



GEodata Openness Initiative for Development and Economic Advancement in Romania

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Internal Report on System Performance and Compliance with Standards

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GEOIDEA.RO Report

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ABSTRACT: This reports presents the results of the performance test performed on April 8, 2015, that confirms the capability of the GEOIDEA.RO geoportal, currently still hosted on ETH Zurich servers, for serving 100 heavy users simultaneously, as well as the compliance with OGC standards. Additionally, it clearly states the maximum bandwidth usage that the underlying networking infrastructure must support in order to handle the network traffic generated by these 100 users.		
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TABLE OF CONTENTS

1. INTRODUCTION	1
1.1 Purpose	1
1.2 Abbreviations	1
2. SYSTEM PERFORMANCE	2
3. COMPLIANCE WITH STANDARDS	3
4. PERFORMANCE GRAPHS	4

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1. INTRODUCTION

1.1 *Purpose*

The purpose of this internal report is to document the results of the performance test realized on April 8, 2015, that confirms the capability of the GEOIDEA.RO geoportal, currently still hosted on ETH Zurich servers, for serving 100 heavy users simultaneously. In addition, it confirms the compatibility of the different web services implemented for or used by the GEOIDEA.RO geoportal with existing OGC standards.

1.2 *Abbreviations*

OGC Open Geospatial Consortium

WFS Web Feature Service

WMS Web Map Service

WCS Web Coverage Service

WPS Web Processing Service

2. SYSTEM PERFORMANCE

The GEOIDEA.RO Geoportal was designed to offer rapid access to geodata for 100 concurrent users. To test the performance of the system, a heavy user scenario was created. In this scenario a virtual user that randomly browses the available geodata (including heavy use of the map navigation tools such as the zoom in and out in order to stress the WMS servers), then selects a region from each dataset, and finally generates and downloads the selected geodata. It is assumed that the typical user activity in the portal will fall below this heavy user scenario.

The defined heavy user scenario contained 470 lines following the Load Script API Documentation¹, which was used to defined and run a Load Impact² test on April 8, 2015 (note: at the time of the test, the GEOIDEA.RO geoportal was hosted exclusively on servers located in Switzerland, at ETH Zurich). The results confirm the capability of the GEOIDEA.RO geoportal for handling 100 simultaneous users, demonstrating a maximum failure rate of 0.79% and maximum bandwidth usage of 18.55 Mbit/s.

An overview of the results of the load test, which was performed with 100 Virtual Users (VU) for a duration of 5 minutes, is visible in the graphs at the end of this internal report (see section 4).

¹ <https://loadimpact.com/load-script-api>, last accessed on June 26, 2015

² <https://loadimpact.com>, last accessed on June 26, 2015

3. COMPLIANCE WITH STANDARDS

The GEOIDEA.RO Geoportal is a thin-client for functionalities provided by Web services (see deliverable 12, “Architectural and Interface Design Document”). The Web services are implemented using the open source QGIS Server, that is compliant with the WMS, WFS and WCS OGC standards. By design, the GEOIDEA.RO Geoportal only enabled the WMS and WFS protocols of the QGIS Server. The WMS version 1.1.1 and 1.3.0 are supported by the QGIS server 2.2 implementation currently used. The WFS are implemented using the QGIS server 2.2 and are available through the WFS protocol version 1.0.0 at the same URLs that are used for the WMS services. The links to the WMS and WFS services can be found in the deliverable 15, “Implemented Web Services”. Any incompatibility with these standards are reported as bugs and subsequently fixed by the open source community.

In addition, the project team has decided to further enhance the support of OGC standards in the geoportal. Once the geoportal will have been migrated from the Swiss servers to Romanian servers, the long-term supported version of QGIS server 2.8 will power the WMS and WFS services, while the Romanian partners will replace the custom download services with WPS services (currently in development).

4. PERFORMANCE GRAPHS

