

# Basics of Software Development



***GeoServer***

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# Overview

## 1. Introduction

- a. Client/Server Architecture.
- b. What is GeoServer?

## 2. How it Works?

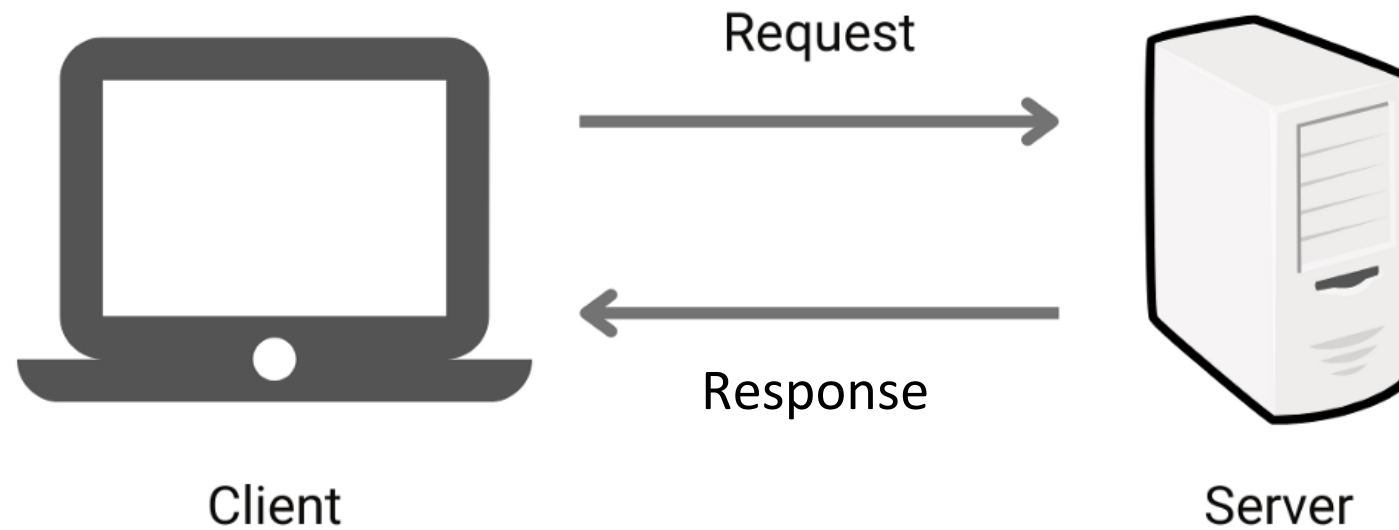
- a. Installation and requirements.
- b. Understanding the GeoServer Web Administration interface.
- c. Users, Groups and Roles.
- d. Working with GeoServer Services.

## 3. Who needs GeoServer and why?

- a. Advantages of using GeoServer.

## 4. References

## 1.a) Client/Server Architecture.



## 1.b) What is GeoServer?

- ✓ Server for geospatial data
- ✓ Open Source
  - Open Source Geospatial Foundation (OSgeo)
- ✓ Written in Java
  - Uses GeoTools library
- ✓ Implements OGC Standards
  - WMS – Web map Service
  - WFS – Web Feature Service
  - WCS - Web Coverage Service
  - WPS - Web Processing Service

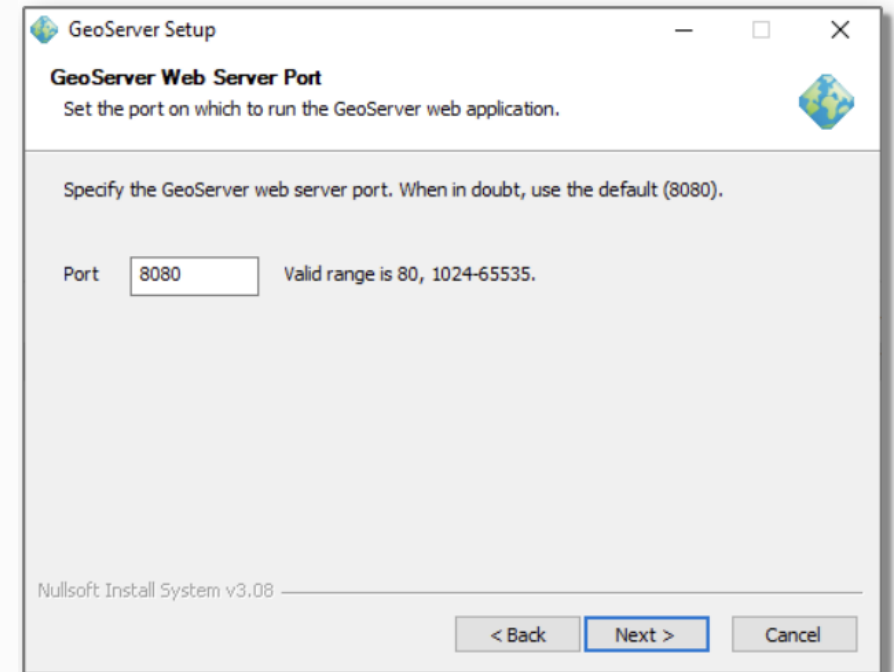
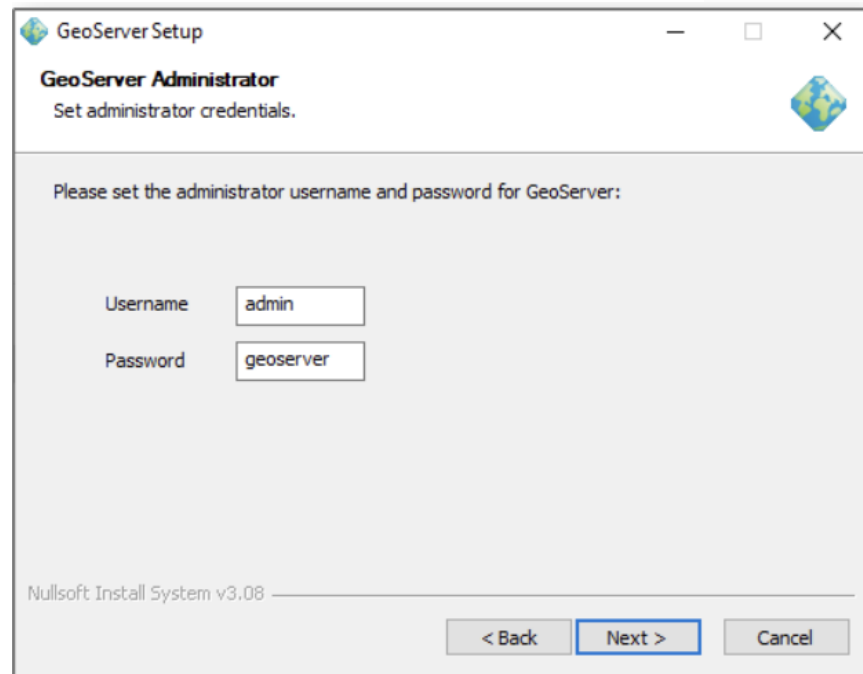
## 1.b) What is GeoServer?



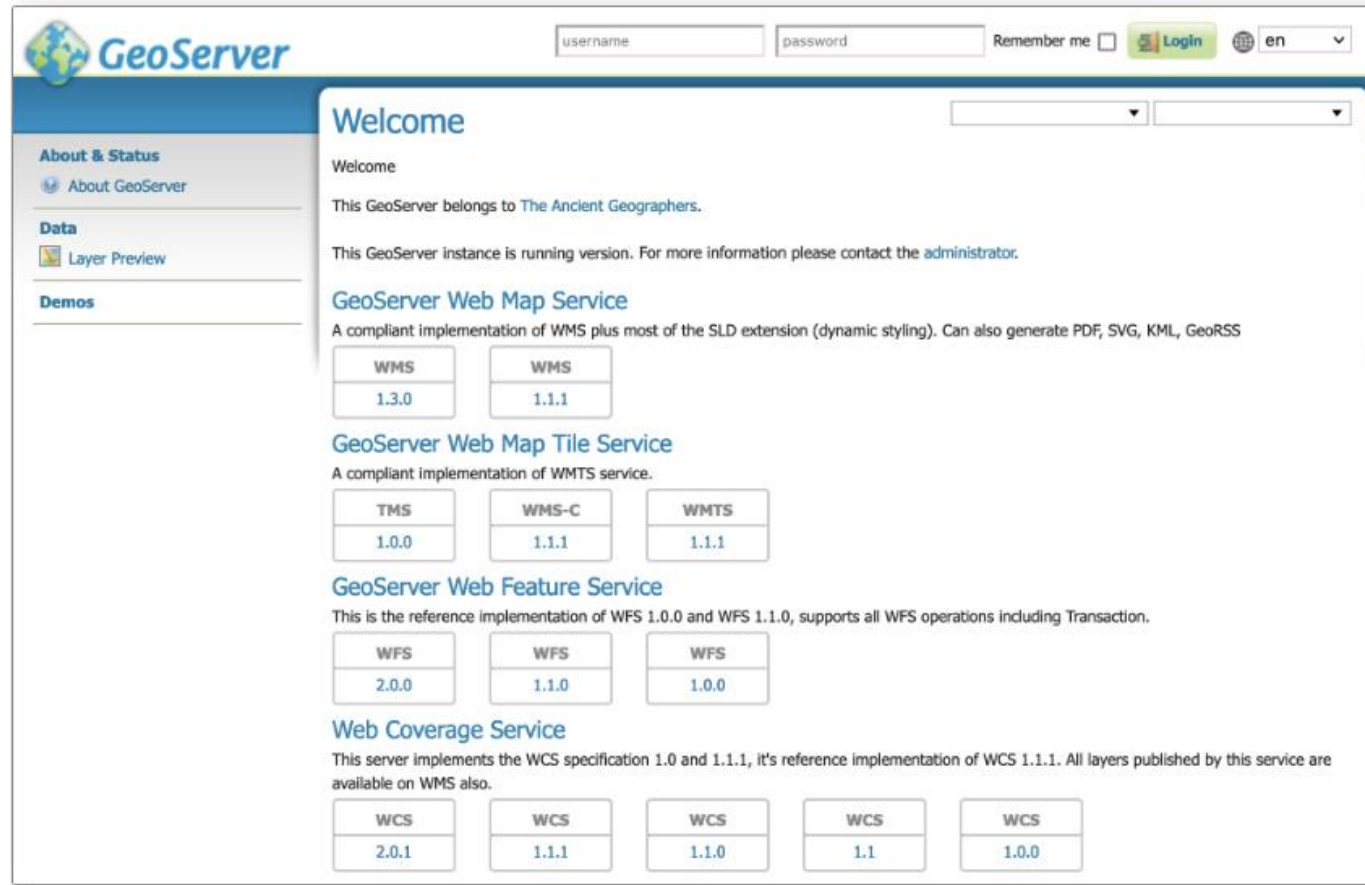
## 2.a) Installation and requirements.

- ✓ It can be installed on many different operating systems since it is a Java application, as long as **Java Virtual Machine** exists for that operating system.
- ✓ For GeoServer 2.21.x, which is the most stable GeoServer version:
  - **Java 8 or Java 11 Runtime Environment** is required previous to installation.
- ✓ For GeoServer 2.22.x, which is the latest GeoServer version:
  - **Java 11 or Java 17 Runtime Environment.**

## 2.a) Installation and requirements.



## 2.a) Installation and requirements.



<http://localhost:8080/geoserver>



## 2.b) Understanding the GeoServer Web Administration Interface

The screenshot displays the GeoServer Web Administration Interface in a web browser. The address bar shows the URL `localhost:8080/geoserver/web/?1`. The page header includes the GeoServer logo and a status bar indicating the user is logged in as 'admin.' with a 'Logout' button and a language dropdown set to 'en'.

The main content area is titled 'Welcome' and contains the following information:

- A welcome message: 'Welcome' and 'This GeoServer belongs to The Ancient Geographers.'
- A summary of resources:
  - 23 Layers (with an 'Add layers' button)
  - 14 Stores (with an 'Add stores' button)
  - 8 Workspaces (with a 'Create workspaces' button)
- Two warning messages:
  - 'The master password for this server has not been changed from the default. It is **highly** recommended that you change it now. Change it'
  - 'The administrator password for this server has not been changed from the default. It is **highly** recommended that you change it now. Change it'
- A status message: 'Strong cryptography available'
- A version notice: 'This GeoServer instance is running version 2.21.1. For more information please contact the administrator.'

The right sidebar, titled 'Service Capabilities', lists the following versions:







- WCS: 1.0.0, 1.1.0, 1.1.1, 1.1, 2.0.1
- WFS: 1.0.0, 1.1.0, 2.0.0
- WMS: 1.1.1, 1.3.0
- TMS: 1.0.0
- WMS-C: 1.1.1
- WMTS: 1.0.0

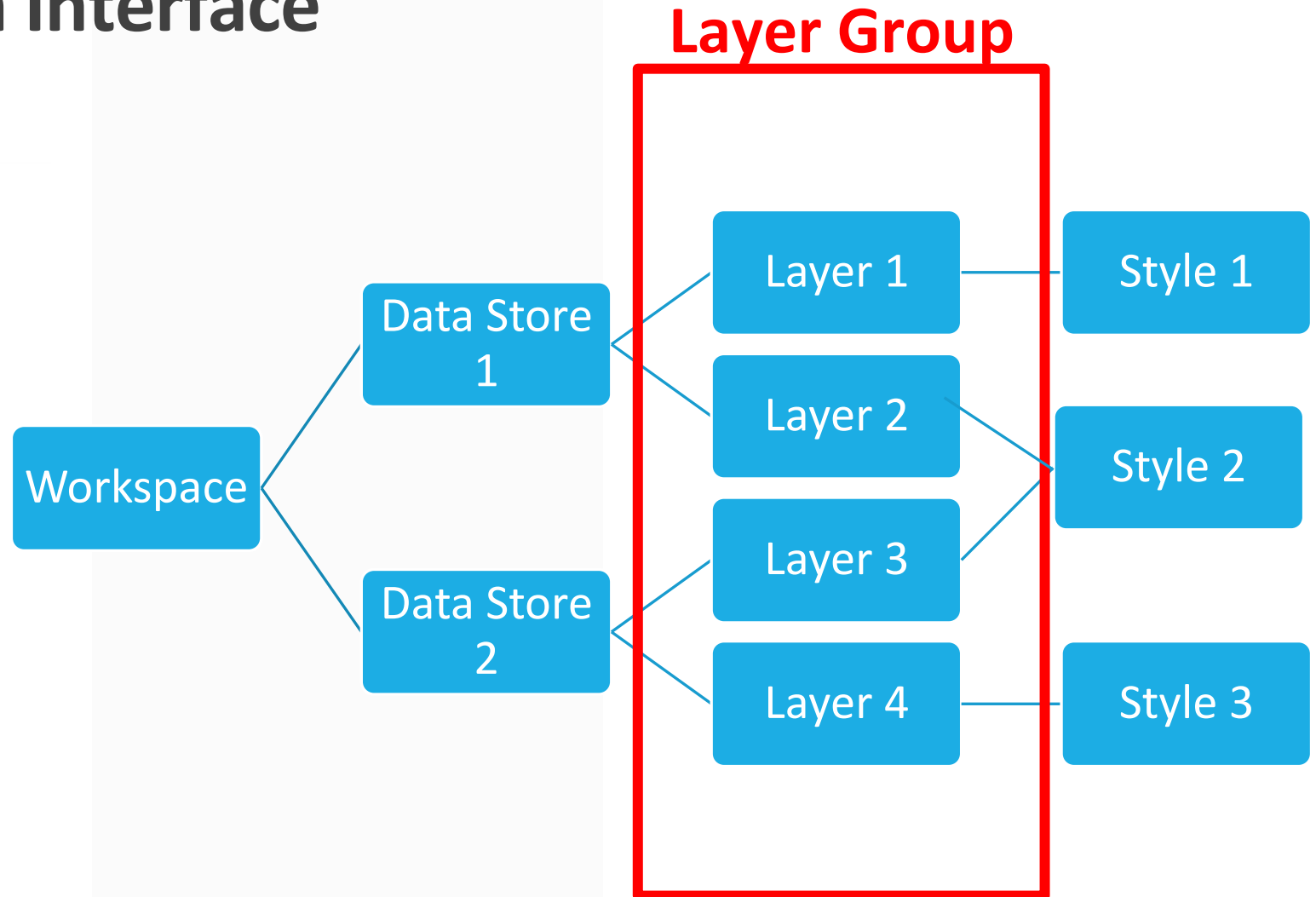
The left sidebar contains a navigation menu with the following sections:

- About & Status**
  - Server Status
  - GeoServer Logs
  - Contact Information
  - About GeoServer
- Data**
  - Layer Preview
  - Workspaces
  - Stores
  - Layers
  - Layer Groups
  - Styles
- Services**
  - WMTS
  - WCS
  - WFS
  - WMS
- Settings**
  - Global
  - Image Processing
  - Raster Access
- Tile Caching**
  - Tile Layers
  - Caching Defaults
  - Gridsets
  - Disk Quota
  - BlobStores
- Security**
  - Settings
  - Authentication
  - Passwords
  - Users, Groups, Roles
  - Data
  - Services
- Demos**
- Tools**

## 2.b) Understanding the GeoServer Web Administration Interface

### Data

-  Layer Preview
-  Workspaces
-  Stores
-  Layers
-  Layer Groups
-  Styles





## 2.b) Understanding the GeoServer Web Administration Interface

DEMO 1: <https://myfiles.sbg.ac.at/index.php/s/J9Mdq2YZ9NM6kHg>

## 2.c) Users, Groups and Roles.

### Security



Settings



Authentication



Passwords



Users, Groups, Roles



Data



Services

- ✓ **User:** Is someone entitled to use the system. For each user the following information is maintained:
  - Username
  - Password
  - Set of key/values
- ✓ **Group:** Is a set of users. For each group the following information is maintained:
  - Group name
  - List of users who belong to the group
- ✓ **Roles:** Are assigned to users and groups of users, and determine what actions those users or groups are permitted to do.



## 2.d) Working with GeoServer Services.

DEMO 2: <https://myfiles.sbg.ac.at/index.php/s/KoMbcoP3bCqtZqz>



## 3.a) Advantages of using GeoServer.

- ✓ Securely provide access to geodata
- ✓ No spatial database needed
- ✓ No server side programming needed
- ✓ Open Source

## 4) References

- ✓ Iacovella, S. (2017). GeoServer Beginner's Guide: Share Geospatial Data Using Open Source Standards. Packt Publishing Ltd.
- ✓ Miller, M. (2021). GeoServer from A-Z. <https://www.udemy.com/course/geoserver-from-a-z/>
- ✓ OpenGeo (2022). Welcome - GeoServer. <https://geoserver.org/>
- ✓ OpenGeo (2022). GeoServer User Manual. <https://docs.geoserver.org/stable/en/user/>

# Thank you

ANY QUESTIONS?