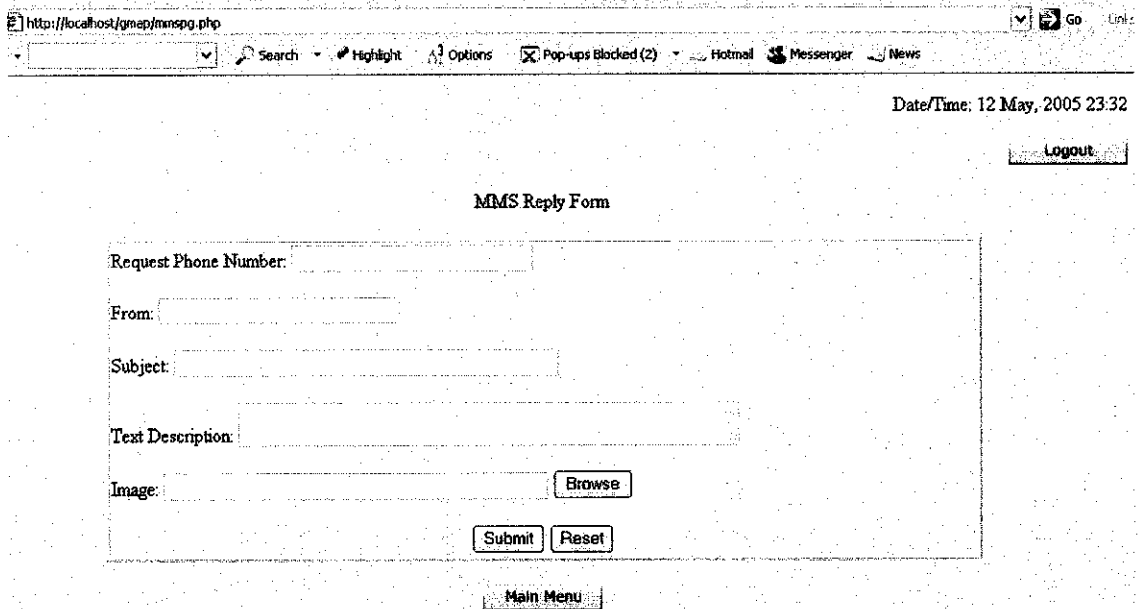


Figure 3.1.3.7: Interface 4 of the web-base GIS interface

Interface 4, for administrator to reply the user request, a form to send the MMS to the user.

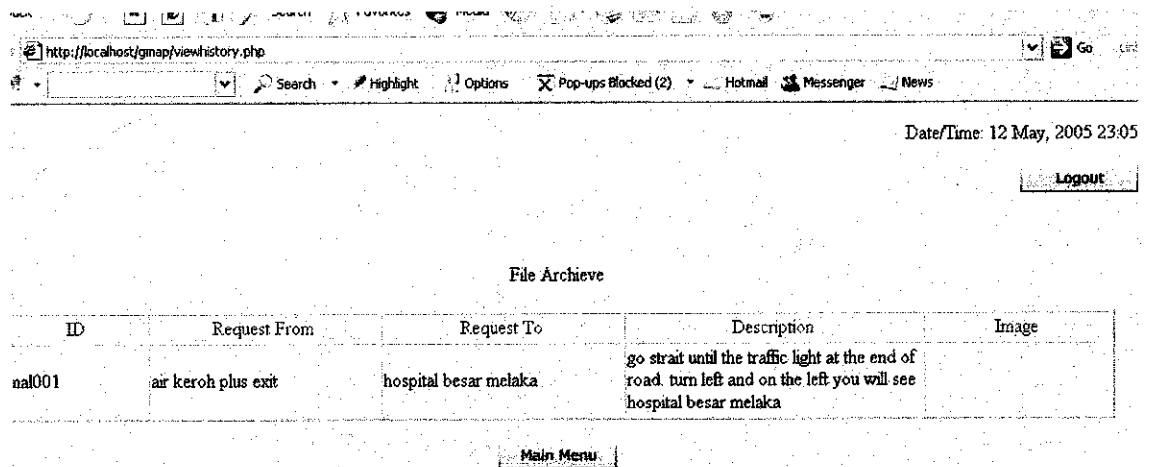


Figure 3.1.3.8: Interface 5 of the web-base GIS interface

Interface 5 will display the entire archive files which contain the spatial data (from location, to location and description by text) and the map of the location.

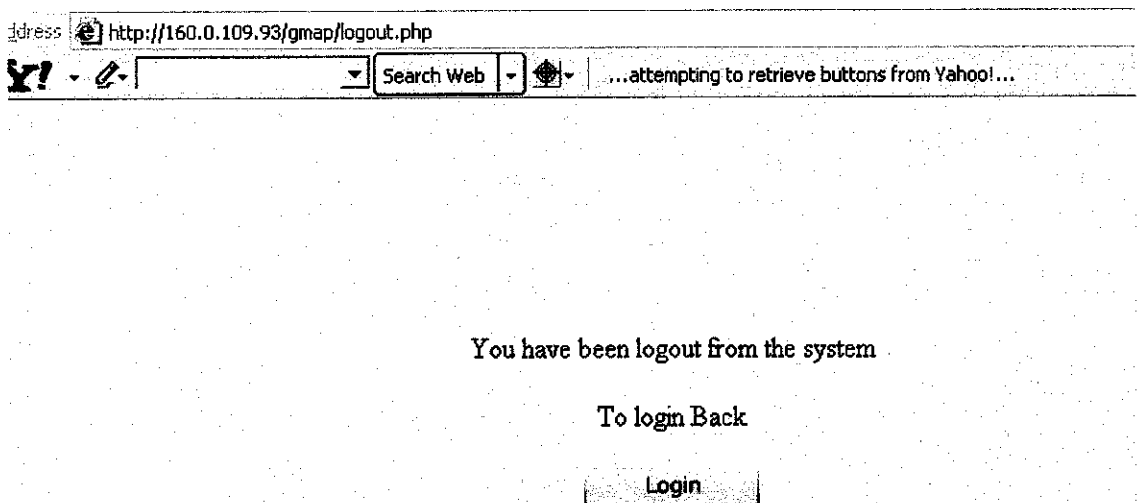


Figure 3.1.3.9: Interface 6 of the web-base GIS interface

The logout page that display after administrator logout from the web-based GIS System. It have button to allow the user to login back if she/he want to do so.

3.1.4. Installation Required Tools and Software Phase

There are 12 complete tools required in the project:

- Apache Version 2.0.50.
- PHP Version 4.3.10
- Mapserver CGI 4.2.1 & 4.4.1
- PHPMapScript 4.2.1 & 4.4.1
- OGR Utilities
- Mapserver Utilities
- OGR / PHP Extension 1.0.0
- OWTChart 1.2.0
- Chameleon
- Gmap
- Maplab

- My SQL
- PHPMyAdmin

All utility needs to be installed and run properly. If one of it fails, the file cannot be run. For the project purpose, the applications are divided into two major groups where as Mapserver and Webserver. Only three tools are categories as Webserver which are PHP Version 4.3.10, Apache Version 2.0.50 and PHPMyAdmin. Others tools are categories under Mapserver tools.

To configure the tools, first the package of ms4w.zip needs to be downloading from the www.maptools.org/ms4w/index.phtml. All the additional application also downloads from there (How to configure the tools is attach in the appendix). As the tools actually not secure nor stable for windows, a few problem occurred that need the author to format and reconfigure the tools and windows.

3.1.5. Code and Debug Phase

There are two main languages used in scripting for the web-based GIS system. PHP is the main scripting language in developing the web-application for the system. The mapscript is scripting language use for the map interface. Mapfile.map is the format for this scripting language. Two major file written in mapscript are Malacca.map and malaccamap.map. Both of this file is declaring the layers involve in the map that will be display. It also has information on tables (database) of the layers and coordinates. During this phase error and debug activity had been performed in order to finish the script writing.

3.2. Tools Required

During this project development cycle there are a few technique being used in order to gather data such interview, questionnaire and reading. For the questionnaire the computerized application needed in order to analyze the data such Microsoft Office – Excel software needed in order to come with the chart and conclusion of the questionnaire. A questionnaire attached in the appendix along with the result and discussion.

For the next phase which is the development phase the tools required for this project are divided into two main groups of hardware and software. For the hardware there are two types of hardware; the functional system hardware which is the connection hardware and the system development hardware.

For the connection hardware of functional system hardware:

- GSM Modem.

The hardware for the system development is:

- Personal computer with Apache server

Specification:

- Intel Pentium III Processor
- 501MHz
- 256Mb of RAM
- 50Gb of Hard disk
- Microsoft Windows XP Service Pack 2

Software needed for the Web-based GIS System Integrated with SMS and MMS technology:

- Apache Version 2.0.50
- PHP Version 4.3.10
- Mapserver CGI 4.2.1 & 4.4.1
- PHPMapScript 4.2.1 & 4.4.1
- OGR Utilities
- Mapserver Utilities
- OGR / PHP Extension 1.0.0
- OWTChart 1.2.0
- Chameleon
- Gmap
- Maplab
- Postgress - SQL

3.3. Assumption

3.3.1. Based on reading and researching done during the project, Malacca being choose because:

- Malacca as one of tourism center in Malaysia and historical town in Malaysia.
- Tourists like to be at Malacca as there a lot of interesting place to go.
- The source of shape file can only be found for Malacca map.

3.3.2. There are no any system had been implemented in Malaysia

- As study and research done, the author come to an assumption that no related system being implemented in Malaysia.
- The nearest example implementation of PHPGIS in Malaysia is online map for Skudai.

CHAPTER 4

RESULT AND DISCUSSION

4. RESULT AND DISCUSSION

As the project go on, a few data gathering technique done to gather as many as data that related to this project. Certain data had been analyzed in order to get immediate feedback about the location based system integrated with SMS / MMS technology.

Questionnaire method had been used in order to gather data. There are 50 sets of questionnaires had been distributed among the UTP students and in the future the research on the questionnaires also will be done to gather data from the others mobile users (people in the market). Based on this 50 set of questionnaires, the author found out that:

- i. Most mobile operator used:

For this survey, the author come to the result of 67% of the UTP student using the mobile phone subscribe to the Maxis which divided into two group 23% of it using the Maxis post paid and another 44% using the hotlink service. The result of this question being populated using the pie chart below:

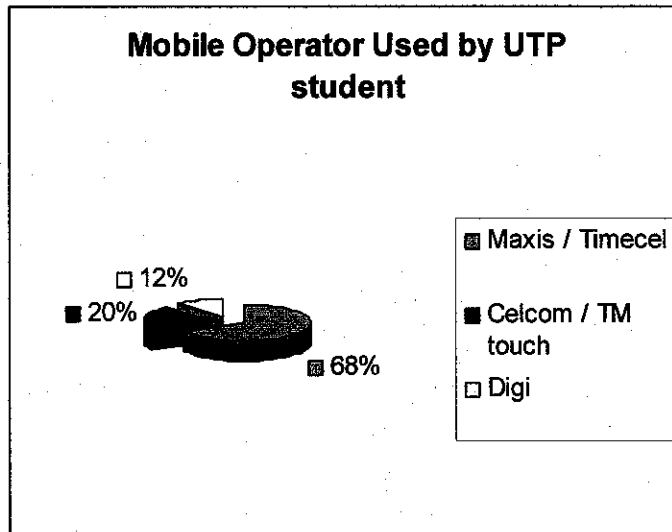


Figure 4.1: Mobile Operator used by 50 UTP students

ii. Most preferred features used in communication (Calls, SMS, MMS):

2 major ways for communication features can be used are call and SMS. Now days as a movement of mobile technology there are features such chat and MMS for the communication method in utilize the use of mobile phone. The graph show the most preferred method used for mobile communication:

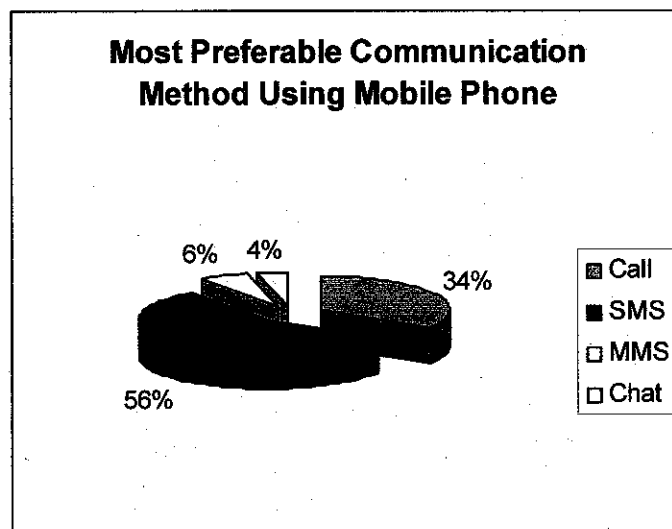


Figure 4.2: Most Preferable Communication Method Using Mobile Phone

Based on the data above, from the author analysis, she found that most of students like to use the SMS because it cheaper that makes a call. Now days, most of mobile network operator charge the SMS user for only 0.10 to 0.01 cent per SMS. It cheaper that make a call which cost around 0.15 cent per call.

iii. Familiarization of using SMS and MMS:

For this question, there are 19 out of 50 students respondent that they don't really familiar with the MMS feature. While another 27 of the student's response that the MMS features. They not really used it with some of them not having a mobile phone with a MMS features. Other reason of this result also because of the MMS features actually still new in the market and not many people tried it yet.

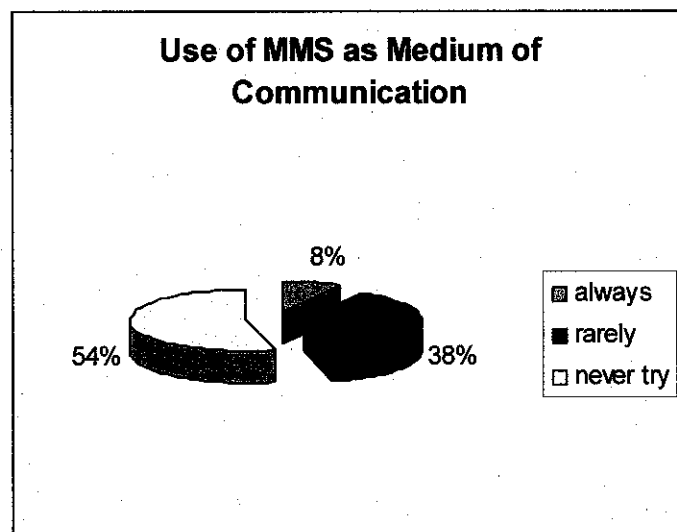


Figure 4.3: The Percentage of Use of MMS as Medium of Communication.

For the SMS features 100% of the student response that they familiar with this features and use it as their daily communication method.

Mapserver

MapServer is a tool (OpenSource) development environment for constructing spatially enabled Internet-web applications. It can be run in UNIX or Apache platform and can be compiled on most versions of operating system (UNIX/Linux, Microsoft Windows and MacOS). Here is a sample of basic Mapserver CGI application features:

- Vector formats supported: ESRI shapefiles, PostGIS, ESRI ArcSDE and many others via OGR
- Raster formats supported: TIFF/GeoTIFF, EPPL7 and many others via GDAL
- Quadtree spatial indexing for shapefiles
- Fully customizable, template driven output
- Feature selection by item/value, point, area or another feature
- TrueType font support
- Support for tiled raster and vector data
- Map element automation (scalebar, reference map, and legend)
- Scale dependent feature drawing and application execution
- Thematic map building using logical or regular expression based classes
- Feature labeling including label collision mediation
- On-the-fly configuration via URLs
- On-the-fly projection

The MapServer system includes MapScript that allows popular scripting languages such as PHP, Perl, Python, and Java to access the MapServer C API. MapScript provides a rich environment for developing applications that integrate disparate data. It also provides the core functionality to support a wide variety of web applications. In addition the MapServer also can create geographic image maps, maps that can direct users to content.

Installation of the Tools Required

During the installation and configuration tools, a few problem and fact had been discovered. There are such difficulties in configure the Map-server tools without using the package. A few syntax in the file httpd.conf need to be change based on the setting and additional tools. To enable the CGI, the CGI syntax needs to uncomment so it runs properly in the web-server. The second alternative author used in the installation is MS4W package. By the way the package of MS4W (Map-server utilities package) are not stable nor secure for window purpose. This package uses for the Map-server side that include all the 8 main application which are:

- Apache Version 2.0.50
- PHP Version 4.3.10
- Mapserver CGI 4.2.1 & 4.4.1
- PHPMapScript 4.2.1 & 4.4.1
- OGR Utilities
- Mapserver Utilities
- OGR / PHP Extension 1.0.0
- OWTChart 1.2.0

As it stated in the guideline to install the ms4w.zip, “the MS4W installation is considered neither secure nor stable. It should not be used for production purposes. Do not expect the product get any support for using this package in such an environment.” All the utilities should be working properly in order to make sure it working. From the configuration, all the files that being unzip should be unzip in the c disk as it will automatically copied to the MS4W folder under c. The purpose of this is to make it run under the same root.

Code and Debug

Creating the Malacca.map, Malacca_key.map, Malacca_wms.map and Malacca_wml.map can be done using the dreamweaver or mapedit tools. For the project, Macromedia Dreamweaver MX was used as the tools to write the code. The codes originally had been taken from the gmap application as references. The purpose of these files (.map) is to process the map layer to display it to the web interface. The layers and the resolution of the map declare in the files. Those files should be saved together in the htdocs files under the apache folder or gmap application folder. The interface main page should be saved in the PHTML format. A PHTML (or it's sometimes called a PHP) page is a Web page that includes a script written in PHP, a language comparable to JavaScript or Microsoft's VBScript. Like Microsoft Active Server Page (ASP) page, a PHTML page contains programming that is executed at the Web server rather than at the Web client. The format PHTML used because the code was not properly run when it save using the HTML format. The interface cannot be display as it suppose to be, it show all the coding of the Malacca.php and Malacca.map in the top of the Malacca.html.

Search Location Feature

In the project, the web administrator needs to search the location independently. Either they zoom in and zoom out the map or using the search box. The administrator will put the current location and the next location referring to the user request in the search box and click search. The information will be retrieved from the database. The problem involve in this part is display the image based on the search result. The map cannot be viewed depending on the search result. The administrator still needs to zoom in and zoom out to find the location.

Information Query

- Simple search

Simple search query is using the .dbf file. The information search will be display in the text description “Information” in page Malacca.phtml. To display this search the user need to click at the specific polygon, line or point then the description will be displayed in “Information” text box. To generate the search, in the Malacca.map file the table name and attribute to display need to identify and declare in layer definition part (refer to appendix).

- Receive Request Via SMS

The request send by the user will be automatically save in the database and display in the requestpage.php. The request will be send by user through the GSM Modem number. The view in requestpage.php is depending on the latest SMS request and pending only. SMS that been reply will be delete automatically from the database.

- Send Request Via MMS

To reply the user request, admin need to fill out the mms form. In the mms form the admin need fill up the search textbox to find out the location information. This search query need to be done using the MYSQL coding syntax and converter need to be used to link between MYSQL syntax with .dbf file. The purpose of this link is to display the data from the map database that using the .dbf file. The admin will captured the map and save in the folder, then browse it to add in the MMS form. Then same request syntax by the user, it will be automatically search and send to user.

The Use of Two Different Databases

Two database use in this project; MYSQL and .dbf (Microsoft access). In order to serve the user request, both database need to be linked. The .dbf is functioning on the spatial and non-spatial data for the map. While the MYSQL used to serve the web-based application such retrieving the SMS request from the database, save the information on mms reply and admin table. For the .dbf files, it used in the layer definition in the Malacca.map file. This will call all the spatial data in the database once the Malacca.phtml being executed. Then it also supplies the system with the spatial information once the admin want to reply the request from the user. The .dbf file is come together with the map (shape file). It is auto generated using the ArcView software, software to edit, read and analyze the map.

SMS and MMS

The SMS and the MMS sending and receiving activities are depending on the network availability. It depends on the coverage at the specific place. So the reliability of the system depending on the network coverage at the specific place and the type network provider used by the users. The MMS charges depend on the charge that been imposed by the network provider. For the project the GSM Modem are using the Maxis as the network provider. So every MMS send to reply the user request is based on charge imposed by the Maxis (currently RM1).

CHAPTER 5

CONCLUSION

5. CONCLUSION

From what had been discussed and research material, the needs for Location Based Services have increasingly and become popular among the travelers. It also being introduce to the telecommunication industry by integrates it with mobile phone features such as SMS and MMS. Even it was used very widely in Europe country, LBS still a new concept for Malaysia and it opened a new dimension of mobile services offering to mobile enthusiast. As the study done, LBS can be seem fully integrated or dependent on GIS functionalities which is the need of GIS spatial data in LBS to serve the request from end user. As the technology become more advance, now the LBS can be integrate with the wireless application. This really enhancing the capabilities of GIS in establishment of wireless GIS and this will lead to the existence of wireless LBS.

The tools required in integrate the map-server side and the web-server side should be compatible and stable to make sure the application can be run properly. By using the package of the map-server, it reduces the percentage of failure in installation and configuration. All tools in the package should work properly.

CHAPTER 5

RECOMMENDATION

6. RECOMMENDATION AND ENHANCEMENT

6.1: Mobile Phone Resolution, Size and Format

Mobile phone resolution is one important feature that needs to consider in developing this MLS product. For this project the image resolution used is between 128 x 128 and 352 x 288. The resolution is depending on the type of mobile phone used by the user. The resolution gives an impact on the map image display in the MMS. The study should be done more detail about the image resolution. This study should cater all mobile phone resolution to solve the problem of viewing the image in the MMS.

The size of the image will give impact on the memory available. The image send need to take into consideration of the memory available. The image should be less than 1Mb as mobile phone minimum memory space is 1Mb. The study should be done in getting the exact size of the image. The image format also gives impact to the image size. The study should include the type of format that can reduce the image size such PNG format.

6.2: Additional Information on MMS

In this project, the GIS spatial information is the direction to go to the next location and distance. In the future development, the information that sends to the

user can be improved. The information about bus transportations, hotels, restaurant or the tourism center can be added into the description.

6.3: Capture Map Features

The important feature in map interface is the capture the image. The image need to be capture and set the resolution based on the mobile phone display resolution. In this project the image is captured and saves in JPEG format. The captured image size and resolution setting are big then it supposes to be. If the current location and next location is far, the problem will be occurring in capturing the image. The image display may blur or difficult to be viewed by the user.

6.4: Display Image in Mobile Phone Using MMS

The image display is depending on the mobile phone screen size. If the size is small, then the user will need to zoom in, zoom out, and scroll down and up to view the image. The problem will occur to the user that have small mobile phone screen such Nokia 3200. The user need to scroll down and up, left and right to look at the map. It will bring a problem to novice user who had a problem in using the zoom feature in their mobile phone. For the user with big screen will see the image easily. The right resolution should be figure out in order to cater both needs. The resolution can be about 352 x 288 to solve the problem in display the image by the user.

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APPENDICES

Design

The MS4W package is designed to perform a full installation of Apache, PHP, MapServer (cgi), PHP/MapScript, and to provide the capability to install additional applications easily and quickly. The simplest way to do this on Windows is to provide a predetermined directory structure and force everything into that mold.

The directory structure, while fixed within itself, is designed to be somewhat portable. While it needs to be installed at the root of a hard drive, it doesn't have to be the C: drive. Moving the package to the root of a different drive is simple - just copy it there. To move it to a subdirectory is more difficult - you'll need to search for /ms4w in all the files and replace it with your new path.

The design also accommodates simple upgrades to the core package and to applications, without affecting the local configuration or the configuration of other installed applications.

Currently, the MS4W installation is considered neither secure nor stable. It should not be used for production purposes. Do not expect to get any support for using this package in such an environment.

Contents

The following are included in the base package:

- Apache version 2.0.50
- PHP version 4.3.10
- MapServer CGI 4.2.1, 4.4.1
- PHPMapScript 4.2.1, 4.4.1
- ogr utilities
- mapserver utilities
- OGR/PHP Extension 1.0.0
- OWTChart 1.2.0

Directory Structure

- ms4w/ - the main directory, assumed to be at the root of a drive, normally C:
- ms4w/Apache - the Apache installation
- ms4w/Apache/bin - the Apache binaries
- ms4w/Apache/cgi-bin - the location of mapserv.exe and its supporting libraries, and php.ini, php.exe
- ms4w/Apache/conf - the Apache configuration files. These should not be modified. Place all application-specific and local httpd.conf files in /ms4w/httpd.d (see the README.txt in that directory)

- ms4w/Apache/error - error files for Apache to use
- ms4w/Apache/htdocs - the Apache Web root directory, you shouldn't install much in here except perhaps for testing.
- ms4w/Apache/icons - icons used by Apache
- ms4w/Apache/include - include directory for compiling against Apache
- ms4w/Apache/lib - lib files for building against Apache
- ms4w/Apache/logs - log files for Apache are stored here, this should be archived or cleaned every so often.
- ms4w/Apache/manual - the Apache manual pages.
- ms4w/Apache/modules - modules for Apache
- ms4w/Apache/php - the PHP installation
- ms4w/Apache/php/extensions - location of phpmapsript dll
- ms4w/Apache/proxy - apache proxy configurations, not used by MS4W
- ms4w/apps - put all applications in subdirectories here
 - currently contains pgsq175win and owtchart
- ms4w/httpd.d - put all application-specific and local httpd.conf files here (see the README.txt in that directory)
- ms4w/proj - an installation of PROJ.4
 - the epsg file used is \ms4w\proj\nad\epsg
- ms4w/tmp - temporary files go here. This should be cleaned regularly
- ms4w/tmp/ms_tmp - temporary files that need to be Web-accessible go here (i.e. image files created by mapserver). This is available as /ms_tmp/ via URL. Normally this means that your MAP files would have an IMAGEPATH of /ms4w/tmp/ms_tmp/ and a IMAGEURL of /ms_tmp/
- ms4w/tools - contains useful tools such as the ogr utilities and mapserv utilities

How to Install MS4W

=====

A. Upgrading from an older version of MS4W:

#####

If you already have MS4W installed please do the following:

- * find the name of your Apache service by opening the Services window (on WinXP StartMenu/Settings/ControlPanel/Administrative Tools/Services)
- * open a DOS command window and 'cd' to yourpathto/ms4w/Apache/bin
- * run the following command:

```
Apache -k stop -n "insert apache service name here"
```

* you should see the following message in the command window:

```
The "your service name" service is stopping.  
The "your service name" service has stopped.
```

* then run the following command:

```
Apache -k uninstall -n "insert apache service name here"
```

* you should see the following message in the command window:

```
Removing the "your service name" service  
The "your service name" service has been removed successfully.
```

* your old apache service has now been removed

* make sure no files or other services point the your ms4w folder.
If your browser is currently open and you are a viewing an ms4w page
you will not be able to rename the ms4w folder. Therefore you
must close all ms4w documents, all ms4w browser windows...make
sure no running files point to the ms4w folder.

* rename the old ms4w folder to something like 'ms4w-old'

* extract the ms4w_1.0.2.zip file to the root of a
drive on your machine

* if successful, you should have a new directory named 'ms4w'
at the root of the drive you chose (e.g. C:/ms4w or D:/ms4w).

* follow the rest of the install instructions in
/ms4w/README_INSTALL.txt to start apache...

B. If you are extracting MS4W for the first time:

```
#####
```

Please read through the following instructions before starting your
installation.

- 1) To install the MS4W .zip file, use a compression program (e.g.,
WinZip) to extract the package at the root of a drive, e.g., drive
C:\. If successful, you should have a new directory named 'ms4w'
at the root of the drive you chose (e.g. C:/ms4w).
- 2) Start your MS4W Apache Web Server by running
/ms4w/apache-install.bat (at the command line or by double-clicking
it). This file installs Apache as a Windows service (called "Apache
Web Server") so that it starts whenever your machine is restarted.
When executed, a DOS window should pop up with the following message:

```
The Apache Web Server service is starting.  
The Apache Web Server service was started successfully.
```

This means that Apache is running and installed
as a service.

- 3) To test that Apache is running properly, open your Web browser and
find your local host Web service by entering one of the following
URLs:

```
http://localhost/
```

or

`http://127.0.0.1/`

You should now see the main MS4W page in your Web browser. This gives you general information about your install along with configuration information. If this is your first time using MS4W it is very important that you review the listed "Features" installed within MS4W, and test them by selecting each link found on this page.

- 4) Technically, at this point, MS4W is installed! However, as you may have noticed from the MS4W main index.html page, there are no applications running. What this means is that there are no Web applications like MapLab or Chameleon found within MS4W's Web-accessible directory, `\ms4w\apps\`. The MS4W-configured Web applications can be found on `http://maptools.org/` as separate zip files.
- 5) To install these Web application into `\ms4w\apps\` all that is required is to unzip the Web application compressed file at the same root directory as MS4W (e.g., `C:\`).

Two things should happen when uncompressing this file. First, the Web application directory should appear within `/ms4w/apps/`. Second, a new `httpd_*.conf` file should be added to `/ms4w/httpd.d/httpd_*.conf`. (The `/httpd.d/` directory contains Apache configuration files that define which files on your computer/server are Web-accessible. For each Web application that you install, a new configuration file will be found.)

- 6) The definitions of these Web-accessible directories are called Web Aliases. In order to activate a Web Alias you must restart Apache. To test your latest installed application, go to the MS4W main index.html page (i.e., `http://localhost/`). In the applications section you should now find a link to the application you just installed. Select the link to the recently installed application to see if it is configured correctly. Another option is find the Web Alias for your application and call it from your Web browser directly. For example, if you have installed the latest MS4W version of MapLab, the chances are the Web Alias is "maplab". To go to the MapLab index page, simply enter `http://localhost/maplab/`.

Note: Applications with configuration files (e.g., MapLab and Chameleon) generally do not require any editing of their files in order to work. Just unzip to the appropriate driver root and restart Apache.

WARNING: It is very possible that you may wish (but not encouraged!) to run multiple versions of the same product. For example, Maplab 2.0 (mapserver_36) vs. MapLab 2.1 (mapserver_4.0). When installing these ms4w MapLab application packages, you will notice when unzipping MapLab that the `httpd_maplab.conf` file found under `./ms4w/httpd.d/` will be overwritten by the MapLab you are currently installing. The reason for this is that the MapLab Alias stays the same from version to new version of MapLab. So, if you overwrite the `httpd_maplab.conf` when unzipping and then restart Apache, you will get the latest version of Maplab that you just installed. To run both MapLab simply follow the instructions in Step 7.

- 7) You also can create new Web Alias(es). To configure your own personal Web Alias(es), follow the instructions in /ms4w/httpd.d/README_HTTPD.txt.

Applications

=====

The following applications come with a pre-configured install package for MS4W. Go to <http://www.maptools.org/ms4w/index.phtml?page=downloads.html> to find the desired package, and extract the packages to the root of the drive that MS4W is installed on (e.g. C:\). Restart the 'Apache Web Server' service and then go to <http://127.0.0.1/>

Chameleon

- chameleon_ms4w-xxxx.zip
 - /ms4w/apps/chameleon - an installation of Chameleon.
 - admin page URL is: /chameleon/admin/
 - docs URL is: /chameleon/docs/
 - help viewer URL is: /chameleon/help/
 - samples URL is: /chameleon/samples/
 - CWC2 Service Instance URL is: /chameleon/cwc2/

GMap

- gmap_ms4w.zip
 - /ms4w/apps/gmap - an installation of the Gmap mapscript demo application
 - URL is /gmap/gmap75.phtml.

MapLab

- maplab_ms4w-xxx.zip
 - ms4w/apps/maplab-xx - an installation of MapLab 2.0.
 - URL is /maplab/.

Postgres

- pgsq175win_ms4w.zip
 - unsupported PostgreSQL 7.5 / PostGIS for Windows
 - installed in /ms4w/apps/pgsq175win

I nak <http://www.ihub.com/GSM%20Modems.htm>

GSM Modems

A GSM modem can be an external modem device, such as the Wavecom FASTRACK Modem. Insert a GSM SIM card into this modem, and connect the modem to an available serial port on your computer.

A GSM modem can be a PC Card installed in a notebook computer, such as the Nokia Card Phone.

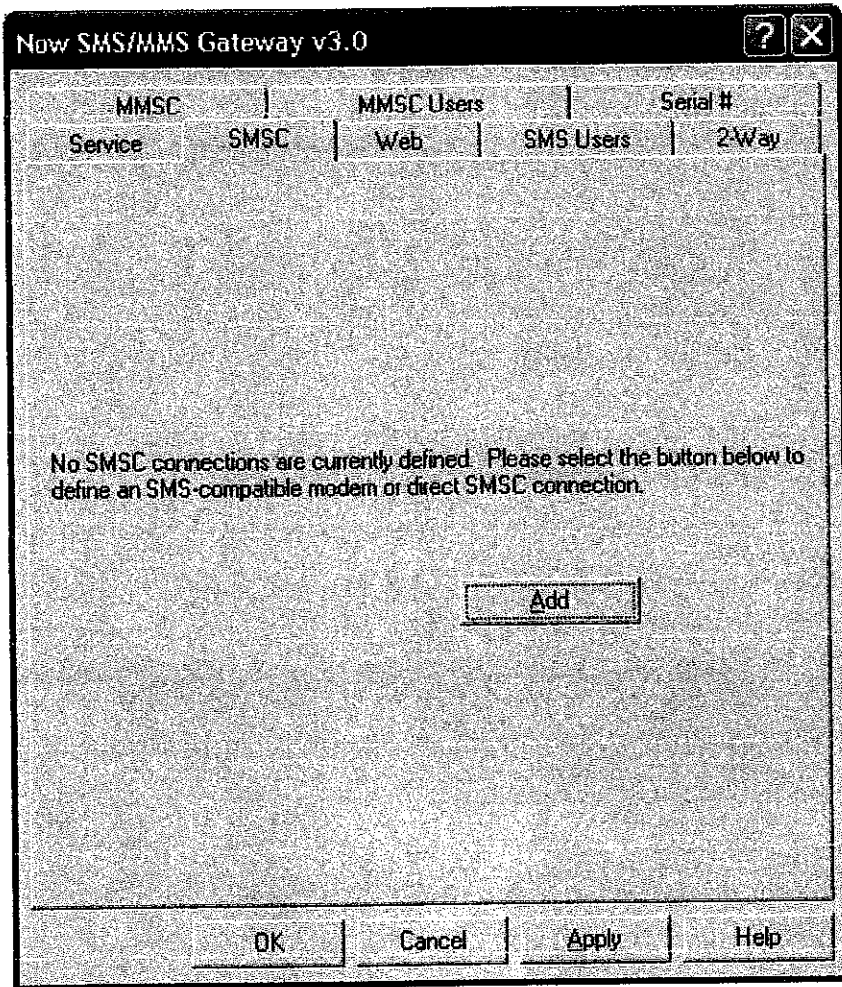
A GSM modem could also be a standard GSM mobile phone with the appropriate cable and software driver to connect to a serial port on your computer. Phones such as the Nokia 7110 with a DLR-3 cable, or various Ericsson phones, are often used for this purpose.

A dedicated GSM modem (external or PC Card) is usually preferable to a GSM mobile phone. This is because of some compatibility issues that can exist with mobile phones. For example, if you wish to be able to receive inbound MMS messages with your gateway, and you are using a mobile phone as your modem, you must utilize a mobile phone that does not support WAP push or MMS. This is because the mobile phone automatically processes these messages, without forwarding them via the modem interface. Similarly some mobile phones will not allow you to correctly receive SMS text messages longer than 160 bytes (known as "concatenated SMS" or "long SMS"). This is because these long messages are actually sent as separate SMS messages, and the phone attempts to reassemble the message before forwarding via the modem interface. (We've observed this latter problem utilizing the Ericsson R380, while it does not appear to be a problem with many other Ericsson models.)

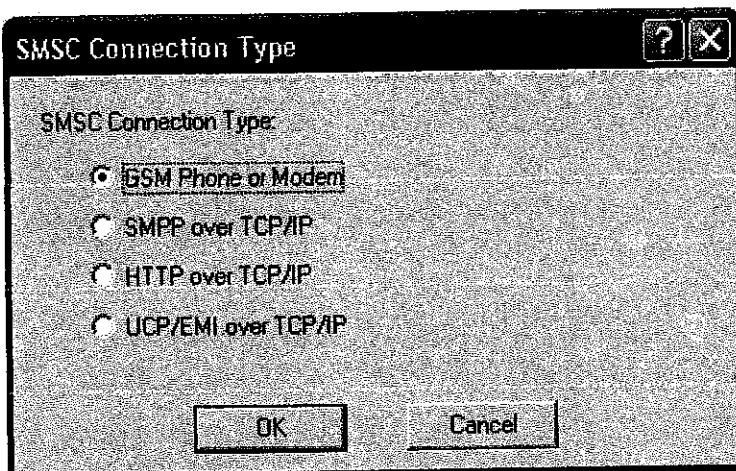
When you install your GSM modem, or connect your GSM mobile phone to the computer, be sure to install the appropriate Windows modem driver from the device manufacturer. To simplify configuration, the Now SMS/MMS Gateway will communicate with the device via this driver. An additional benefit of utilizing this driver is that you can use Windows diagnostics to ensure that the modem is communicating properly with the computer.

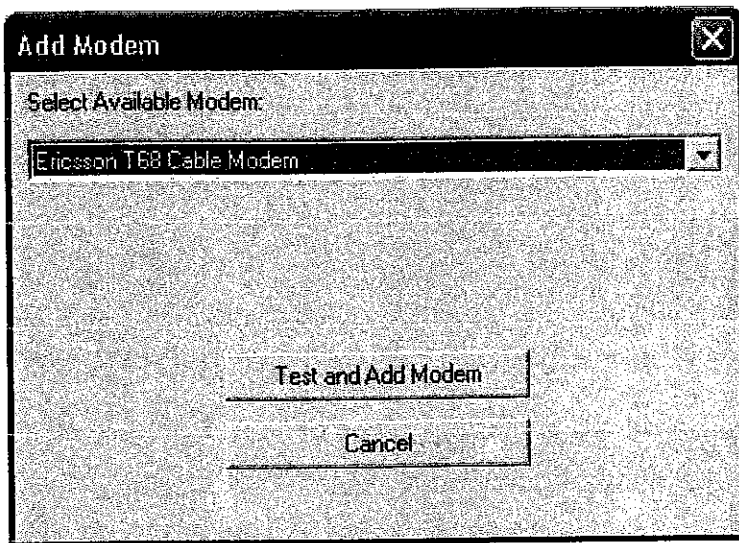
The Now SMS/MMS gateway can simultaneously support multiple modems, provided that your computer hardware has the available communications port resources.

To define which modems are to be utilized by the gateway, select the "SMSC" tab from the gateway configuration dialog:



If no modems are yet to be defined, only the “Add” button will be available on this dialog. Select “Add”, and then “GSM Phone or Modem” to display a list of available modem drivers on your computer.





Select an available modem and press the “Test and Add Modem” button. The gateway will then attempt to initialize the modem, and confirm that the modem supports the necessary interfaces to send and receive SMS messages. The modem will only be added to the configuration if the gateway confirms that it can properly communicate with the modem.

```

: name: malacca.phtml

ML>
!P

:xtension_loaded("MapScript")

("php_mapscript_44.dll");

:xtension_loaded("dbase")

("php_dbase.dll");

ide("malacca.inc.php");

HTTP_FORM_VARS["MAP_NAME"]
gpoMap = ms_newMapObj(strval($HTTP_FORM_VARS["MAP_NAME"]));

poMap = ms_newMapObj("malacca.map");

mpDeltaX = ($gpoMap->extent->maxx - $gpoMap->extent->minx)/10;
mpDeltaY = ($gpoMap->extent->maxy - $gpoMap->extent->miny)/10;
mpDeltaX = 0;
mpDeltaY = 0;

MapExtMinX = $gpoMap->extent->minx;
MapExtMinY = $gpoMap->extent->miny;
MapExtMaxX = $gpoMap->extent->maxx;
MapExtMaxY = $gpoMap->extent->maxy;

MaxExtMinX = $gpoMap->extent->minx - $dfTmpDeltaX;
MaxExtMinY = $gpoMap->extent->miny - $dfTmpDeltaY;
MaxExtMaxX = $gpoMap->extent->maxx + $dfTmpDeltaX;
MaxExtMaxY = $gpoMap->extent->maxy + $dfTmpDeltaY;

ap75CheckClick();

Command = $HTTP_FORM_VARS["CMD"];
sizeof($gszCommand) == 0)

gszCommand = "ZOOM_IN";

strlen($HTTP_FORM_VARS["PREVIOUS_MODE"])==0)
gbIsHtmlMode = 0; // Start with Java On by default

gbIsHtmlMode = intval($HTTP_FORM_VARS["PREVIOUS_MODE"]);

;HTTP_FORM_VARS[JavaOn_x])
blsHtmlMode = 0;

;HTTP_FORM_VARS[JavaOff_x])
blsHtmlMode = 1;

ction IsHtmlMode()

;GLOBAL $gbIsHtmlMode;
return $gbIsHtmlMode;

EAD>

<SCRIPT LANGUAGE="JavaScript">

ction ProvinceSelected()

f (document.forms[0].ViewRegion.selectedIndex != 0 &&
document.forms[0].ViewRegion.selectedIndex !=1)
document.forms[0].submit();

ction MapSizeSelected()

```



```
(document.forms[0].MapSize.selectedIndex != 0 &&
document.forms[0].MapSize.selectedIndex != 1)
document.forms[0].submit();
```

```
<SCRIPT>
```

```
<TITLE>Malacca Historical Town Map</TITLE>
<META HTTP-EQUIV="Content-Type" CONTENT="text/html; charset=iso-8859-1">
</HEAD>
```

```
<BODY BGCOLOR="#FFFFFF">
<FORM METHOD=GET NAME="myform">
<TABLE BORDER="0" CELLSPACING="5" CELLPADDING="0">
<TR>
<TD width="148" ALIGN="CENTER" VALIGN="TOP">
```

```
<TABLE BORDER="0" CELLSPACING="0" CELLPADDING="0">
```

```
<TR>
<TD><IMG SRC="images/corner_TL_LB.jpg" WIDTH="4" HEIGHT="4"></TD>
<TD BGCOLOR="#E2EFF5"><IMG SRC="images/pixel.gif" WIDTH="1" HEIGHT="4"></TD>
<TD><IMG SRC="images/corner_TR_LB.jpg" WIDTH="4" HEIGHT="4"></TD>
</TR>
<TR ALIGN="CENTER">
<TD BGCOLOR="#E2EFF5">&nbsp;</TD>
<TD BGCOLOR="#E2EFF5"><FONT FACE="Arial, Helvetica, sans-serif" SIZE="2"><B>Legend</B></FONT></TD>
<TD BGCOLOR="#E2EFF5">&nbsp;</TD>
</TR>
```

```
<TR>
<TD BGCOLOR="#999999"><IMG SRC="images/pixel.gif" WIDTH="1" HEIGHT="1"></TD>
<TD BGCOLOR="#999999"><IMG SRC="images/pixel.gif" WIDTH="1" HEIGHT="1"></TD>
<TD BGCOLOR="#999999"><IMG SRC="images/pixel.gif" WIDTH="1" HEIGHT="1"></TD>
</TR>
<TR>
<TD BGCOLOR="#C1D8E3"><IMG SRC="images/pixel.gif" WIDTH="1" HEIGHT="4"></TD>
<TD BGCOLOR="#C1D8E3"><IMG SRC="images/pixel.gif" WIDTH="1" HEIGHT="4"></TD>
<TD BGCOLOR="#C1D8E3"><IMG SRC="images/pixel.gif" WIDTH="1" HEIGHT="4"></TD>
</TR>
```

```
<TR>
<TD BGCOLOR="#C1D8E3">&nbsp;</TD>
<TD BGCOLOR="#C1D8E3">
<TABLE WIDTH="100%" BORDER="0" CELLSPACING="1" CELLPADDING="2">
<TR BGCOLOR="#FFFFFF">
<TD ALIGN="CENTER"><IMG SRC="images/icon_eye.gif" WIDTH="17" HEIGHT="11"></TD>
<TD ALIGN="CENTER">&nbsp;</TD>
<TD><FONT FACE="Arial, Helvetica, sans-serif" SIZE="2"><B>Layer</B></FONT></TD>
</TR>
```

```
<TR BGCOLOR="#FFFFFF">
<TD ALIGN="CENTER">
<INPUT TYPE="checkbox" NAME="frame" VALUE="Y"
<?php if (GMapGetStatus("frame") == 1) echo "CHECKED"; ?>
</TD>
<TD ALIGN="CENTER"><IMG SRC="images/frame.jpg" WIDTH="36" HEIGHT="28"></TD>
<TD><font size="2" face="Arial, Helvetica, sans-serif">Frame</font></TD>
</TR>
```

```
<TR BGCOLOR="#FFFFFF">
<TD ALIGN="CENTER">
<INPUT TYPE="checkbox" NAME="mukim" VALUE="Y"
<?php if (GMapGetStatus("mukim") == 1) echo "CHECKED"; ?>
</TD>
<TD ALIGN="CENTER"><IMG SRC="images/mukim.jpg" WIDTH="36" HEIGHT="28"></TD>
<TD>Mukim</TD>
</TR>
```

```
<TR BGCOLOR="#FFFFFF">
<TD ALIGN="CENTER">
<INPUT TYPE="checkbox" NAME="nilaikontor" VALUE="Y"
<?php if (GMapGetStatus("nilaikontor") == 1) echo "CHECKED"; ?>
</TD>
<TD ALIGN="CENTER"><IMG SRC="images/nilaikontor.jpg" WIDTH="36" HEIGHT="28"></TD>
<TD><FONT FACE="Arial, Helvetica, sans-serif" SIZE="2">Contour</FONT></TD>
</TR>
```

```

<TR BGCOLOR="#FFFFFF">
  <TD ALIGN="CENTER">
    <INPUT TYPE="checkbox" NAME="district" VALUE="Y"
<?php if (GMapGetStatus("district") == 1) echo "CHECKED"; ?>
  </TD>
  <TD ALIGN="CENTER"><IMG SRC="images/district.jpg" WIDTH="36" HEIGHT="28"></TD>
  <TD><FONT FACE="Arial, Helvetica, sans-serif" SIZE="2">District</FONT></TD>
</TR>

  <TR BGCOLOR="#FFFFFF">
    <TD ALIGN="CENTER">
      <INPUT TYPE="checkbox" NAME="nama_hydro_lain" VALUE="Y"
<?php if (GMapGetStatus("nama_hydro_lain") == 1) echo "CHECKED"; ?>
    </TD>
    <TD ALIGN="CENTER"><IMG SRC="images/nama_hydro_lain.jpg" WIDTH="20" HEIGHT="15"></TD>
    <TD><FONT FACE="Arial, Helvetica, sans-serif" SIZE="2">HydroName</FONT></TD>
  </TR>

  <TR BGCOLOR="#FFFFFF">
    <TD ALIGN="CENTER">
      <INPUT TYPE="checkbox" NAME="road2" VALUE="Y"
<?php if (GMapGetStatus("road2") == 1) echo "CHECKED"; ?>
    </TD>
    <TD ALIGN="CENTER"><IMG SRC="images/road.jpg" WIDTH="20" HEIGHT="15"></TD>
    <TD><FONT FACE="Arial, Helvetica, sans-serif" SIZE="2">Road</FONT></TD>
  </TR>

  <TR BGCOLOR="#FFFFFF">
    <TD ALIGN="CENTER">
      <INPUT TYPE="checkbox" NAME="road1" VALUE="Y"
<?php if (GMapGetStatus("road1") == 1) echo "CHECKED"; ?>
    </TD>
    <TD ALIGN="CENTER"><IMG SRC="images/road1.jpg" WIDTH="20" HEIGHT="15"></TD>
    <TD><FONT FACE="Arial, Helvetica, sans-serif" SIZE="2">Road 1</FONT></TD>
  </TR>

  <TR BGCOLOR="#FFFFFF">
    <TD ALIGN="CENTER">
      <INPUT TYPE="checkbox" NAME="jln" VALUE="Y"
<?php if (GMapGetStatus("jln") == 1) echo "CHECKED"; ?>
    </TD>
    <TD ALIGN="CENTER"><IMG SRC="images/jln.jpg" WIDTH="20" HEIGHT="15"></TD>
    <TD><FONT FACE="Arial, Helvetica, sans-serif" SIZE="2">Road 2</FONT></TD>
  </TR>

  <TR BGCOLOR="#FFFFFF">
    <TD ALIGN="CENTER">
      <INPUT TYPE="checkbox" NAME="nama_sungai" VALUE="Y"
<?php if (GMapGetStatus("nama_sungai") == 1) echo "CHECKED"; ?>
    </TD>
    <TD ALIGN="CENTER"><IMG SRC="images/nama_sungai.jpg" WIDTH="20" HEIGHT="15"></TD>
    <TD><FONT FACE="Arial, Helvetica, sans-serif" SIZE="2">River Name</FONT></TD>
  </TR>

  <TR BGCOLOR="#FFFFFF">
    <TD ALIGN="CENTER">
      <INPUT TYPE="checkbox" NAME="canal" VALUE="Y"
<?php if (GMapGetStatus("canal") == 1) echo "CHECKED"; ?>
    </TD>
    <TD ALIGN="CENTER"><IMG SRC="images/canal.jpg" WIDTH="20" HEIGHT="15"></TD>
    <TD><FONT FACE="Arial, Helvetica, sans-serif" SIZE="2">Canal</FONT></TD>
  </TR>

  <TR BGCOLOR="#FFFFFF">
    <TD ALIGN="CENTER">
      <INPUT TYPE="checkbox" NAME="building" VALUE="Y"
<?php if (GMapGetStatus("building") == 1) echo "CHECKED"; ?>
    </TD>
    <TD ALIGN="CENTER"><IMG SRC="images/building.jpg" WIDTH="20" HEIGHT="15"></TD>
    <TD><FONT FACE="Arial, Helvetica, sans-serif" SIZE="2">Building</FONT></TD>
  </TR>

  <TR BGCOLOR="#FFFFFF">
    <TD ALIGN="CENTER">

```

```

        <INPUT TYPE="checkbox" NAME="bgn" VALUE="Y"
<?php if (GMapGetStatus("bgn") == 1) echo "CHECKED"; ?>
</TD>
<TD ALIGN="CENTER"><IMG SRC="images/bgn.jpg" WIDTH="20" HEIGHT="15"></TD>
<TD><FONT FACE="Arial, Helvetica, sans-serif" SIZE="2">Building 2</FONT></TD>
</TR>

        <TR BGCOLOR="#FFFFFF">
        <TD ALIGN="CENTER">
        <INPUT TYPE="checkbox" NAME="bg" VALUE="Y"
<?php if (GMapGetStatus("bg") == 1) echo "CHECKED"; ?>
</TD>
<TD ALIGN="CENTER"><IMG SRC="images/bg.jpg" WIDTH="20" HEIGHT="15"></TD>
<TD><FONT FACE="Arial, Helvetica, sans-serif" SIZE="2">Building 2</FONT></TD>
</TR>

        <TR BGCOLOR="#FFFFFF">
        <TD ALIGN="CENTER">
        <INPUT TYPE="checkbox" NAME="bangunanlain" VALUE="Y"
<?php if (GMapGetStatus("bangunanlain") == 1) echo "CHECKED"; ?>
</TD>
<TD ALIGN="CENTER"><IMG SRC="images/bangunanlain.jpg" WIDTH="20" HEIGHT="15"></TD>
<TD><FONT FACE="Arial, Helvetica, sans-serif" SIZE="2">Building 3</FONT></TD>
</TR>

        <TR BGCOLOR="#FFFFFF">
        <TD ALIGN="CENTER">
        <INPUT TYPE="checkbox" NAME="bangunan_lain" VALUE="Y"
<?php if (GMapGetStatus("bangunan_lain") == 1) echo "CHECKED"; ?>
</TD>
<TD ALIGN="CENTER"><IMG SRC="images/bangunan_lain.jpg" WIDTH="20" HEIGHT="15"></TD>
<TD><FONT FACE="Arial, Helvetica, sans-serif" SIZE="2">Building 4</FONT></TD>
</TR>

        <TR BGCOLOR="#FFFFFF">
        <TD ALIGN="CENTER">
        <INPUT TYPE="checkbox" NAME="bangunan" VALUE="Y"
<?php if (GMapGetStatus("bangunan") == 1) echo "CHECKED"; ?>
</TD>
<TD ALIGN="CENTER"><IMG SRC="images/bangunan.jpg" WIDTH="20" HEIGHT="15"></TD>
<TD><FONT FACE="Arial, Helvetica, sans-serif" SIZE="2">Building 5</FONT></TD>
</TR>

        <TR BGCOLOR="#FFFFFF">
        <TD ALIGN="CENTER">
        <INPUT TYPE="IMAGE SRC="images/icon_redraw.gif" WIDTH="19" HEIGHT="19" NAME=redraw BORDER=0>
</TD>
<TD COLSPAN="2"><FONT FACE="Arial, Helvetica, sans-serif" SIZE="2">Redraw Map</FONT></TD>
</TR>
</TABLE>

</TD>
<TD BGCOLOR="#C1D8E3">&nbsp;</TD>
</TR>
<TR>
<TD BGCOLOR="#C1D8E3"><IMG SRC="images/pixel.gif" WIDTH="1" HEIGHT="4"></TD>
<TD BGCOLOR="#C1D8E3"><IMG SRC="images/pixel.gif" WIDTH="1" HEIGHT="4"></TD>
<TD BGCOLOR="#C1D8E3"><IMG SRC="images/pixel.gif" WIDTH="1" HEIGHT="4"></TD>
</TR>
<TR>
<TD BGCOLOR="#999999"><IMG SRC="images/pixel.gif" WIDTH="1" HEIGHT="1"></TD>
<TD BGCOLOR="#999999"><IMG SRC="images/pixel.gif" WIDTH="1" HEIGHT="1"></TD>
<TD BGCOLOR="#999999"><IMG SRC="images/pixel.gif" WIDTH="1" HEIGHT="1"></TD>
</TR>
<TR>
<TD BGCOLOR="#C1D8E3"><IMG SRC="images/pixel.gif" WIDTH="1" HEIGHT="4"></TD>
<TD BGCOLOR="#C1D8E3"><IMG SRC="images/pixel.gif" WIDTH="1" HEIGHT="4"></TD>
<TD BGCOLOR="#C1D8E3"><IMG SRC="images/pixel.gif" WIDTH="1" HEIGHT="4"></TD>
</TR>
<TR>
<TD><IMG SRC="images/corner_BL_DB.jpg" WIDTH="4" HEIGHT="4"></TD>
<TD BGCOLOR="#C1D8E3"><IMG SRC="images/pixel.gif" WIDTH="1" HEIGHT="4"></TD>
<TD><IMG SRC="images/corner_BR_DB.jpg" WIDTH="4" HEIGHT="4"></TD>
</TR>

```

```

</TABLE>
</TD>
<TD width="491" ALIGN="RIGHT" VALIGN=TOP> <table width="441" height="385" border="0" cellpadding="0" cellspacing="0">
<tr>
<td width="4"></td>
<td width="400" bgcolor="#E2EFF5"></td>
<td width="75"></td>
</tr>
<tr align="CENTER">
<td bgcolor="#E2EFF5">&nbsp;</td>
<td bgcolor="#E2EFF5"><font face="Arial, Helvetica, sans-serif" size="2"><b>Malacca Historical Town</b></font></td>
<td bgcolor="#E2EFF5">&nbsp;</td>
</tr>
<tr>
<td bgcolor="#999999"></td>
<td bgcolor="#999999"></td>
<td bgcolor="#999999"></td>
</tr>
<tr>
<td bgcolor="#C1D8E3"></td>
<td bgcolor="#C1D8E3"></td>
<td bgcolor="#C1D8E3"></td>
</tr>
<tr>
<td bgcolor="#C1D8E3">&nbsp;</td>
<td bgcolor="#999999"><table width="400" border="0" cellspacing="1" cellpadding="0" height="318">
<tr bgcolor="FFFFFF" align="CENTER">
<td height="316"><?php GMapDrawMap() ?></td>
</tr>
</table></td>
<td bgcolor="#C1D8E3">&nbsp;</td>
</tr>
<tr>
<td bgcolor="#C1D8E3">&nbsp;</td>
<td bgcolor="FFFFFF" align="CENTER"><?php GMapDrawScaleBar() ?></td>
<td bgcolor="#C1D8E3">&nbsp;</td>
</tr>
<tr>
<td></td>
<td bgcolor="#C1D8E3"></td>
<td></td>
</tr>
</table></TD>
<TD width="96" VALIGN="TOP">
<TABLE BORDER="0" CELLSPACING="0" CELLPADDING="0">
<TR>
<TD><IMG SRC="images/corner_TL_LB.jpg" WIDTH="4" HEIGHT="4"></TD>
<TD BGCOLOR="#E2EFF5"><IMG SRC="images/pixel.gif" WIDTH="1" HEIGHT="4"></TD>
<TD><IMG SRC="images/corner_TR_LB.jpg" WIDTH="4" HEIGHT="4"></TD>
</TR>
<TR ALIGN="CENTER">
<TD BGCOLOR="#E2EFF5">&nbsp;</TD>
<TD BGCOLOR="#E2EFF5"><FONT FACE="Arial, Helvetica, sans-serif" SIZE="2"><B>Keymap</B></FONT></TD>
<TD BGCOLOR="#E2EFF5">&nbsp;</TD>
</TR>
<TR>
<TD BGCOLOR="#999999"><IMG SRC="images/pixel.gif" WIDTH="1" HEIGHT="1"></TD>
<TD BGCOLOR="#999999"><IMG SRC="images/pixel.gif" WIDTH="1" HEIGHT="1"></TD>
<TD BGCOLOR="#999999"><IMG SRC="images/pixel.gif" WIDTH="1" HEIGHT="1"></TD>
</TR>
<TR>
<TD BGCOLOR="#C1D8E3"><IMG SRC="images/pixel.gif" WIDTH="1" HEIGHT="4"></TD>
<TD BGCOLOR="#C1D8E3"><IMG SRC="images/pixel.gif" WIDTH="1" HEIGHT="4"></TD>
<TD BGCOLOR="#C1D8E3"><IMG SRC="images/pixel.gif" WIDTH="1" HEIGHT="4"></TD>
</TR>
<TR>
<TD BGCOLOR="#C1D8E3">&nbsp;</TD>
<TD><?php GMapDrawKeyMap() ?></TD>
<TD BGCOLOR="#C1D8E3">&nbsp;</TD>
</TR>
<TR>
<TD><IMG SRC="images/corner_BL_DB.jpg" WIDTH="4" HEIGHT="4"></TD>
<TD BGCOLOR="#C1D8E3"><IMG SRC="images/pixel.gif" WIDTH="1" HEIGHT="4"></TD>

```

```

<TD><IMG SRC="images/corner_BR_DB.jpg" WIDTH="4" HEIGHT="4"></TD>
</TR>
</TABLE>

```

```

<FONT FACE="Arial, Helvetica, sans-serif" SIZE="2">
<BR>
<SELECT NAME="MapSize" onChange="MapSizeSelected()">

<OPTION>Map Size</OPTION>

<OPTION>-----</OPTION>

<OPTION VALUE="400,300"
  <?php if (($gpoMap->width == 400) && ($gpoMap->height == 300))
    echo "SELECTED";?>> 400 x 300</OPTION>

<OPTION VALUE="600,450"
  <?php if (($gpoMap->width == 600) && ($gpoMap->height == 450))
    echo "SELECTED";?>> 600 x 450</OPTION>

<OPTION VALUE="800,600"
  <?php if (($gpoMap->width == 800) && ($gpoMap->height == 600))
    echo "SELECTED";?>> 800 x 600</OPTION>

```

```

</SELECT>
</FONT><BR>
<BR>
<?php if (!IsHtmlMode()) echo "<!--" ?>
<TABLE BORDER="0" CELSPACING="0" CELLPADDING="0">

```

```

<TR>
<TD>
  <INPUT TYPE="radio" NAME="CMD" VALUE="ZOOM_IN"
  <?php if ($gszCommand == "ZOOM_IN") echo "CHECKED"; ?> >
</TD>
<TD><IMG SRC="images/icon_zoomin.gif" WIDTH="25" HEIGHT="25"></TD>
</TR>

```

```

<TR>
<TD>
  <INPUT TYPE="radio" NAME="CMD" VALUE="ZOOM_OUT"
  <?php if ($gszCommand == "ZOOM_OUT") echo "CHECKED"; ?> >
</TD>
<TD><IMG SRC="images/icon_zoomout.gif" WIDTH="25" HEIGHT="25"></TD>
</TR>

```

```

<TR>
<TD>
  <INPUT TYPE="radio" NAME="CMD" VALUE="RECENTER"
  <?php if ($gszCommand == "RECENTER") echo "CHECKED"; ?> >
</TD>
<TD><IMG SRC="images/icon_recentre.gif" WIDTH="25" HEIGHT="25"></TD>
</TR>

```

```

<TR>
<TD>
  <INPUT TYPE="radio" NAME="CMD" VALUE="QUERY_POINT"
  <?php if ($gszCommand == "QUERY_POINT") echo "CHECKED"; ?>>
</TD>
<TD><IMG SRC="images/icon_info.gif" WIDTH="25" HEIGHT="25"></TD>
</TR>

```

```

</TABLE>
<?php if (!IsHtmlMode()) echo "-->" ?>
<p>&nbsp;</p>
<p>&nbsp;</p>

```

<p>

</p></TD>

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FR>

<TD VALIGN="TOP" ALIGN="CENTER">

<TABLE CELLPADDING="2" CELLSPACING="0">

<TR>

<TD><INPUT TYPE="image" BORDER="0" <?php if (IsHtmlMode()) printf("NAME=\"JavaOn\" SRC=\"images/java_on.gif\""); else
f("NAME=\"JavaOff\" SRC=\"images/java_off.gif\"");?> WIDTH="24" HEIGHT="25"></TD>

<TD><?php if (IsHtmlMode()) printf("Java Mode Disabled
Click to Enable"); else
f("Java Mode Enabled
Click to Disable");?>

<INPUT TYPE="HIDDEN" NAME="PREVIOUS_MODE" VALUE=<?php echo IsHtmlMode(); ?>></TD>

</TR>

</TABLE>

</TD>

<TD ALIGN="CENTER">

<TABLE BORDER="0" CELLSPACING="0" CELLPADDING="0">

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<TD BGCOLOR="#C1D8E3"> </TD>

<TD WIDTH=<?php echo \$gpoMap->width; ?><?php GMapDumpQueryResults(); ?></TD>

<TD BGCOLOR="#C1D8E3"> </TD>

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</TABLE>

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<TD COLSPAN="3" BGCOLOR="#E2EFF5"></TD>

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<TD COLSPAN="3"> </TD>

TR>

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<TD COLSPAN="3">

<TABLE WIDTH="100%" BORDER="0" CELLSPACING="0" CELLPADDING="0">

<TR ALIGN="CENTER">

<TD><IMG SRC="images/dmsg_design.gif"
TH="100" HEIGHT="36" BORDER="0"></TD>

<TD><IMG
="images/powered_mapserver.jpg" WIDTH="96" HEIGHT="58" BORDER="0"></TD>

<TD>

<TABLE BORDER="0" CELLSPACING="0" CELLPADDING="0">

<TR>

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<TD>/ <A

malacca.phtml

```
!F="http://www.maptools.org/php_mapscript/">MapScript</A></FONT></TD>
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</TR>
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</TABLE>
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</TD>
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<TD>
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<FONT FACE="Arial, Helvetica, sans-serif" SIZE="2">&nbsp;</FONT></TD>
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<TD><FONT FACE="Arial, Helvetica, sans-serif" SIZE="2">&nbsp;</FONT></TD>
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</TR>
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</TABLE>
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</TD>
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'ABLE>
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```
<?php if ($HTTP_FORM_VARS["MAP_NAME"])
```

```
printf("<INPUT TYPE=HIDDEN NAME=MAP_NAME VALUE=\"%s\">",strval($HTTP_FORM_VARS["MAP_NAME"])); ?>
```

```
)RM>
```

```
)DY>
```

```
[ML>
```

e name: malacca.inc.php

ip

```

zeof($HTTP_POST_VARS) > 0)
TTP_FORM_VARS = $HTTP_POST_VARS;
if (sizeof($HTTP_GET_VARS) > 0)
TTP_FORM_VARS = $HTTP_GET_VARS;

```

```
TTP_FORM_VARS = array("");
```

```
npos( ms_GetVersion(), "OUTPUT=GIF" ) > 0 )
```

```

AppletImgFmt = MS_GIF;
imagesFmt = MS_GIF;

```

```

AppletImgFmt = MS_JPEG;
imagesFmt = MS_PNG;

```

```
tion GMap75CheckClick()
```

```

LOBAL $HTTP_FORM_VARS;
LOBAL $gpoMap, $gbShowQueryResults, $gszZoomBoxExt;
LOBAL $dfMapExtMinX;
LOBAL $dfMapExtMinY;
LOBAL $dfMapExtMaxX;
LOBAL $dfMapExtMaxY;

```

```

LOBAL $dfMaxExtMinX;
LOBAL $dfMaxExtMinY;
LOBAL $dfMaxExtMaxX;
LOBAL $dfMaxExtMaxY;

```

```
$set( $HTTP_FORM_VARS );
```

```
`(sizeof($HTTP_FORM_VARS) >= 2)
```

```

$poLayer = $gpoMap->getlayerbyname(frame);
if ($HTTP_FORM_VARS["frame"])
    $poLayer->set("status", 1);
else
    $poLayer->set("status", 0);

```

```

$poLayer = $gpoMap->getlayerbyname(mukim);
if ($HTTP_FORM_VARS["mukim"])
    $poLayer->set("status", 1);
else
    $poLayer->set("status", 0);

```

```

$poLayer = $gpoMap->getlayerbyname(nilaikontor);
if ($HTTP_FORM_VARS["nilaikontor"])
    $poLayer->set("status", 1);
else
    $poLayer->set("status", 0);

```

```

$poLayer = $gpoMap->getlayerbyname(district);
if ($HTTP_FORM_VARS["district"])
    $poLayer->set("status", 1);
else
    $poLayer->set("status", 0);

```

```

$poLayer = $gpoMap->getlayerbyname(nama_hydro_lain);
if ($HTTP_FORM_VARS["nama_hydro_lain"])
    $poLayer->set("status", 1);
else
    $poLayer->set("status", 0);

```

```

    $poLayer = $gpoMap->getlayerbyname(road2);
if ($HTTP_FORM_VARS["road2"])
    $poLayer->set("status", 1);
else

```



```

    $poLayer->set("status", 0);

    $poLayer = $gpoMap->getlayerbyname(road1);
    if ($HTTP_FORM_VARS["road1"])
        $poLayer->set("status", 1);
    else
        $poLayer->set("status", 0);

    $poLayer = $gpoMap->getlayerbyname(jln);
    if ($HTTP_FORM_VARS["jln"])
        $poLayer->set("status", 1);
    else
        $poLayer->set("status", 0);

    $poLayer = $gpoMap->getlayerbyname(nama_sungai);
    if ($HTTP_FORM_VARS["nama_sungai"])
        $poLayer->set("status", 1);
    else
        $poLayer->set("status", 0);

    $poLayer = $gpoMap->getlayerbyname(canal);
    if ($HTTP_FORM_VARS["canal"])
        $poLayer->set("status", 1);
    else
        $poLayer->set("status", 0);

    $poLayer = $gpoMap->getlayerbyname(building);
    if ($HTTP_FORM_VARS["building"])
        $poLayer->set("status", 1);
    else
        $poLayer->set("status", 0);

        $poLayer = $gpoMap->getlayerbyname(bgn);
    if ($HTTP_FORM_VARS["bgn"])
        $poLayer->set("status", 1);
    else
        $poLayer->set("status", 0);

        $poLayer = $gpoMap->getlayerbyname(bg);
    if ($HTTP_FORM_VARS["bg"])
        $poLayer->set("status", 1);
    else
        $poLayer->set("status", 0);

        $poLayer = $gpoMap->getlayerbyname(bangunanlain);
    if ($HTTP_FORM_VARS["bangunanlain"])
        $poLayer->set("status", 1);
    else
        $poLayer->set("status", 0);

        $poLayer = $gpoMap->getlayerbyname(bangunan_lain);
    if ($HTTP_FORM_VARS["bangunan_lain"])
        $poLayer->set("status", 1);
    else
        $poLayer->set("status", 0);

        $poLayer = $gpoMap->getlayerbyname(bangunan);
    if ($HTTP_FORM_VARS["bangunan"])
        $poLayer->set("status", 1);
    else
        $poLayer->set("status", 0);

    }

f ($HTTP_FORM_VARS["minx"])

    $dfMinX = doubleval($HTTP_FORM_VARS["minx"]);
    $dfMinY = doubleval($HTTP_FORM_VARS["miny"]);
    $dfMaxX = doubleval($HTTP_FORM_VARS["maxx"]);
    $dfMaxY = doubleval($HTTP_FORM_VARS["maxy"]);

else
{

```

```

$dfMinX = $gpoMap->extent->minx;
$dfMinY = $gpoMap->extent->miny;
$dfMaxX = $gpoMap->extent->maxx;
$dfMaxY = $gpoMap->extent->maxy;

($HTTP_FORM_VARS["MapSize"])

if (ereg("[0-9]+", "{0-9}+",
    $HTTP_FORM_VARS["MapSize"], $MapSizeExtents))
{
    $dfWidthPix = intval($MapSizeExtents[1]);
    $dfHeightPix = intval($MapSizeExtents[2]);

    $gpoMap->set("width", $dfWidthPix);
    $gpoMap->set("height", $dfHeightPix);

    SetMapExtents($dfMinX, $dfMinY, $dfMaxX, $dfMaxY);
}

($HTTP_FORM_VARS["KEYMAP_x"])

$dfKeyMapXMin = $gpoMap->reference->extent->minx;
$dfKeyMapYMin = $gpoMap->reference->extent->miny;
$dfKeyMapXMax = $gpoMap->reference->extent->maxx;
$dfKeyMapYMax = $gpoMap->reference->extent->maxy;

$nClickPixX = intval($HTTP_FORM_VARS[KEYMAP_x]);
$nClickPixY = intval($HTTP_FORM_VARS[KEYMAP_y]);

$dfWidthPix = doubleval($HTTP_FORM_VARS[KEYMAPXSIZE]);
$dfHeightPix = doubleval($HTTP_FORM_VARS[KEYMAPYSIZE]);

$nClickGeoX = GMapPix2Geo($nClickPixX, 0, $dfWidthPix, $dfKeyMapXMin,
    $dfKeyMapXMax, 0);
$nClickGeoY = GMapPix2Geo($nClickPixY, 0, $dfHeightPix, $dfKeyMapYMin,
    $dfKeyMapYMax, 1);

$dfDeltaX = $dfMaxX - $dfMinX;
$dfDeltaY = $dfMaxY - $dfMinY;
$dfMiddleX = $nClickGeoX;
$dfMiddleY = $nClickGeoY;

$dfNewMinX = $dfMiddleX - ($dfDeltaX/2);
$dfNewMinY = $dfMiddleY - ($dfDeltaY/2);
$dfNewMaxX = $dfMiddleX + ($dfDeltaX/2);
$dfNewMaxY = $dfMiddleY + ($dfDeltaY/2);

if ($dfNewMinX < $dfMaxExtMinX)
{
    $dfNewMinX = $dfMaxExtMinX;
    $dfNewMaxX = $dfNewMinX + ($dfDeltaX);
}

if ($dfNewMaxX > $dfMaxExtMaxX)
{
    $dfNewMaxX = $dfMaxExtMaxX;
    $dfNewMinX = $dfNewMaxX - ($dfDeltaX);
}
if ($dfNewMinY < $dfMaxExtMinY)
{
    $dfNewMinY = $dfMaxExtMinY;
    $dfNewMaxY = $dfNewMinY + ($dfDeltaY);
}
if ($dfNewMaxY > $dfMaxExtMaxY)
{
    $dfNewMaxY = $dfMaxExtMaxY;
    $dfNewMinY = $dfNewMaxY - ($dfDeltaY);
}

SetMapExtents($dfNewMinX, $dfNewMinY, $dfNewMaxX, $dfNewMaxY);

```

```

($HTTP_FORM_VARS["ViewRegion"])

if (ereg("(-?[0-9]+),(-?[0-9]+),(-?[0-9]+),(-?[0-9]+)",
    $HTTP_FORM_VARS["ViewRegion"], $ProvExtents))
{
    $dfMinX = doubleval($ProvExtents[1]);
    $dfMinY = doubleval($ProvExtents[2]);
    $dfMaxX = doubleval($ProvExtents[3]);
    $dfMaxY = doubleval($ProvExtents[4]);

    SetMapExtents($dfMinX, $dfMinY, $dfMaxX, $dfMaxY);
}

($HTTP_FORM_VARS["imagewidth"])

$dfWidthPix = intval($HTTP_FORM_VARS["imagewidth"]);
$dfHeightPix = intval($HTTP_FORM_VARS["imageheight"]);

se

$dfWidthPix = $gpoMap->width;
$dfHeightPix = $gpoMap->height;

($HTTP_FORM_VARS["redraw_x"])

SetMapExtents($dfMinX, $dfMinY, $dfMaxX, $dfMaxY);

se if ($HTTP_FORM_VARS["CMD"] == "ZOOM_OUT" &&
    !($HTTP_FORM_VARS["mainmap_x"] || $HTTP_FORM_VARS["INPUT_COORD"]))

$soPixelPos = ms_newpointobj();
$soGeorefExt = ms_newrectobj();
$soGeorefMaxExt = ms_newrectobj();

$soPixelPos->setxy($dfWidthPix/3.0, $dfHeightPix/3.0);
$soGeorefExt->setextent($dfMinX, $dfMinY, $dfMaxX, $dfMaxY);
$soGeorefMaxExt->setextent($dfMaxExtMinX, $dfMaxExtMinY,
    $dfMaxExtMaxX, $dfMaxExtMaxY);

if (!$gpoMap->zoompoint(-3, $soPixelPos, $dfWidthPix, $dfHeightPix,
    $soGeorefExt, $soGeorefMaxExt))
{
    $gpoMap->setExtent($dfMapExtMinX, $dfMapExtMinY,
        $dfMapExtMaxX, $dfMapExtMaxY);
}

se

$dfDeltaX = $dfMaxX - $dfMinX;
$dfDeltaY = $dfMaxY - $dfMinY;

if ($HTTP_FORM_VARS["mainmap_x"] || $HTTP_FORM_VARS["INPUT_TYPE"])
{
    $bRectangleInput = 0;
    if ($HTTP_FORM_VARS["INPUT_TYPE"])
    {
        $szCoord = strval($HTTP_FORM_VARS["INPUT_COORD"]);
        $szCoordType = strval($HTTP_FORM_VARS["INPUT_TYPE"]);
        if (strcmp($szCoordType, "auto_point") == 0)
        {
            $szCoordArray = explode(",", $szCoord);
            $nClickPixX = $szCoordArray[0];
            $nClickPixY = $szCoordArray[1];
        }

        else if (strcmp($szCoordType, "auto_rect") == 0)
        {
            $bRectangleInput = 1;

            $szFirstSetXY = strtok($szCoord, ",");
            $szSecondSetXY = strtok("\n");
        }
    }
}

```

```

$szFirstCoord = explode(",", $szFirstSetXY);
$szSecondCoord = explode(",", $szSecondSetXY);

$oPixelRect = ms_newrectobj();

$oPixelRect->setextent($szFirstCoord[0], $szFirstCoord[1],
                    $szSecondCoord[0], $szSecondCoord[1]);

if ($oPixelRect->minx == $oPixelRect->maxx &&
    $oPixelRect->miny == $oPixelRect->maxy)
{
    $bRectangleInput = 0;
    $nClickPixX = $oPixelRect->minx;
    $nClickPixY = $oPixelRect->miny;
}
else
{
    if ($oPixelRect->minx > $oPixelRect->maxx)
    {
        $dfTmp = $oPixelRect->minx*1;
        $oPixelRect->set("minx", $oPixelRect->maxx);
        $oPixelRect->set("maxx", $dfTmp);
    }
    if ($oPixelRect->miny < $oPixelRect->maxy)
    {
        $dfTmp = $oPixelRect->miny*1;
        $oPixelRect->set("miny", $oPixelRect->maxy);
        $oPixelRect->set("maxy", $dfTmp);
    }
}

$sgszZoomBoxExt = sprintf("<!-- BOX= (%f, %f)-(%f, %f) -->",
    GMapPix2Geo($oPixelRect->minx, 0,
                $dfWidthPix, $dfMinX,
                $dfMaxX, 0),
    GMapPix2Geo($oPixelRect->miny, 0,
                $dfHeightPix, $dfMinY,
                $dfMaxY, 1),
    GMapPix2Geo($oPixelRect->maxx, 0,
                $dfWidthPix, $dfMinX,
                $dfMaxX, 0),
    GMapPix2Geo($oPixelRect->maxy, 0,
                $dfHeightPix, $dfMinY,
                $dfMaxY, 1));
}
else
{
    $nClickPixX = intval($HTTP_FORM_VARS[mainmap_x]);
    $nClickPixY = intval($HTTP_FORM_VARS[mainmap_y]);
}

$oPixelPos = ms_newpointobj();
$oGeorefExt = ms_newrectobj();
$oGeorefMaxExt = ms_newrectobj();

$oPixelPos->setxy($nClickPixX, $nClickPixY);
$oGeorefExt->setextent($dfMinX, $dfMinY, $dfMaxX, $dfMaxY);
$oGeorefMaxExt->setextent($dfMaxExtMinX, $dfMaxExtMinY,
                        $dfMaxExtMaxX, $dfMaxExtMaxY);

if ($HTTP_FORM_VARS["CMD"] == "ZOOM_IN")
{
    if ($bRectangleInput)
    {
        $gpoMap->zoomrectangle($oPixelRect, $dfWidthPix,
                               $dfHeightPix, $oGeorefExt);
    }
    else
        $gpoMap->zoompoint(3, $oPixelPos, $dfWidthPix,
                           $dfHeightPix, $oGeorefExt, $oGeorefMaxExt);
}

```

```

}
if ($HTTP_FORM_VARS["CMD"] == "ZOOM_OUT")
{
    if (!$gpoMap->zoompoint(-3, $oPixelPos, $dfWidthPix,
        $dfHeightPix, $oGeorefExt,
        $oGeorefMaxExt))
    {
        $gpoMap->setExtent($dfMapExtMinX, $dfMapExtMinY,
            $dfMapExtMaxX, $dfMapExtMaxY);
    }
}
if ($HTTP_FORM_VARS["CMD"] == "RECENTER")
{
    $gpoMap->zoompoint(1, $oPixelPos, $dfWidthPix,
        $dfHeightPix, $oGeorefExt,
        $oGeorefMaxExt);
}
else if ($HTTP_FORM_VARS["CMD"] == "QUERY_POINT")
{
    if ($bRectangleInput)
    {
        $oGeorefRect = ms_newrectobj();
        $oGeorefRect->set("minx", GMapPix2Geo($oPixelRect->minx, 0,
            $dfWidthPix, $dfMinX,
            $dfMaxX, 0));
        $oGeorefRect->set("maxx", GMapPix2Geo($oPixelRect->maxx, 0,
            $dfWidthPix, $dfMinX,
            $dfMaxX, 0));
        $oGeorefRect->set("miny", GMapPix2Geo($oPixelRect->miny, 0,
            $dfHeightPix, $dfMinY,
            $dfMaxY, 1));
        $oGeorefRect->set("maxy", GMapPix2Geo($oPixelRect->maxy, 0,
            $dfHeightPix, $dfMinY,
            $dfMaxY, 1));

        @$gpoMap->queryByRect($oGeorefRect);
        $gbShowQueryResults = TRUE;
    }
    else
    {
        $nClickGeoX = GMapPix2Geo($nClickPixX, 0, $dfWidthPix,
            $dfMinX, $dfMaxX, 0);
        $nClickGeoY = GMapPix2Geo($nClickPixY, 0, $dfHeightPix,
            $dfMinY, $dfMaxY, 1);

        $oClickGeo = ms_newPointObj();
        $oClickGeo->setXY($nClickGeoX, $nClickGeoY);

        @$gpoMap->queryByPoint($oClickGeo, MS_SINGLE, -1);

        $gbShowQueryResults = TRUE;
    }
}
}

```

```

ction GMapGetStatus($szLayerName)

```

```

GLOBAL $gpoMap;

```

```

$oLayer = $gpoMap->getlayerbyname($szLayerName);
$status = $oLayer->status;

```

```

return ($nStatus);

```

```

ction GMapDrawMap()

```

```

GLOBAL $gpoMap, $gbShowQueryResults;
GLOBAL $gbIsHtmlMode;
GLOBAL $gszCommand, $gszZoomBoxExt;
GLOBAL $gAppletImgFmt, $gImagesFmt;

```

```

($gbShowQueryResults)

$img = $gpoMap->drawQuery();

se
$img = $gpoMap->draw();

url = $img->saveWebImage($gAppletImgFmt, 0, 0, -1);

:ho "\n".$gszZoomBoxExt."\n";
intf("<INPUT TYPE=HIDDEN NAME=minx VALUE=%f">", $gpoMap->extent->minx);
intf("<INPUT TYPE=HIDDEN NAME=miny VALUE=%f">", $gpoMap->extent->miny);
intf("<INPUT TYPE=HIDDEN NAME=maxx VALUE=%f">", $gpoMap->extent->maxx);
intf("<INPUT TYPE=HIDDEN NAME=maxy VALUE=%f">", $gpoMap->extent->maxy);

intf("<INPUT TYPE=HIDDEN NAME=imagewidth VALUE=%d">", $gpoMap->width);
intf("<INPUT TYPE=HIDDEN NAME=imageheight VALUE=%d">", $gpoMap->height);

( strlen($gszCommand) == 0)

    $szButtonName = "zoomin";

se

    if ($gszCommand == "ZOOM_IN")
        $szButtonName = "zoomin";
    if ($gszCommand == "RECENTER")
        $szButtonName = "recentre";
    if ($gszCommand == "QUERY_POINT")
        $szButtonName = "pquery";

(!$gbIsHtmlMode) //use applet

    printf("\n");
    printf("<APPLET NAME='RosaApplet' ARCHIVE='./rosa/rosa.jar' CODE='./Rosa2000' WIDTH=%d' HEIGHT=%d'
YSCRIPT>\n", $gpoMap->width, $gpoMap->height);
    printf("<PARAM NAME='TB_POSITION' VALUE='right'>\n");
    printf("<PARAM NAME='TB_ALIGN' VALUE='top'>");
    printf("<PARAM NAME='IMG_URL' VALUE='%s'", $url);
    printf("<PARAM NAME='INP_FORM_NAME' VALUE='myform'>");
    printf("<PARAM NAME='TB_BUTTONS' VALUE='zoomin|zoomout|recentre|pquery'>\n");
    printf("<PARAM NAME='INP_TYPE_NAME' VALUE='INPUT_TYPE'>\n");
    printf("<PARAM NAME='INP_COORD_NAME' VALUE='INPUT_COORD'>\n");

    printf("<PARAM NAME='TB_SELECTED_BUTTON' VALUE='%s'", $szButtonName);

    printf("<PARAM NAME='TB_BUT_zoomin_IMG' VALUE='./images/tool_zoomin_1.gif'>\n");
    printf("<PARAM NAME='TB_BUT_zoomin_IMG_PR' VALUE='./images/tool_zoomin_2.gif'>\n");
    printf("<PARAM NAME='TB_BUT_zoomin_HINT' VALUE='Zoom in: Click the button and the map will zoom in'>\n");
    printf("<PARAM NAME='TB_BUT_zoomin_INP' VALUE='auto_rect'>\n");
    printf("<PARAM NAME='TB_BUT_zoomin_NAME' VALUE='CMD'>\n");
    printf("<PARAM NAME='TB_BUT_zoomin_VALUE' VALUE='ZOOM_IN'>\n");

    printf("<PARAM NAME='TB_BUT_zoomout_IMG' VALUE='./images/tool_zoomout_1.gif'>\n");
    printf("<PARAM NAME='TB_BUT_zoomout_IMG_PR' VALUE='./images/tool_zoomout_2.gif'>\n");
    printf("<PARAM NAME='TB_BUT_zoomout_HINT' VALUE='Zoom out: Click the button and the map will zoom out'>\n");
    printf("<PARAM NAME='TB_BUT_zoomout_INP' VALUE='submit'>\n");
    printf("<PARAM NAME='TB_BUT_zoomout_NAME' VALUE='CMD'>\n");
    printf("<PARAM NAME='TB_BUT_zoomout_VALUE' VALUE='ZOOM_OUT'>\n");

    printf("<PARAM NAME='TB_BUT_recentre_IMG' VALUE='./images/tool_recentre_1.gif'>\n");
    printf("<PARAM NAME='TB_BUT_recentre_IMG_PR' VALUE='./images/tool_recentre_2.gif'>\n");
    printf("<PARAM NAME='TB_BUT_recentre_HINT' VALUE='Recenter: Click the button and the map will recentre'>\n");
    printf("<PARAM NAME='TB_BUT_recentre_INP' VALUE='auto_point'>\n");
    printf("<PARAM NAME='TB_BUT_recentre_NAME' VALUE='CMD'>\n");
    printf("<PARAM NAME='TB_BUT_recentre_VALUE' VALUE='RECENTER'>\n");

    printf("<PARAM NAME='TB_BUT_pquery_IMG' VALUE='./images/tool_info_1.gif'>\n");
    printf("<PARAM NAME='TB_BUT_pquery_IMG_PR' VALUE='./images/tool_info_2.gif'>\n");
    printf("<PARAM NAME='TB_BUT_pquery_HINT' VALUE='Point Query: Click a point on the map for information about that

```

```

t">\n");
printf("<PARAM NAME='TB_BUT_pquery_INPUT' VALUE='auto_rect'\>\n");
printf("<PARAM NAME='TB_BUT_pquery_NAME' VALUE='CMD'\>\n");
printf("<PARAM NAME='TB_BUT_pquery_VALUE' VALUE='QUERY_POINT'\>\n");

printf("</APPLET>");
printf("<INPUT TYPE='HIDDEN' NAME='CMD' VALUE=''\>");
printf("<INPUT TYPE='HIDDEN' NAME='INPUT_TYPE' VALUE=''\>");
printf("<INPUT TYPE='HIDDEN' NAME='INPUT_COORD' VALUE=''\>");

se

echo"<INPUT TYPE=image SRC=$url BORDER=0 WIDTH=$gpoMap->width HEIGHT=$gpoMap->height NAME=mainmap>";
printf("<INPUT TYPE='HIDDEN' NAME='CMD' VALUE='%s'\>", $gszCommand);

tion GMapDrawKeyMap()

GLOBAL $gpoMap;
GLOBAL $gAppletFmt, $gImagesFmt;

mg = $gpoMap->drawreferencemap();
url = $img->saveWebImage($gImagesFmt, 0, 0, -1);

:ntf("<INPUT TYPE=HIDDEN NAME=KEYMAPXSIZE VALUE='%d'\>", $img->width);
:ntf("<INPUT TYPE=HIDDEN NAME=KEYMAPYSIZE VALUE='%d'\>", $img->height);

:ho"<INPUT TYPE=image SRC=$url BORDER=0 NAME=KEYMAP>";

tion GMapDrawScaleBar()

GLOBAL $gpoMap;
GLOBAL $gAppletFmt, $gImagesFmt;

mg = $gpoMap->drawScaleBar();
url = $img->saveWebImage($gImagesFmt, 0, 0, -1);

:ho"<IMG SRC=$url BORDER=0 >\n";

tion GMapPix2Geo($nPixPos, $dfPixMin, $dfPixMax, $dfGeoMin, $dfGeoMax,
    $nInversePix)

:dfWidthGeo = $dfGeoMax - $dfGeoMin;
:dfWidthPix = $dfPixMax - $dfPixMin;

:dfPixToGeo = $dfWidthGeo / $dfWidthPix;

(!$nInversePix)
    $dfDeltaPix = $nPixPos - $dfPixMin;
se
    $dfDeltaPix = $dfPixMax - $nPixPos;

:dfDeltaGeo = $dfDeltaPix * $dfPixToGeo;

:dfPosGeo = $dfGeoMin + $dfDeltaGeo;

:turn ($dfPosGeo);

:tion SetMapExtents($dfNewMinX, $dfNewMinY, $dfNewMaxX, $dfNewMaxY)

:GLOBAL $gpoMap;

gpoMap->setExtent($dfNewMinX, $dfNewMinY, $dfNewMaxX, $dfNewMaxY);

```

```

ifScale = $gpoMap->scale;

($dfScale < $gpoMap->web->minscale ||
 $dfScale > $gpoMap->web->maxscale)
return false;

return true;

tion GMapDumpQueryResults()

LOBAL $gpoMap, $gbShowQueryResults;

(! $gbShowQueryResults )

printf("&nbsp;");
return;

numResultsTotal = 0;

for($iLayer=0; $iLayer < $gpoMap->numlayers; $iLayer++)

    $oLayer = $gpoMap->GetLayer($iLayer);

    $numResults = $oLayer->getNumResults();

    if ($numResults == 0)
        continue; // No results in this layer

    $oLayer->open();

    for ($iRes=0; $iRes < $numResults; $iRes++)
    {
        $oRes = $oLayer->getResult($iRes);

        $oShape = $oLayer->getShape($oRes->tileindex,$oRes->shapeindex);

        if ($iRes == 0)
        {
            if ($oLayer->getMetaData("RESULT_FIELDS"))
            {
                // Display fields listed in RESULT_FIELDS metadata
                $selFields = explode(" ", $oLayer->getMetaData("RESULT_FIELDS"));
            }
            else
            {
                $i=0;
                while ( list($key,$val) = each($oShape->values) )
                {
                    $selFields[$i++] = $key;
                    if ($i>=4) break;
                }
            }

            printf("<TABLE BORDER=0 CELSPACING=1 CELLPADDING=2 WIDTH=100%>\n");
            printf("<TR>\n");
            printf("<TD COLSPAN=%d BGCOLOR=#C1D8E3>", count($selFields));
            printf("<CENTER> %s </CENTER>", $oLayer->getMetaData("DESCRIPTION"));
            printf("</TD>\n");
            printf("</TR>\n");
            printf("<TR>\n");

            for ($iField=0; $iField < count($selFields); $iField++)
            {
                printf("<TD BGCOLOR=#E2EFF7>");
                printf("%s",$selFields[$iField]);
                printf("</TD>\n");
            }
            printf("</TR>\n");
        }

        printf("<TR>\n");

```



```
printf("<!-- bounds(%f, %f)-(%f, %f)-->\n",
    $oShape->bounds->minx, $oShape->bounds->miny,
    $oShape->bounds->maxx, $oShape->bounds->maxy);

for($iField=0; $iField < sizeof($selFields); $iField++)
{
    printf("<TD BGCOLOR=#FFFFFF>");
    printf("%s", $oShape->values[$selFields[$iField]]);
    printf("</TD>\n");
}
printf("</TR>\n");

$oShape->free();

$numResultsTotal++;
}

$oLayer->close();

printf("</TABLE>\n");

($numResultsTotal == 0)
echo "Nothing found at query location.";
```

name: malacca.map

part of map file

file: malacca.map,v 1.23 2003/02/25 19:46:42 daniel Exp \$

```
!E DEMO
!TUS ON
!S 400 300
!BOLSET ../etc/symbols.sym
!ENT 465560 240582 477105 247699
!TS KILOMETERS
!PEPATH "../data"
!GECOLOR 255 255 255
!TSET ../etc/fonts.txt
```

part of web interface definition

```
3
NSCALE 2000000
\XSCALE 50000000
```

! Windows systems, /tmp and /tmp/ms_tmp/ should be created at the root of the drive where the .MAP file resides.

```
AGEPATH "/ms4w/tmp/ms_tmp/"
AGEURL "/ms_tmp/"
OG "/tmp/gmap.log"
)
```

part of reference map

```
ERENCE
IMAGE images/malaccakeymap.png
!TENT 465560 240582 477105 247699
!TUS ON
!LOR -1 -1 -1
!TLINECOLOR 255 0 0
!ZE 120 90
)
```

part of legend

```
!END
!YSIZE 18 12
!BEL
!YPE BITMAP
!IZE MEDIUM
!OLOR 0 0 89
!ID
!TUS ON
)
```

part of scalebar

```
!LEBAR
!GECOLOR 255 255 255
!BEL
!OLOR 0 0 0
!IZE SMALL
!ID
!ZE 150 5
!LOR 255 255 255
!\CKGROUNDCOLOR 0 0 0
!TLINECOLOR 0 0 0
!ITS KILOMETERS
!TERVALS 5
!TUS ON
)
```

```
RYMAP  
YLE HILITE  
LOR 255 0 0  
D
```

ert of layer definitions

```
ER  
ME frame  
TADATA  
DESCRIPTION" "Frame"  
D  
PE POLYGON  
ATUS ON  
TA frame  
ASS  
AME "Frame"  
OLOR 255 255 255  
UTLINECOLOR 0 0 0  
D  
)# layer
```

```
ER  
ME mukim  
PE POINT  
ATUS OFF  
TA mukim  
ASS  
AME "Mukim"  
OLOR 255 0 0  
SYMBOL 'circle'  
D  
LERANCE 5  
TADATA  
DESCRIPTION" "Mukim"  
D  
)# Layer
```

```
ER  
ME nilaikontor  
TADATA  
DESCRIPTION" "Contour"  
D  
PE LINE  
ATUS OFF  
TA nilaikontor  
ASS  
AME "Contour"  
SYMBOL 3  
OLOR 128 128 128  
D  
)# layer
```

```
ER  
ME district  
TADATA  
DESCRIPTION" "District"  
D  
PE POINT  
ATUS OFF  
TA district  
ASS  
AME "District"  
OLOR 128 128 255  
SYMBOL 'circle'  
D  
LERANCE 5
```

! # Layer

```
ER
ME nama_hydro_lain
TADATA
DESCRIPTION "HydroName"
D
PE POINT
STATUS OFF
TA nama_hydro_lain
ASS
SYMBOL 'circle'
NAME "HydroName"
COLOR 0 0 255
    SIZE 7
D
LAYERANCE 5
! # Layer
```

```
ER
ME road2
TADATA
DESCRIPTION "Road"
D
PE POINT
STATUS OFF
TA road2
ASS
SYMBOL 'circle'
NAME "Road"
COLOR 164 0 164
    SIZE 7
D
LAYERANCE 5
! # Layer
```

```
ER
ME road1
TADATA
DESCRIPTION "Road 1"
D
PE LINE
STATUS OFF
TA road1
ASS
NAME "Road 1"
    SYMBOL 3
COLOR 145 0 0
D
! # layer
```

```
ER
ME jln
TADATA
DESCRIPTION "Road 2"
D
PE LINE
STATUS OFF
TA jln
ASS
NAME "Road 2"
COLOR 0 0 0
    SYMBOL 3
D
! # layer
```

```
ER
ME nama_sungai
TADATA
DESCRIPTION "RiverName"
```

```
D
PE POINT
ATUS OFF
DATA nama_sungai
ASS
SYMBOL 'circle'
NAME "RiverName"
COLOR 60 185 156
SIZE 7
```

```
D
TOLERANCE 5
) # Layer
```

```
{}ER
NAME canal
METADATA
"DESCRIPTION" "Canal"
END
TYPE LINE
STATUS OFF
DATA canal
CLASS
NAME "Canal"
SYMBOL 3
COLOR 206 0 0
END
END # LAYER
```

```
{}ER
NAME building
METADATA
"DESCRIPTION" "Building"
ID
PE POINT
ATUS OFF
DATA building
ASS
SYMBOL 'circle'
NAME "Building"
COLOR 224 148 5
SIZE 7
ID
TOLERANCE 5
) # Layer
```

```
{}ER
NAME bgn
METADATA
"DESCRIPTION" "Building 1"
ID
TYPE POLYGON
ATUS OFF
DATA bgn
ASS
NAME "Building 1"
COLOR 128 255 255
OUTLINECOLOR 0 0 0
ID
) # Layer
```

```
{}ER
NAME bg
METADATA
"DESCRIPTION" "Building 2"
ID
TYPE POLYGON
ATUS OFF
DATA bg
ASS
NAME "Building 2"
COLOR 0 255 128
```

UTLINECOLOR 0 0 0

D

) # Layer

TER

.ME bangunanlain

!TADATA

DESCRIPTION" "Building 3"

D

PE POLYGON

ATUS OFF

.TA bangunanlain

ASS

AME "Building 3"

OLOR 255 255 147

UTLINECOLOR 0 0 0

D

) # Layer

TER

.ME bangunan_lain

!TADATA

DESCRIPTION" "Building 4"

D

PE POLYGON

ATUS OFF

.TA bangunan_lain

ASS

AME "Building 4"

OLOR 186 172 253

UTLINECOLOR 0 0 0

D

) # Layer

TER

.ME bangunan

!TADATA

DESCRIPTION" "Building 5"

D

PE POLYGON

ATUS OFF

.TA bangunan

ASS

AME "Building 5"

OLOR 252 152 152

UTLINECOLOR 0 0 0

D

) # Layer

) # Map File

malacca_key.map

name: malacca_keymap.map

art of map file

! gmap75_key.map,v 1.2 2003/07/23 02:31:27 daniel Exp \$

```
ME DEMO
.TUS ON
3 120 90
\DESET symbols/shade.sym
RKERSET symbols/marker.sym
ESET symbols/line.sym
`ENT 465560 240582 477105 247699
TS KILOMETERS
\PEPATH "../data"
,GECOLOR 255 255 255

BELOVERLAP FALSE
```

art of web interface definition

```
B
EADER demo_header.html
EMPLATE demo.html
NSCALE 750000
\XSCALE 30000000

! Windows systems, /tmp and /tmp/ms_tmp/ should be created at the root
the drive where the .MAP file resides.

AGEPATH "/ms4w/tmp/ms_tmp/"
AGEURL "/ms_tmp/"
OG "/tmp/gmap.log"
)
```

art of reference map

```
`ERENCE
!AGE images/malaccamap.gif
`TENT 465560 240582 477105 247699
!ATUS ON
)LOR -1 -1 -1
)TLINECOLOR 255 0 0
)
```

art of legend

```
3END
3YSIZE 18 12
\BEL
`YPE BITMAP
)IZE MEDIUM
`OLOR 0 0 89
)D
!ATUS ON
)
```

art of scalebar

```
\LEBAR
!AGECOLOR 255 255 255
\BEL
`OLOR 0 0 0
)IZE SMALL
)D
ZE 150 5
)LOR 255 255 255
\CKGROUNDCOLOR 0 0 0
)TLINECOLOR 0 0 0
\ITS kilometers
)TERVALS 5
```

ATUS ON
)

art of layer definitions

```
YER  
NAME frame  
ETADATA  
DESCRIPTION "Frame"  
ID  
TYPE POLYGON  
STATUS ON  
DATA frame  
LASS  
NAME "Frame"  
COLOR 255 255 255  
OUTLINECOLOR 0 0 0  
ID  
) # layer
```

```
YER  
NAME mukim  
TYPE POINT  
STATUS OFF  
DATA mukim  
LASS  
NAME "Mukim"  
COLOR 255 0 0  
SYMBOL 'circle'  
ID  
TOLERANCE 5  
ETADATA  
DESCRIPTION "Mukim"  
ID  
) # Layer
```

```
YER  
NAME nilaikontor  
ETADATA  
DESCRIPTION "Contour"  
ID  
TYPE LINE  
STATUS OFF  
DATA nilaikontor  
LASS  
NAME "Contour"  
SYMBOL 3  
COLOR 128 128 128  
ID  
D # layer
```

```
YER  
NAME district  
ETADATA  
DESCRIPTION "District"  
ID  
TYPE POINT  
STATUS OFF  
DATA district  
LASS  
NAME "District"  
COLOR 128 128 255  
SYMBOL 'circle'  
ID  
TOLERANCE 5  
D # Layer
```

YER


```
NAME nama_hydro_lain
ETADATA
DESCRIPTION "HydroName"
ID
TYPE POINT
STATUS OFF
DATA nama_hydro_lain
ASS
SYMBOL 'circle'
NAME "HydroName"
COLOR 0 0 255
    SIZE 7
ID
TOLERANCE 5
D # Layer
```

```
LER
NAME road2
ETADATA
DESCRIPTION "Road"
ID
TYPE POINT
STATUS OFF
DATA road2
ASS
SYMBOL 'circle'
NAME "Road"
COLOR 164 0 164
    SIZE 7
ID
TOLERANCE 5
D # Layer
```

```
LER
NAME road1
ETADATA
DESCRIPTION "Road 1"
ID
TYPE LINE
STATUS OFF
DATA road1
ASS
NAME "Road 1"
    SYMBOL 3
COLOR 145 0 0
ID
D # layer
```

```
LER
NAME jln
ETADATA
DESCRIPTION "Road 2"
ID
TYPE LINE
STATUS OFF
DATA jln
ASS
NAME "Road 2"
COLOR 0 0 0
    SYMBOL 3
ID
D # layer
```

```
LER
NAME nama_sungai
ETADATA
DESCRIPTION "RiverName"
ID
TYPE POINT
STATUS OFF
DATA nama_sungai
```

```

ASS
YMBOL 'circle'
AME "RiverName"
OLOR 60 185 156
  SIZE 7
D
LTERANCE 5
) # Layer

```

```

'ER
  NAME canal
  METADATA
    "DESCRIPTION" "Canal"
  END
  TYPE LINE
  STATUS OFF
  DATA canal
  CLASS
    NAME "Canal"
    SYMBOL 3
    COLOR 206 0 0
  END
END # LAYER

```

```

'ER
'ME building
'ETADATA
'DESCRIPTION" "Building"
D
PE POINT
ATUS OFF
'TA building
ASS
YMBOL 'circle'
AME "Building"
OLOR 224 148 5
  SIZE 7
D
LTERANCE 5
) # Layer

```

```

'ER
'ME bgn
'ETADATA
'DESCRIPTION" "Building 1"
D
PE POLYGON
ATUS OFF
'TA bgn
ASS
AME "Building 1"
OLOR 128 255 255
UTLINECOLOR 0 0 0
D
) # Layer

```

```

'ER
'ME bg
'ETADATA
'DESCRIPTION" "Building 2"
D
PE POLYGON
ATUS OFF
'TA bg
ASS
AME "Building 2"
OLOR 0 255 128
UTLINECOLOR 0 0 0
D
) # Layer

```

```
{}ER
{}ME bangunanlain
{}TADATA
{}DESCRIPTION" "Building 3"
{}D
{}PE POLYGON
{}ATUS OFF
{}TA bangunanlain
{}ASS
{}AME "Building 3"
{}OLOR 255 255 147
{}UTLINECOLOR 0 0 0
{}ID
{} # Layer
```

```
{}ER
{}ME bangunan_lain
{}TADATA
{}DESCRIPTION" "Building 4"
{}ID
{}PE POLYGON
{}ATUS OFF
{}TA bangunan_lain
{}ASS
{}AME "Building 4"
{}OLOR 186 172 253
{}UTLINECOLOR 0 0 0
{}ID
{} # Layer
```

```
{}ER
{}ME bangunan
{}TADATA
{}DESCRIPTION" "Building 5"
{}ID
{}PE POLYGON
{}ATUS OFF
{}TA bangunan
{}ASS
{}AME "Building 5"
{}OLOR 252 152 152
{}UTLINECOLOR 0 0 0
{}ID
{} # Layer
```

```
{} # Map File
```

filename: malacca_wfs.map

part of map file

gmap75_wfs.map,v 1.1 2002/11/19 02:45:47 daniel Exp \$

```

#E DEMO
#TUS ON
#E 400 300
#BOLSET ../etc/symbols.sym
#SPG:42304 extents:
#TENT 465560 240582 477105 247699
#PSG:42101 extents
#TENT 465560 240582 477105 247699
#TS KILOMETERS
#PEPATH "../data"
#GECOLOR 255 255 255
#TSET ../etc/fonts.txt

```

part of web interface definition

```

#B
#INSCALE 2000000
#MAXSCALE 50000000

# Windows systems, /tmp and /tmp/ms_tmp/ should be created at the root
# of the drive where the .MAP file resides.

#AGEPATH "/ms4w/tmp/ms_tmp/"
#AGEURL "/ms_tmp/"
#OG "/tmp/gmap.log"
#TADATA
#wfs_title "Malacca GIS Web"
#wfs_onlineresource "http://127.0.0.1/cgi-bin/mapserv.exe?"
#wfs_srs "EPSG:42304 EPSG:42101 EPSG:4269 EPSG:4326"
#wfs_schemas_location "http://ogc.dmsolutions.ca"
#ID
#)

#)EJECTION
#it=epsg:42304"
#)

```

part of reference map

```

#ERENCE
#PAGE images/malaccakeymap.png
#SG:42304 extents
#TENT 465560 240582 477105 247699
#SG:42101 extents
#XTENT 465560 240582 477105 247699
#TATUS ON
#LOR -1 -1 -1
#TLINECOLOR 255 0 0
#ZE 120 90
#)

```

part of legend

```

#END
#YSIZE 18 12
#BEL
#YPE BITMAP
#IZE MEDIUM
#OLOR 0 0 89
#ID
#TATUS ON
#)

```

part of scalebar

```
.LEBAR  
AGECOLOR 255 255 255  
BEL  
OLOR 0 0 0  
[ZE SMALL  
D  
ZE 200 5  
OLOR 255 255 255  
.CKGROUNDCOLOR 0 0 0  
JTLINECOLOR 0 0 0  
ITS kilometers  
TERVALS 5  
ATUS ON  
)
```

```
ERYMAP  
YLE HILITE  
OLOR 255 0 0  
)
```

art of layer definitions

```
/ER  
NAME frame  
ETADATA  
DESCRIPTION "Frame"  
ID  
TYPE POLYGON  
ATUS ON  
TA frame  
ASS  
NAME "Frame"  
OLOR 255 255 255  
UTLINECOLOR 0 0 0  
ID  
) # layer
```

```
/ER  
NAME mukim  
TYPE POINT  
ATUS OFF  
TA mukim  
ASS  
NAME "Mukim"  
OLOR 255 0 0  
SYMBOL 'circle'  
ID  
TOLERANCE 5  
ETADATA  
DESCRIPTION "Mukim"  
ID  
) # Layer
```

```
/ER  
NAME nilaikontor  
ETADATA  
DESCRIPTION "Contour"  
ID  
TYPE LINE  
ATUS OFF  
TA nilaikontor  
ASS  
NAME "Contour"  
SYMBOL 3  
OLOR 128 128 128  
ID
```

```
) # layer  
  
?ER  
!ME district  
!TADATA  
!DESCRIPTION" "District"  
!D  
!PE POINT  
!ATUS OFF  
!TA district  
!ASS  
!AME "District"  
!OLOR 128 128 255  
!YMBOL 'circle'  
!D  
!TOLERANCE 5  
) # Layer
```

```
?ER  
!ME nama_hydro_lain  
!TADATA  
!DESCRIPTION" "HydroName"  
!D  
!PE POINT  
!ATUS OFF  
!TA nama_hydro_lain  
!ASS  
!YMBOL 'circle'  
!AME "HydroName"  
!OLOR 0 0 255  
!SIZE 7  
!D  
!TOLERANCE 5  
) # Layer
```

```
?ER  
!ME road2  
!TADATA  
!DESCRIPTION" "Road"  
!D  
!PE POINT  
!ATUS OFF  
!TA road2  
!ASS  
!YMBOL 'circle'  
!AME "Road"  
!OLOR 164 0 164  
!SIZE 7  
!D  
!TOLERANCE 5  
) # Layer
```

```
?ER  
!ME road1  
!TADATA  
!DESCRIPTION" "Road 1"  
!D  
!PE LINE  
!ATUS OFF  
!TA road1  
!ASS  
!AME "Road 1"  
!SYMBOL 3  
!OLOR 145 0 0  
!D  
) # layer
```

```
?ER  
!ME jln  
!TADATA
```

```

DESCRIPTION" "Road 2"
D
PE LINE
STATUS OFF
DATA jln
ASS
NAME "Road 2"
COLOR 0 0 0
    SYMBOL 3
D
) # layer

```

```

/ER
NAME nama_sungai
METADATA
DESCRIPTION" "RiverName"
D
PE POINT
STATUS OFF
DATA nama_sungai
ASS
SYMBOL 'circle'
NAME "RiverName"
COLOR 60 185 156
    SIZE 7
ID
TOLERANCE 5
) # Layer

```

```

/ER
NAME canal
METADATA
    DESCRIPTION" "Canal"
END
TYPE LINE
STATUS OFF
DATA canal
CLASS
    NAME "Canal"
    SYMBOL 3
    COLOR 206 0 0
END
END # LAYER

```

```

/ER
NAME building
METADATA
DESCRIPTION" "Building"
ID
PE POINT
STATUS OFF
DATA building
ASS
SYMBOL 'circle'
NAME "Building"
COLOR 224 148 5
    SIZE 7
ID
TOLERANCE 5
) # Layer

```

```

/ER
NAME bgn
METADATA
DESCRIPTION" "Building 1"
ID
PE POLYGON
STATUS OFF
DATA bgn
ASS
NAME "Building 1"

```

```
OLOR 128 255 255
UTLINECOLOR 0 0 0
D
) # Layer
```

```
^ER
^ME bg
^TADATA
^DESCRIPTION" "Building 2"
D
PE POLYGON
ATUS OFF
^TA bg
^ASS
AME "Building 2"
OLOR 0 255 128
UTLINECOLOR 0 0 0
D
) # Layer
```

```
^ER
^ME bangunanlain
^TADATA
^DESCRIPTION" "Building 3"
^D
PE POLYGON
ATUS OFF
^TA bangunanlain
^ASS
AME "Building 3"
OLOR 255 255 147
UTLINECOLOR 0 0 0
^D
) # Layer
```

```
^ER
^ME bangunan_lain
^TADATA
^DESCRIPTION" "Building 4"
^D
PE POLYGON
ATUS OFF
^TA bangunan_lain
^ASS
AME "Building 4"
OLOR 186 172 253
UTLINECOLOR 0 0 0
^D
) # Layer
```

```
^ER
^ME bangunan
^TADATA
^DESCRIPTION" "Building 5"
^D
PE POLYGON
ATUS OFF
^TA bangunan
^ASS
AME "Building 5"
OLOR 252 152 152
UTLINECOLOR 0 0 0
^D
) # Layer
) # Map File
```


e name: malacca_wms.map

art of map file

i: gmap75_wms.map,v 1.5 2003/07/23 03:15:17 daniel Exp \$

```
ME DEMO
.TUS ON
3 400 300
4BOLSET ../etc/symbols.sym
.SPG:42304 extents:
.TENT 465560 240582 477105 247699
.PSG:42101 extents
.TENT 465560 240582 477105 247699
TS KILOMETERS
.PEPATH "../data"
.GECOLOR 255 255 255
.ITSET ../etc/fonts.txt
```

art of web interface definition

```
B
IINSCALE 2000000
IAXSCALE 50000000
```

1 Windows systems, /tmp and /tmp/ms_tmp/ should be created at the root of the drive where the .MAP file resides.

```
AGEPATH "/ms4w/tmp/ms_tmp/"
AGEURL "/ms_tmp/"
OG "/tmp/gmap.log"
3TADATA
wms_title" "GMap WMS Demo Server"
wms_onlineresource" "http://127.0.0.1/cgi-bin/mapserv.exe?"
wms_srs" "EPSG:42304 EPSG:42101 EPSG:4269 EPSG:4326"
wms_feature_info_mime_type" "text/html"
ID
)

)JECTION
it=epsg:42304"
)
```

art of reference map

```
'ERENCE
4AGE images/malaccakeymap.png
SG:42304 extents
.KTENT 465560 240582 477105 247699
SG:42101 extents
3XTENT 465560 240582 477105 247699
.TATUS ON
)LOR -1 -1 -1
.TLINECOLOR 255 0 0
ZE 120 90
)
```

art of legend

```
3END
3YSIZE 18 12
.BEL
.YPE BITMAP
IZE MEDIUM
'OLOR 0 0 89
.D
.TATUS ON
)
```

art of scalebar

```
LEBAR  
FILLCOLOR 255 255 255  
FILL  
COLOR 0 0 0  
SIZE SMALL  
ID  
SCALE 200 5  
COLOR 255 255 255  
BACKGROUNDCOLOR 0 0 0  
LINECOLOR 0 0 0  
UNITS kilometers  
INTERVALS 5  
STATUS ON  
)
```

```
ERYMAP  
STYLE HILITE  
COLOR 255 0 0  
)
```

part of layer definitions

```
layer  
NAME frame  
ETADATA  
DESCRIPTION "Frame"  
ID  
TYPE POLYGON  
STATUS ON  
DATA frame  
CLASS  
NAME "Frame"  
COLOR 255 255 255  
OUTLINECOLOR 0 0 0  
ID  
) # layer
```

```
layer  
NAME mukim  
TYPE POINT  
STATUS OFF  
DATA mukim  
CLASS  
NAME "Mukim"  
COLOR 255 0 0  
SYMBOL 'circle'  
ID  
TOLERANCE 5  
ETADATA  
DESCRIPTION "Mukim"  
ID  
) # Layer
```

```
layer  
NAME nilaikontor  
ETADATA  
DESCRIPTION "Contour"  
ID  
TYPE LINE  
STATUS OFF  
DATA nilaikontor  
CLASS  
NAME "Contour"  
SYMBOL 3  
COLOR 128 128 128  
ID
```

) # layer

```
YER
NAME district
ETADATA
DESCRIPTION "District"
ID
TYPE POINT
STATUS OFF
DATA district
CLASS
NAME "District"
COLOR 128 128 255
SYMBOL 'circle'
ID
TOLERANCE 5
) # Layer
```

```
YER
NAME nama_hydro_lain
ETADATA
DESCRIPTION "HydroName"
ID
TYPE POINT
STATUS OFF
DATA nama_hydro_lain
CLASS
SYMBOL 'circle'
NAME "HydroName"
COLOR 0 0 255
    SIZE 7
ID
TOLERANCE 5
) # Layer
```

```
YER
NAME road2
ETADATA
DESCRIPTION "Road"
ID
TYPE POINT
STATUS OFF
DATA road2
CLASS
SYMBOL 'circle'
NAME "Road"
COLOR 164 0 164
    SIZE 7
ID
TOLERANCE 5
) # Layer
```

```
YER
NAME road1
ETADATA
DESCRIPTION "Road 1"
ID
TYPE LINE
STATUS OFF
DATA road1
CLASS
NAME "Road 1"
    SYMBOL 3
COLOR 145 0 0
ID
) # layer
```

```
YER
NAME jln
ETADATA
```

```
DESCRIPTION" "Road 2"
D
PE LINE
ATUS OFF
DATA jln
CLASS
NAME "Road 2"
COLOR 0 0 0
    SYMBOL 3
D
) # layer
```

```

ER
NAME nama_sungai
METADATA
DESCRIPTION" "RiverName"
ID
TYPE POINT
ATUS OFF
DATA nama_sungai
CLASS
SYMBOL 'circle'
NAME "RiverName"
COLOR 60 185 156
    SIZE 7
ID
TOLERANCE 5
) # Layer
```

```

ER
    NAME canal
    METADATA
        "DESCRIPTION" "Canal"
    END
    TYPE LINE
    STATUS OFF
    DATA canal
    CLASS
        NAME "Canal"
        SYMBOL 3
        COLOR 206 0 0
    END
END # LAYER
```

```

ER
NAME building
METADATA
DESCRIPTION" "Building"
ID
TYPE POINT
ATUS OFF
DATA building
CLASS
SYMBOL 'circle'
NAME "Building"
COLOR 224 148 5
    SIZE 7
ID
TOLERANCE 5
D # Layer
```

```

ER
NAME bgn
METADATA
DESCRIPTION" "Building 1"
ID
TYPE POLYGON
ATUS OFF
DATA bgn
CLASS
NAME "Building 1"
```

OLOR 128 255 255
UTLINECOLOR 0 0 0
D
) # Layer

ER
AME bg
ETADATA
DESCRIPTION" "Building 2"
ID
YPE POLYGON
ATUS OFF
ATA bg
ASS
AME "Building 2"
OLOR 0 255 128
UTLINECOLOR 0 0 0
ID
) # Layer

ER
AME bangunanlain
ETADATA
DESCRIPTION" "Building 3"
ID
YPE POLYGON
ATUS OFF
ATA bangunanlain
ASS
AME "Building 3"
OLOR 255 255 147
UTLINECOLOR 0 0 0
ID
D # Layer

ER
AME bangunan_lain
ETADATA
DESCRIPTION" "Building 4"
ND
YPE POLYGON
ATUS OFF
ATA bangunan_lain
LASS
AME "Building 4"
OLOR 186 172 253
UTLINECOLOR 0 0 0
ND
D # Layer

5
ER
AME bangunan
ETADATA
DESCRIPTION" "Building 5"
ND
YPE POLYGON
ATUS OFF
ATA bangunan
LASS
AME "Building 5"
OLOR 252 152 152
UTLINECOLOR 0 0 0
ND
ID # Layer
ID # Map File