GEOGRAPHIC INFORMATION SYSTEMS AND CONFIDENTIALITY OF INFORMATION

Mironova Yu.N.
Kazan (Volga region) Federal University, Elabuga Institute, Elabuga, e-mail: mironovajn@mail.ru

In the beginning of XXI century began to develop very quickly the science of Geoinformatics, in particular, geographic information systems. Geographic information systems allow to process large amounts of information, to combine data from different sources, combine different images of the earth surface and to obtain the result is ultra-precise maps. But here we are faced with certain problems of confidentiality. There is a problem of information protection in geoinformation systems. Particularly acute issue of security of the functioning of GIS on the Internet. The paper discusses possible solutions to the problem of security of web servers, geographic information systems, and directions for further research on the subject.

Keywords: geoinformatics, geoinformation system, space images, unauthorized use of data, web server

In the beginning of XXI century began to develop very quickly science Geoinformatics ([2, 3]), in particular, geographic information systems (GIS) ([4, 5]). This was due to the fact that computing technology has reached a level where the solution to a specific computing task is not limited to the capacity of computers (particularly computers), and information transfer is conducted through the wide channels, that is, almost overcome the threshold of transferring large amounts of information needed for practical purposes.

In addition, there is a large amount of media, which are, on the one hand, capacious, on the other – have low access time and a sufficiently large reliability.

Summing it all up, we have the possibility of development of various information, in particular geographic information and technology.

We got the opportunity to explore satellite images of the earth's surface [9], water and underground facilities. It is important here and space technology development, the emergence of new technologies of photography, scan objects with great precision.

Geographic information systems allow to process large amounts of information, to combine data from different sources, combine different images of the earth surface and to obtain the result is ultra-precise maps.

For a specific user of the GIS can be indicated by its location on a map and can also be offered the best route to reach a certain waypoint.

But these opportunities are geographic information systems are not exhausted.

We can make requests of various nature, and get answers to specific questions. For example, we can find out where you need to put the point to get the highest profit. Or which area you need to build a hospital or school to meet the demand for the services of these institutions.

But here we are faced with certain problems of confidentiality of information [1]. As a geographic information system available via the Internet, information from them may be known to an unlimited number of individuals. That is, there is access to high precision maps can be located of any object, be it a building, person or vehicle, it may be used to harm a certain group of persons. there is a problem of information protection in geoinformation systems.

Particularly acute issue of security of the functioning of GIS on the Internet.

Internet GIS is a system that performs basic manipulation with spatial data on a dedicated web-map server and providing this data to users via the Internet Protocol compatible with HTTP [1].

Consider the possible threats the Internet GIS.

First, it is an attack via the Internet to unauthorized access, modification or retention of information.

Secondly – unauthorized use of data obtained through legal use of a GIS.

Thus, it is possible to select the following areas of protection:

1) maximum protection the Internet server from unauthorized access, changes and data hold;

2) giving users only the data, reuse of which in commercial products is eliminated [11].

Strategy to protect Internet servers is the responsibility of the security administrator of the Internet server. Additionally, you can use cryptographic encryption to protect the map data.

Security Internet GIS depends largely on the security of the web server on which it is based. Consider the General protection of web servers. Highlight the following key issues protection [1].

1. Software upgrade web-server.
2. The use of specialized servers.

3. Removal of unnecessary applications.
4. External Firewall.
5. The danger of remote administration.
6. Use routers with packet filtering.
7. Training of the personnel.
8. Separation of privileges.
9. Hardware solutions.
10. The intrusion detection system.

At the same time, with all the ease of use of the specialized map of the Internet servers identified a number of shortcomings that hinder their use as servers, Internet GIS for the publication of public information. For example, the use of standard Internet servers is only possible if the company has its own web server and can afford the licensing fees for the use of the map server. There are problems of high cost of product license and compatibility issues of different platforms.

In this case, it makes sense creating your own map server. It is possible to allocate two directions of implementation of the online map server:

- using standard GIS;
- self realization of the elements of the GIS Internet server.

You can suggest the following ways to protect information.

First, it must be authorized entrance in the geographic information system has great potential in the Internet.

Second, information in a GIS must be transmitted over protected channels.

Thirdly, the secret items should not appear on the maps provided to persons having the right of access to classified information.

Finally, the restricted information may be stored and transmitted in encrypted form.

Using these precautions, we can reduce the probability of intercept GIS information, and to prevent the harm from its dissemination.

Thus, we considered possible solutions to security problems of the web-server, geographic information systems, and directions for further research on the subject.

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