

# ***Serviços de Dados Geográficos***

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**Direção-Geral do Território**

# Agenda

## 1. Implementação de SDG INSPIRE em GeoServer

- Introdução ao GeoServer (conceitos, instalação e configurações)
- Criação de Serviços de Visualização
- Criação de Serviços de Descarregamento



# GeoServer

Criação de Serviços de Visualização e Descarregamento

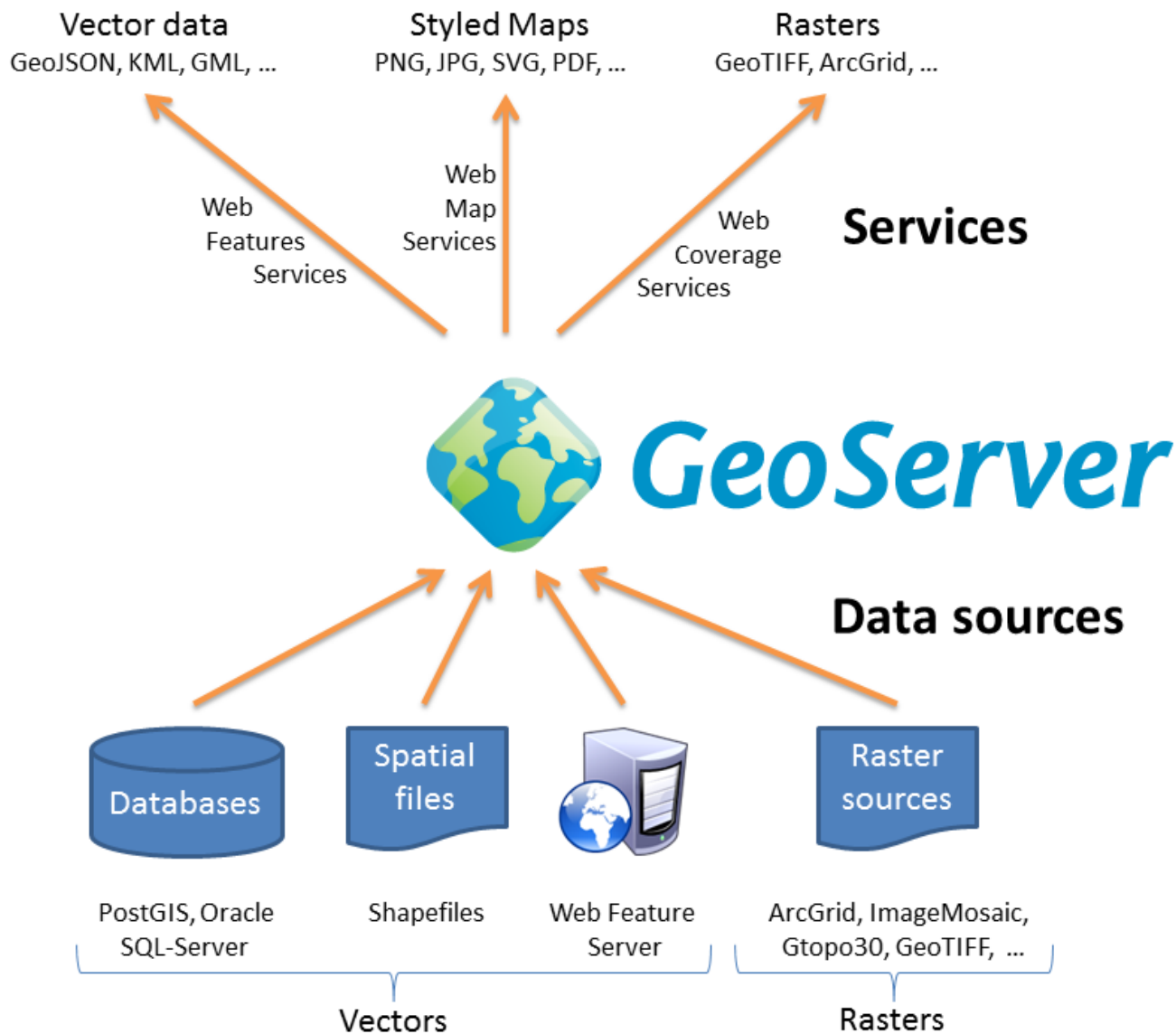
# GeoServer

- Criado em 2001, o GeoServer é um **servidor de mapas** Java-based que permite aos utilizadores criar, editar, visualizar, transformar e publicar dados espaciais.
- É um projecto Open Source incubado pela OSGeo.
- Desenvolvido utilizando a biblioteca GeoTools.
- As correções de problemas e melhorias de recursos são realizadas com frequência.
- Possibilidade de correr em distintos sistemas operativos (Linux, Windows, Mac OS X).

# GeoServer

- Suporte a múltiplos formatos de dados raster e vectorial.
- Suporte para Bases de Dados PostgreSQL/PostGIS e por extensões, o Oracle, MySQL, MS SQL Server, ArcSDE.
- Compatível com as especificações do OGC (WMS, WFS, WCS, etc).
- Suporte a projecções em tempo real.
- Pré-visualização integrada utilizando OpenLayers;
- Utiliza SLD (Styled Layer Descriptor) e CSS (Cascading Style Sheets) para representação de simbologias.
- Integração com o QGIS - **GeoServer Explorer Plugin**
- Documentação em:  
<http://docs.geoserver.org/stable/en/user/index.html>

# GeoServer



# GeoServer

- Extensível

## Vector Formats

- App Schema
- ArcSDE
- DB2
- H2
- MySQL
- Oracle
- Pregeneralized Features
- SQL Server
- Teradata

## Output Formats

- Excel
- Image Map
- OGR
- XSLT
- DXF
- JPEG Turbo

## Miscellaneous

- Chart Symbolizer
- Control Flow
- Cross Layer Filtering
- CSS Styling
- GeoSearch
- CAS
- Monitor (Core, Hibernate)
- Importer (Core, BDB Backend)
- INSPIRE
- Printing

## Coverage Formats

- GDAL
- Image Pyramid
- JPEG2K
- JDBC Image Mosaic

## Services

- CSW
- WCS 2.0 EO
- WPS
- WPS Hazelcast

- Instalação



## Platform Independent Binary

Operating system independent runnable binary.



## Mac OSX Installer

DMG for OSX platforms.



## Windows Installer

Installer for Windows platforms.



## Web Archive

Web Archive (war) for servlet containers.

- Executável
- War container

+ Java Runtime Environment (JRE)

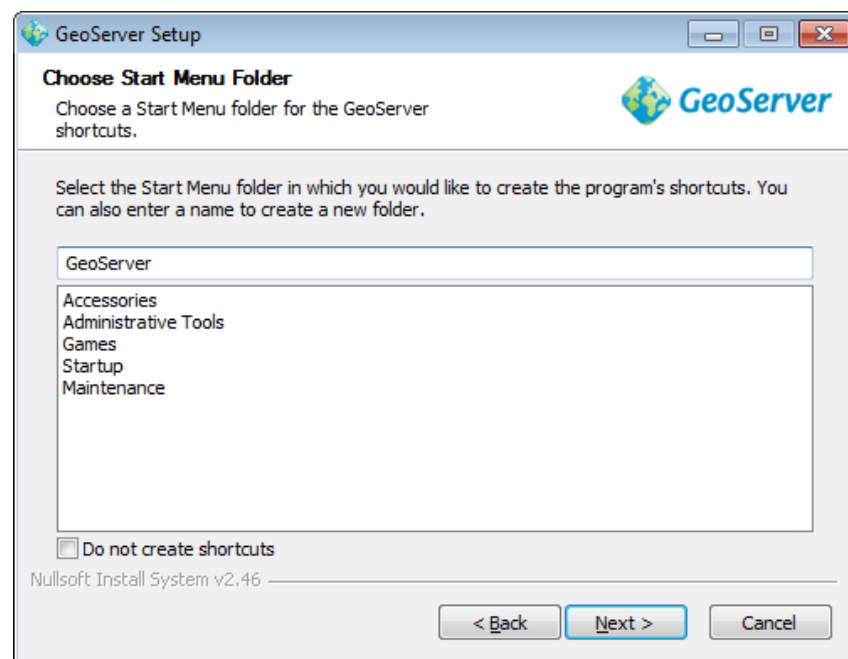
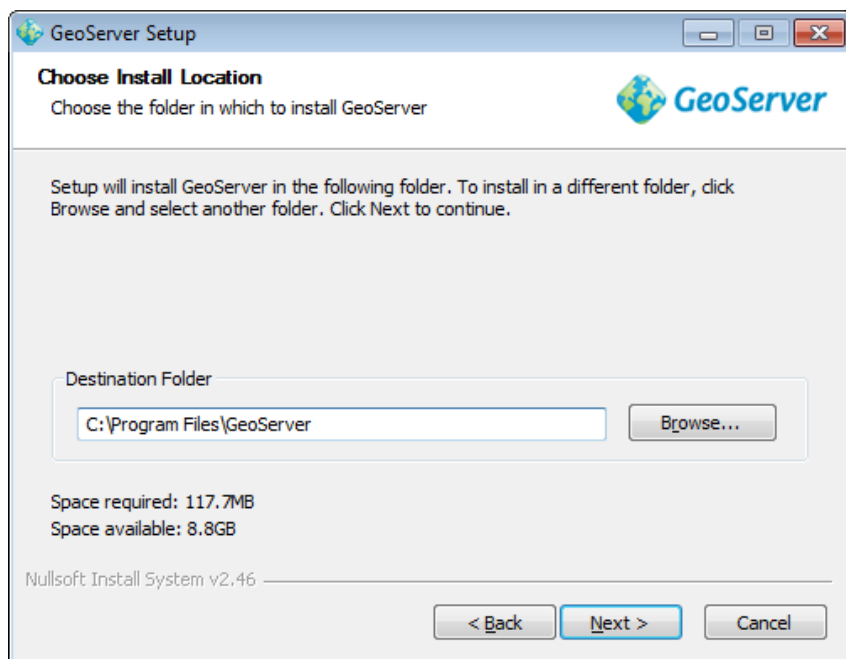


# GeoServer

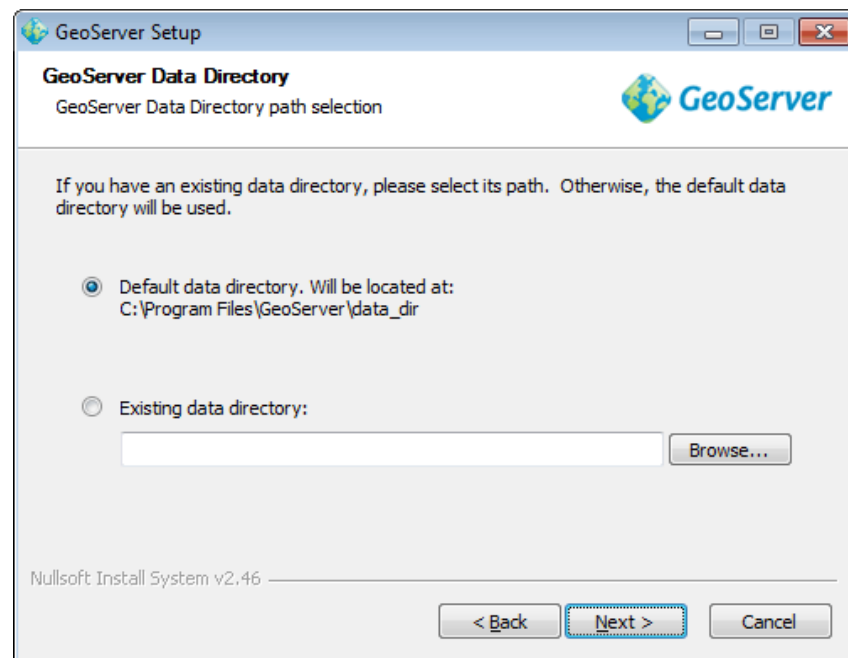
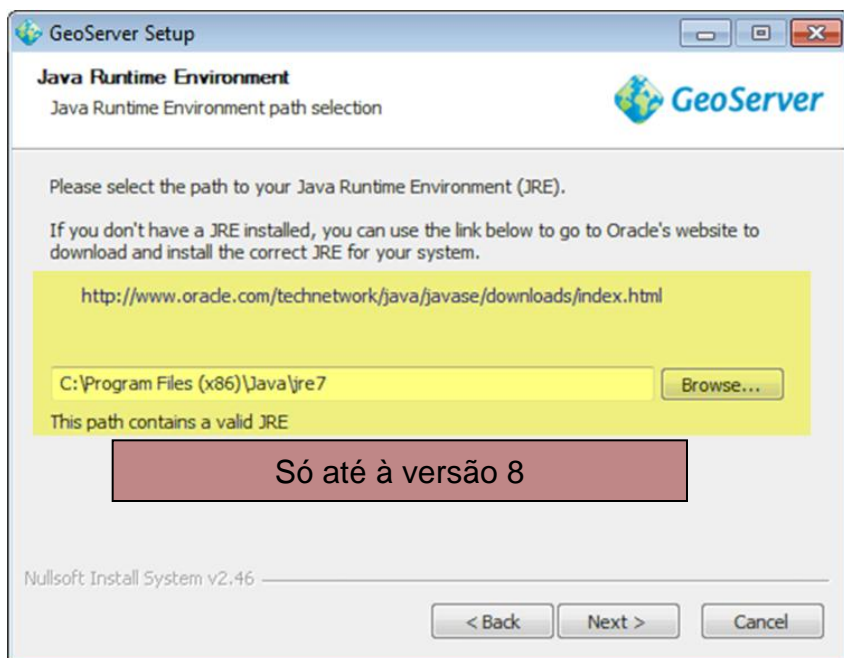
- Instalação em Windows
  - Executar o installer (.exe)



- Instalação em Windows

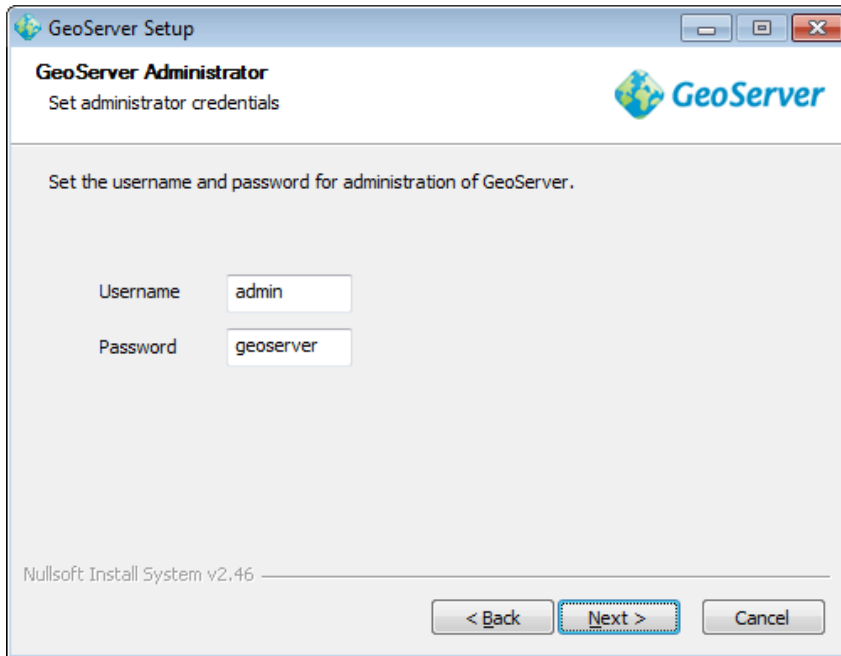


- Instalação em Windows



# GeoServer

- Instalação em Windows



GeoServer Setup

**GeoServer Administrator**  
Set administrator credentials

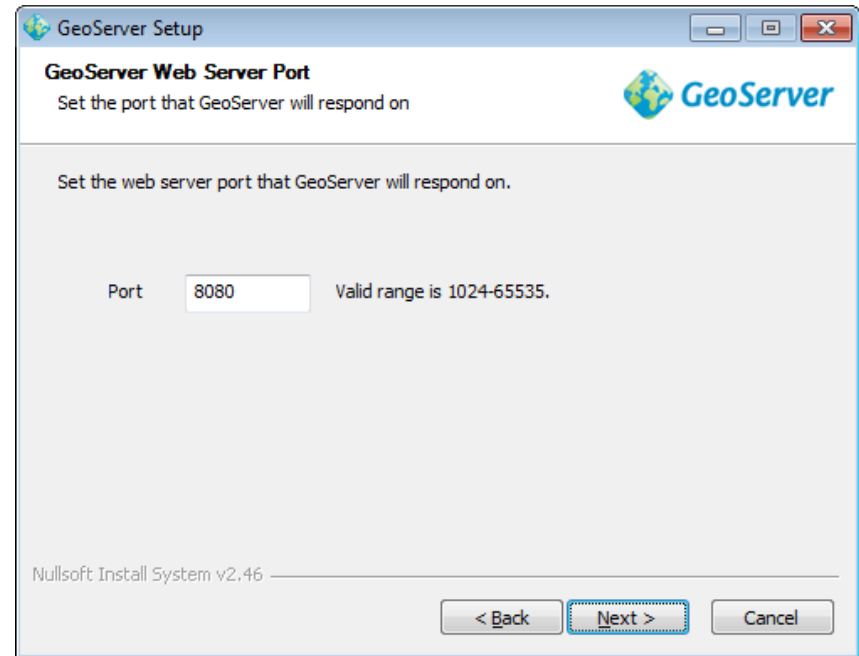
Set the username and password for administration of GeoServer.

Username

Password

Nullsoft Install System v2.46

< Back Next > Cancel

GeoServer Setup

**GeoServer Web Server Port**  
Set the port that GeoServer will respond on

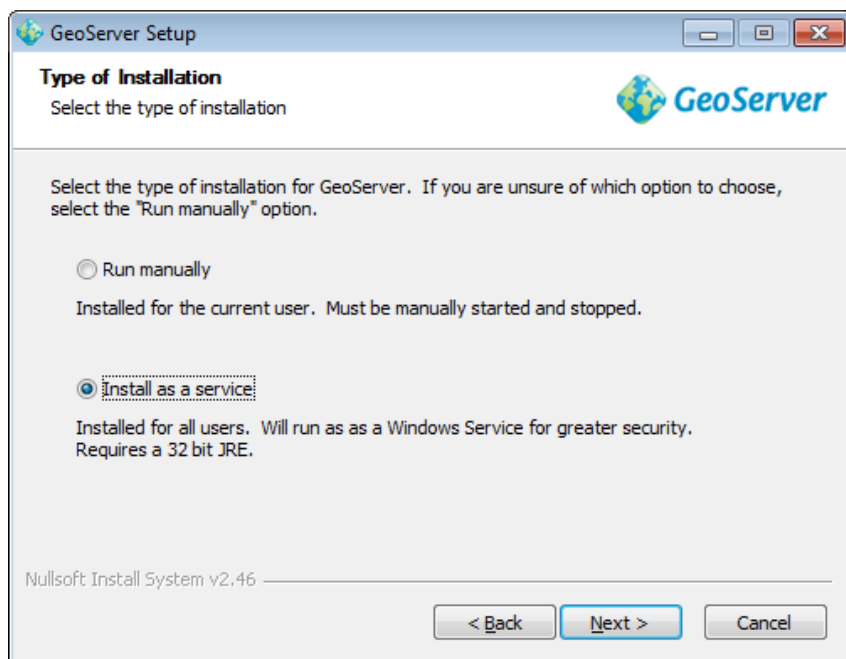
Set the web server port that GeoServer will respond on.

Port  Valid range is 1024-65535.

Nullsoft Install System v2.46

< Back Next > Cancel

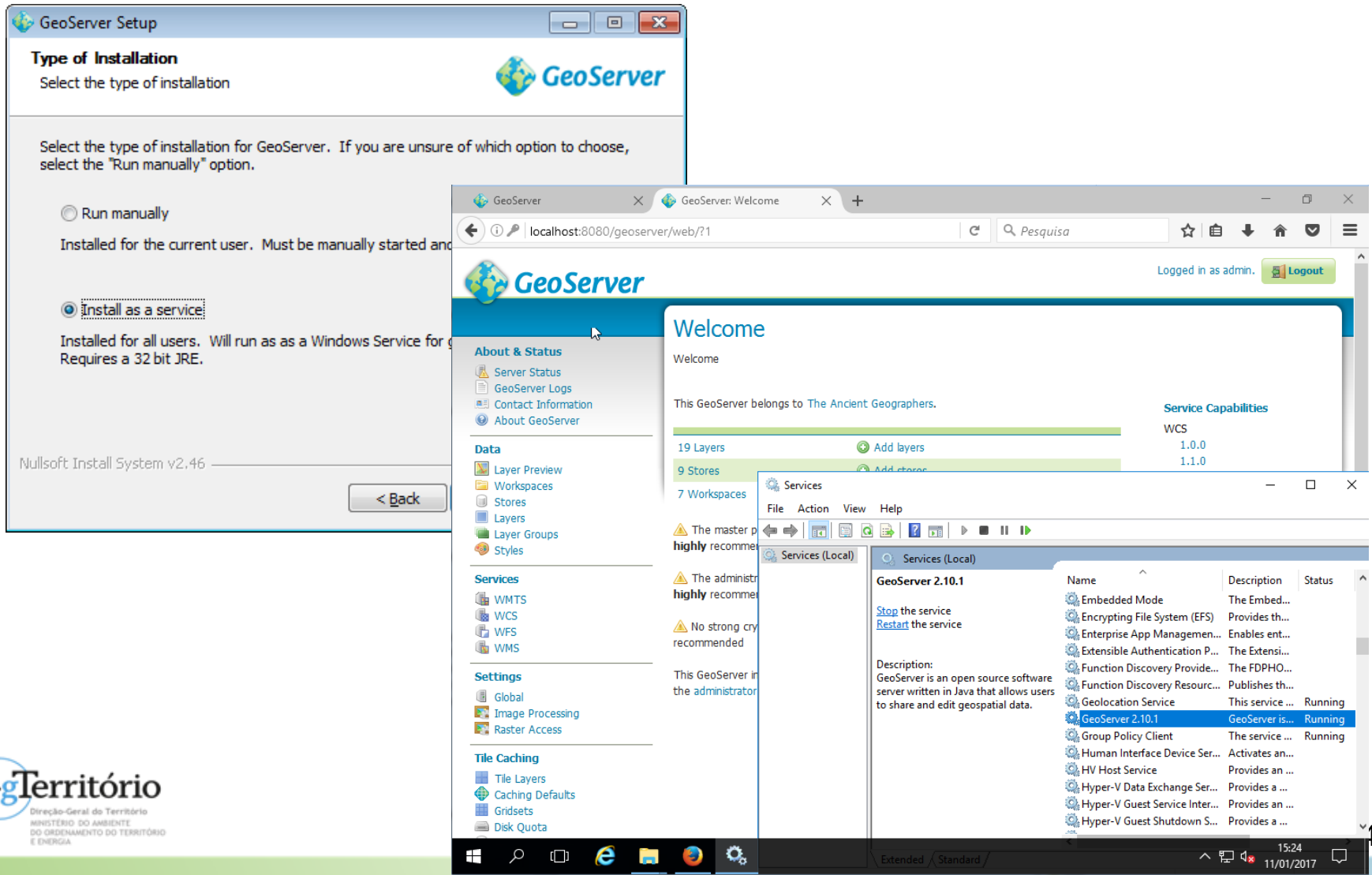
- Instalação em Windows



## GeoServer Data Directory

É onde serão armazenadas as **configurações** e os **dados** do GeoServer; Ficam armazenados também os estilos (SLD), FeatureTypes que contêm as configurações das layers, e também as imagens georeferenciadas (ex.: Raster).

- Instalação em Windows



The image shows the GeoServer installation process and the resulting web interface. On the left, the 'GeoServer Setup' window is visible, showing the 'Type of Installation' options. The 'Install as a service' option is selected. The main window shows the GeoServer web interface at 'localhost:8080/geoserver/web/?1'. The interface includes a 'Welcome' message, a sidebar with navigation links, and a 'Services' window showing the status of various services.

**GeoServer Setup - Type of Installation**

Select the type of installation

Select the type of installation for GeoServer. If you are unsure of which option to choose, select the "Run manually" option.

☐ Run manually  
Installed for the current user. Must be manually started and stopped.

☒ **Install as a service**  
Installed for all users. Will run as a Windows Service for the current user. Requires a 32 bit JRE.

Nullsoft Install System v2.46

< Back

**GeoServer Web Interface**

localhost:8080/geoserver/web/?1

Logged in as admin. Logout

**Welcome**

Welcome

This GeoServer belongs to The Ancient Geographers.

**Service Capabilities**

WCS 1.0.0 1.1.0

**Services**

Name	Description	Status
GeoServer 2.10.1	GeoServer is an open source software server written in Java that allows users to share and edit geospatial data.	Running
Embedded Mode	The Embed...	
Encrypting File System (EFS)	Provides th...	
Enterprise App Managemen...	Enables ent...	
Extensible Authentication P...	The Extensi...	
Function Discovery Provide...	The FDPHO...	
Function Discovery Resourc...	Publishes th...	
Geolocation Service	This service ...	Running
GeoServer 2.10.1	GeoServer is...	Running
Group Policy Client	The service ...	Running
Human Interface Device Ser...	Activates an...	
HV Host Service	Provides an ...	
Hyper-V Data Exchange Ser...	Provides a ...	
Hyper-V Guest Service Inter...	Provides an ...	
Hyper-V Guest Shutdown S...	Provides a ...	

- Instalação em Windows

- Extensões

1. Download da extensão.

2. Extrair e copiar para

<GEOSERVER\_ROOT>/WEB-INF/lib

C:\Program Files\GeoServer 2.10.1\webapps\geoserver\WEB-INF\lib

3. Restart do GeoServer.

## Vector Formats

- App Schema
- ArcSDE
- DB2
- H2
- MySQL
- Oracle
- Pregeneralized Features
- SQL Server
- Teradata

## Output Formats

- Excel
- Image Map
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- JPEG Turbo

## Miscellaneous

- Chart Symbolizer
- Control Flow
- Cross Layer Filtering
- CSS Styling
- GeoSearch
- CAS
- Monitor (Core, Hibernate)
- Importer (Core, BDB Backend)
- INSPIRE
- Printing

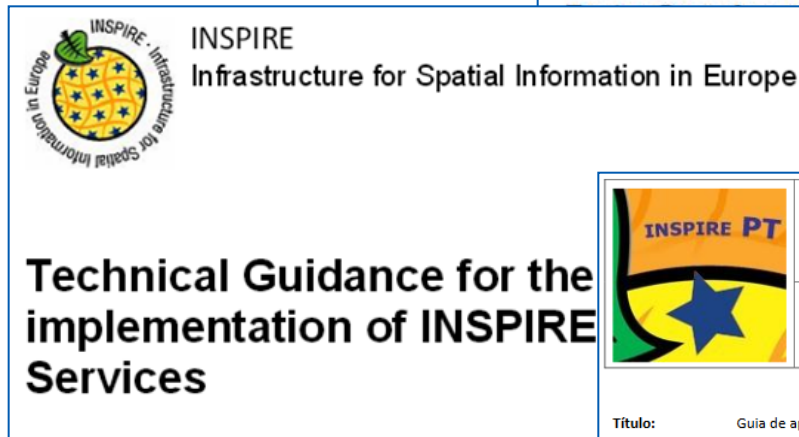
## Coverage Formats

- GDAL
- Image Pyramid
- JPEG2K
- JDBC Image Mosaic

## Services

- CSW
- WCS 2.0 EO
- WPS
- WPS Hazelcast

- Antes de começar a criação de SDG INSPIRE
  - Technical Guidelines SDG
  - Technical Guidelines para o serviço que se pretende implementar.



## Guia de apoio para a configuração e publicação de Serviços de Visualização INSPIRE-PT

Versão: 1.0

Data: 07 Dezembro 2011

Aprovado:

Data: 15 de Dezembro 2011

Título:	Guia de apoio para a configuração e publicação de Serviços de Visualização INSPIRE-PT
Identificador:	PT_INSPIRE_WMS_v1.0.pdf
Autores:	Ana Catarina Mariano, Danilo Furtado, Luís Antunes e Nuno Leitão no âmbito do Grupo de Trabalho Transversal
Descrição:	Recomendações para a implementação e publicação de Serviços de Visualização INSPIRE em Portugal
Objectivo:	Implementação de serviços de visualização INSPIRE em Portugal, segundo as regras de implementação da <i>Open GeoSpatial Consortium</i> e a <i>Technical Guidance INSPIRE</i> versão 3.0 para serviços de visualização



- INSPIRE - WMS GetCapabilities (metadados)

`http://servername:8080/geoserver/caop/wms?service=wms&version=1.3.0&request=GetCapabilities`

host                      path                      Parâmetros

Orientações Técnicas (Technical Guidance View Services)

## Requisito de implementação 1

- ISO 19128
- Extensões

**Implementation Requirement 1** An INSPIRE View Service shall implement the minimal mandatory behaviour from an [ISO 19128] service, extended with the extensions required by the INSPIRE Directive and the Implementing Rules for View services.

- INSPIRE - WMS GetCapabilities (metadados)

<http://servername:8080/geoserver/caop/wms?service=wms&version=1.3.0&request=GetCapabilities>

## Orientações Técnicas (Technical Guidance View Services)

### Requisito de implementação 2

- WMS
- *schemas* INSPIRE
- Extensão INSPIRE

```
-<WMS_Capabilities version="1.3.0" updateSequence="181" xsi:schemaLocation="http://www.opengis.net/wms http://localhost:8080/geoserver/schemas/wms/1.3.0/capabilities_1_3_0.xsd http://inspire.ec.europa.eu/schemas/inspire_vs/1.0 http://inspire.ec.europa.eu/schemas/inspire_vs/1.0/inspire_vs.xsd">
- <inspire_vs:ExtendedCapabilities>
- <inspire_common:MetadataUrl>
- <inspire_common:URL>
  http://snig.dgterritorio.pt/geoportal/csw/discovery?service=CSW&request=GetRecordById&version=2.0.2&id=d6d15b0b-33cf-40ba-83cc-ba1287d434eb&outputFormat=text/xml&outputSchema=http://www.isotc211.org/2005/gmd
</inspire_common:URL>
<inspire_common:MediaType>application/vnd.ogc.csw.GetRecordByIdResponse_xml</inspire_common:MediaType>
</inspire_common:MetadataUrl>
- <inspire_common:SupportedLanguages>
- <inspire_common:DefaultLanguage>
  <inspire_common:Language>por</inspire_common:Language>
</inspire_common:DefaultLanguage>
</inspire_common:SupportedLanguages>
- <inspire_common:ResponseLanguage>
  <inspire_common:Language>por</inspire_common:Language>
</inspire_common:ResponseLanguage>
</inspire_vs:ExtendedCapabilities>
```

- INSPIRE - WMS GetCapabilities (metadados)

<http://servername:8080/geoserver/caop/wms?service=wms&version=1.3.0&request=GetCapabilities>

Orientações Técnicas (Technical Guidance View Services)

### Requisito de implementação 3

- WMS
- GetCapabilities
- GetMap

**Implementation Requirement 3** The following ISO 19128 operations shall be implemented for an INSPIRE View service: GetCapabilities; GetMap.

- GetFeatureInfo (visualização de atributos) é opcional.

- INSPIRE - WMS GetCapabilities (metadados)

<http://servername:8080/geoserver/caop/wms?service=wms&version=1.3.0&request=GetCapabilities>

Orientações Técnicas (Technical Guidance View Services)

**Requisito de implementação 6**

– Cenário 1

**Implementation Requirement 6** The `<inspire_common:MetadataURL>` element within the extended INSPIRE capabilities of an [ISO 19128] – WMS 1.3.0 `<wms:Capability>` element shall be used to reference the INSPIRE service metadata available through an INSPIRE Discovery Service. Mandatory [ISO 19128] – WMS 1.3.0 metadata elements shall be mapped to INSPIRE metadata elements to implement a consistent interface.

- INSPIRE - WMS GetCapabilities (metadados)

<http://servername:8080/geoserver/caop/wms?service=wms&version=1.3.0&request=GetCapabilities>

Orientações Técnicas (Technical Guidance View Services)

**Requisito de implementação 16**

– Keyword

**Implementation Requirement 16** The INSPIRE Metadata Regulation [INS MD] mandates that in the case of spatial data services at least one keyword from the "Classification of Spatial data Services" (Part D.4 from INS MD) shall be provided.

- Serviço de Visualização
  - **infoMapAccessService**
- SNIG/INSPIRE
  - **INSPIRECORE** (CSW do GeoServer)

- INSPIRE - WMS GetCapabilities (metadados)

<http://servername:8080/geoserver/caop/wms?service=wms&version=1.3.0&request=GetCapabilities>

Orientações Técnicas (Technical Guidance View Services)

## Requisito de implementação 40

- Códigos EPSG
- Lista de COORDINATE REFERENCE SYSTEMS

**Implementation Requirement 40** It is mandatory to use geographical coordinate system based on ETRS89 in continental Europe and ITRS outside continental Europe.

Table 6: CRS recommended codes

CRS value	Usage
EPSG:4258	ETRS89 geographic (Continental Europe)
EPSG:4326	WGS 84 (World), Low resolution datasets
CRS:84	WGS 84 (Outside continental Europe)

- INSPIRE - WMS GetCapabilities (metadados)

<http://servername:8080/geoserver/caop/wms?service=wms&version=1.3.0&request=GetCapabilities>

Orientações Técnicas (Technical Guidance View Services)

**Requisito de implementação 19 e 36**

– Geographic Bounding Box

**Implementation Requirement 19** Geographic Bounding Box shall be mapped to the EX\_GeographicBoundingBox element of Layer elements.

```
<!--Limited list of EPSG projections:-->
<CRS>EPSG:3763</CRS>
<CRS>EPSG:3857</CRS>
<CRS>EPSG:4258</CRS>
<CRS>EPSG:4326</CRS>
<CRS>CRS:84</CRS>
<EX_GeographicBoundingBox>
  <westBoundLongitude>-31.358448661806477</westBoundLongitude>
  <eastBoundLongitude>-15.852728388428394</eastBoundLongitude>
  <southBoundLatitude>30.014592925706985</southBoundLatitude>
  <northBoundLatitude>40.69203278277499</northBoundLatitude>
</EX_GeographicBoundingBox>
<BoundingBox CRS="CRS:84" minx="-31.358448661806477" miny="30.014592925706985" maxx="-15.852728388428394" maxy="40.69203278277499"/>
<BoundingBox CRS="EPSG:3763" minx="-2271157.464746852" miny="-1045733.6415161755" maxx="-652800.7874782821" maxy="381983.6572934514"/>
<BoundingBox CRS="EPSG:4326" minx="30.014592925706985" miny="-31.358448661806477" maxx="40.69203278277499" maxy="-15.852728388428394"/>
<BoundingBox CRS="EPSG:4258" minx="30.014592925706985" miny="-31.358448661806477" maxx="40.69203278370781" maxy="-15.852728388428394"/>
<BoundingBox CRS="EPSG:3857" minx="-3490806.537099308" miny="3505425.765987839" maxx="-1764717.6518839211" maxy="4967022.146035399"/>
```

- INSPIRE - WMS GetCapabilities (metadados)

<http://servername:8080/geoserver/caop/wms?service=wms&version=1.3.0&request=GetCapabilities>

Orientações Técnicas (Technical Guidance View Services)

**Requisito de implementação 39**

– Nomes dos layers harmonizados

Layer Name	Layer Title	Spatial object type(s)	Keywords
AU.AdministrativeUnit	Administrative unit	AdministrativeUnit	Administrative unit
AU.AdministrativeBoundary	Administrative boundary	AdministrativeBoundary	Administrative boundary, boundary

```

– <Layer queryable="1" opaque="0">
  <Name>AU.AdministrativeUnit</Name>
  <Title>Administrative unit</Title>
  <Abstract/>
  <KeywordList>
    <Keyword>Administrative unit</Keyword>
    <Keyword>Concelhos Continente</Keyword>
  </KeywordList>

```



- INSPIRE - WMS GetCapabilities (metadados)

<http://servername:8080/geoserver/caop/wms?service=wms&version=1.3.0&request=GetCapabilities>

## Orientações Técnicas (Technical Guidance View Services)

### Requisito de implementação 41 a 46

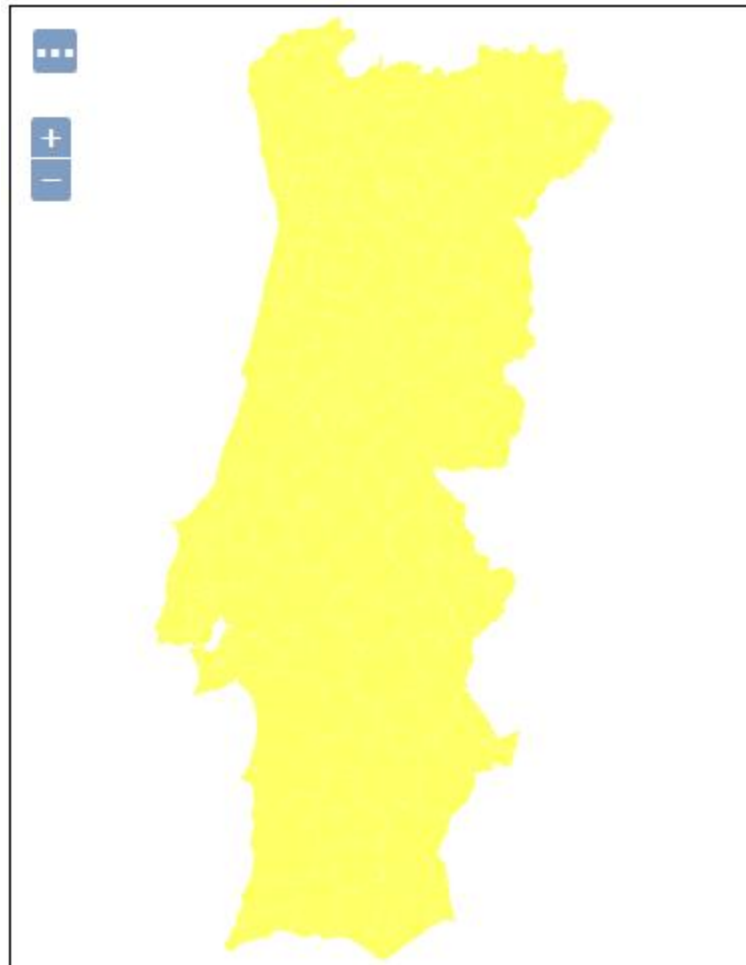
– Especificação OGC

Styled Layer Descriptor (SLD)

```
- <Style>
  <Name>AU.AdministrativeUnit.Default</Name>
  - <LegendURL width="20" height="20">
    <Format>image/png</Format>
    <OnlineResource xlink:type="simple"
      xlink:href="http://192.168.238.128:8080/geoserver
        /snig/ows?service=WMS&request=GetLegendGraphic&
        format=image%2Fpng&width=20&height=20&
        layer=AU.AdministrativeUnit"/>
    </LegendURL>
  </Style>
```

Style Name	AU.AdministrativeUnit.Default
Default Style	yes
Style Title	Administrative Unit Default Style
Style Abstract	The administrative unit is rendered using a yellow (#FFFF66) fill.
Symbology	<pre>&lt;sld:NamedLayer&gt;   &lt;se:Name&gt;AU.AdministrativeUnit&lt;/se:Name&gt;   &lt;sld:UserStyle&gt;     &lt;se:Name&gt; AU.AdministrativeUnit.Default&lt;/se:Name&gt;     &lt;sld:IsDefault&gt;1&lt;/sld:IsDefault&gt;     &lt;se:FeatureTypeStyle version="1.1.0"&gt;       &lt;se:Description&gt;         &lt;se:Title&gt;Administrative Unit Default Style &lt;/se:Title&gt;         &lt;se:Abstract&gt;The administrative unit is rendered using a yellow           (#FFFF66) fill.         &lt;/se:Abstract&gt;       &lt;/se:Description&gt;       &lt;se:FeatureTypeName&gt;AdministrativeUnit&lt;/se:FeatureTypeName&gt;       &lt;se:Rule&gt;         &lt;se:PolygonSymbolizer&gt;           &lt;se:Geometry&gt;             &lt;ogc:PropertyName&gt;geometry&lt;/ogc:PropertyName&gt;           &lt;/se:Geometry&gt;           &lt;se:Fill&gt;             &lt;se:SvgParameter name="fill"&gt;#FFFF66&lt;/se:SvgParameter&gt;           &lt;/se:Fill&gt;           &lt;se:Stroke/&gt;         &lt;/se:PolygonSymbolizer&gt;       &lt;/se:Rule&gt;     &lt;/se:FeatureTypeStyle&gt;   &lt;/sld:UserStyle&gt; &lt;/sld:NamedLayer&gt;</pre>
Minimum & maximum scales	None

- INSPIRE - WMS GetMap



- INSPIRE - WFS GetCapabilities (metadados)

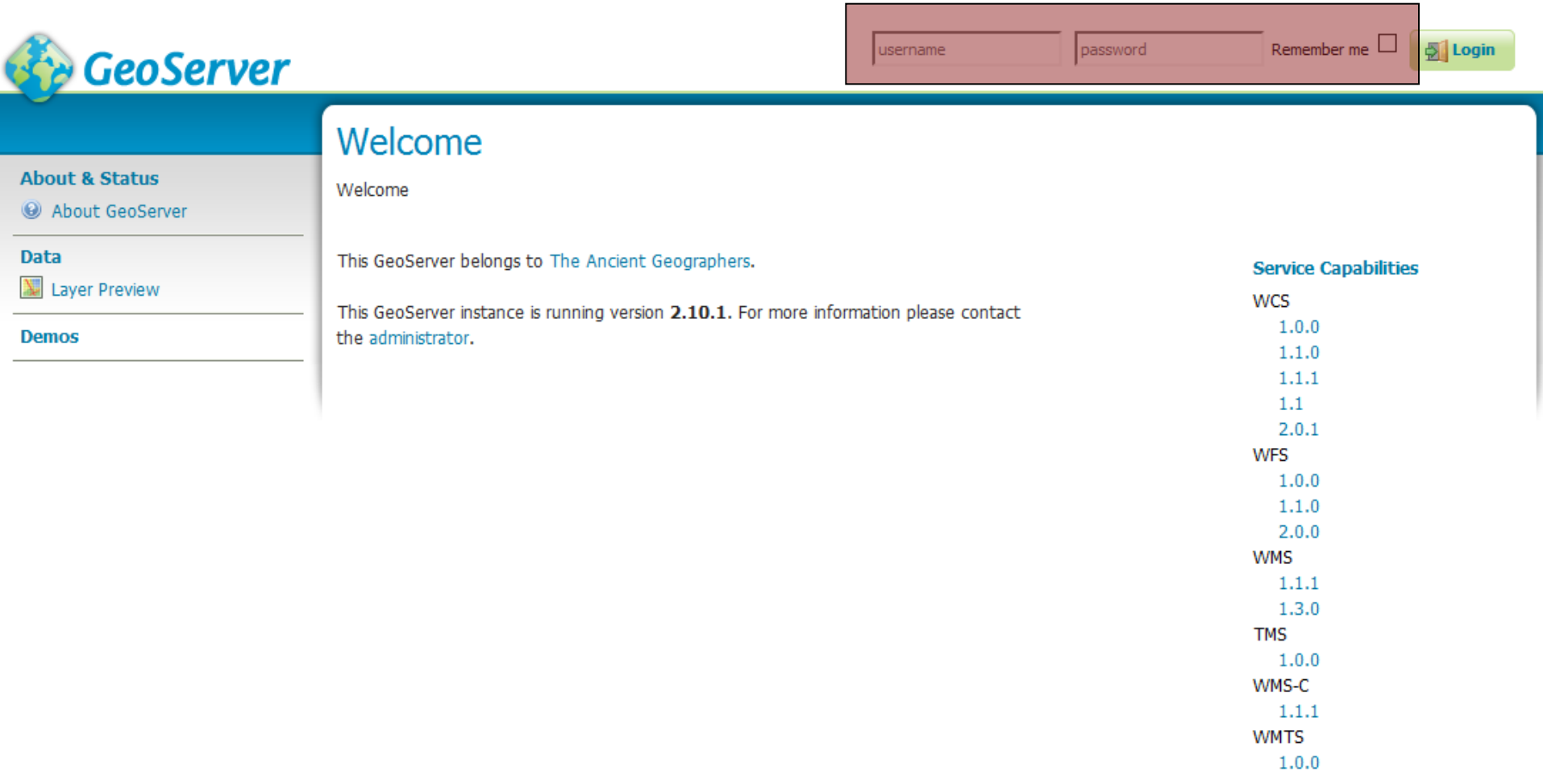
<http://servername:8080/geoserver/caop/wfs?service=wfs&version=2.0.0&request=GetCapabilities>

## Orientações Técnicas (Technical Guidance Download Services)

- ISO 19142 e ISO 19143
- WFS 2.0.0
- *schemas* INSPIRE
- Extensão INSPIRE
- Keyword : **infoFeatureAccessService** e **INSPIRECORE**
- Nomes dos layers harmonizados

– **<wfs:WFS\_Capabilities version="2.0.0" xsi:schemaLocation="http://www.opengis.net/wfs/2.0 http://localhost:8080/geoserver/schemas/wfs/2.0/wfs.xsd http://inspire.ec.europa.eu/schemas/inspire\_dls/1.0 http://inspire.ec.europa.eu/schemas/inspire\_dls/1.0/inspire\_dls.xsd" updateSequence="181">**

- Acesso ao GeoServer Web Administration Interface:  
<http://localhost:8080/geoserver/web/>



The screenshot displays the GeoServer Web Administration Interface. At the top, there is a login bar with fields for 'username' and 'password', a 'Remember me' checkbox, and a 'Login' button. Below this, the main content area is titled 'Welcome' and contains the following text: 'Welcome', 'This GeoServer belongs to [The Ancient Geographers](#).', and 'This GeoServer instance is running version **2.10.1**. For more information please contact the [administrator](#).' On the right side of the main content area, there is a section titled 'Service Capabilities' which lists the following services and their 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), and WMTS (1.0.0). On the left side, there is a sidebar with a blue header and three sections: 'About & Status' with a link to 'About GeoServer', 'Data' with a link to 'Layer Preview', and 'Demos'.

**GeoServer**

username password Remember me ☐ Login

## Welcome

Welcome

This GeoServer belongs to [The Ancient Geographers](#).

This GeoServer instance is running version **2.10.1**. For more information please contact the [administrator](#).

### Service Capabilities

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

**About & Status**

- [About GeoServer](#)

**Data**

- [Layer Preview](#)

**Demos**

## Welcome

Welcome

### Informações do ambiente GeoServer

19 Layers [Add layers](#)  
 9 Stores [Add stores](#)  
 7 Workspaces [Create workspaces](#)

### Gestão dos dados espaciais

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](#)

### Configuração dos serviços OGC

policy jar files is

This GeoServer instance is running version **2.12.0**. For more information please contact the administrator

### Configurações gerais

### Visão geral

### Serviços cache

### Configurações de segurança

### links para exemplos de aplicações

### Service Capabilities

CSW  
2.0.2  
 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

### Descrição (metadados) dos serviços disponíveis

#### About & Status

- Server Status
- GeoServer Logs
- Contact Information
- About GeoServer

#### Data

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

#### Services

- CSW
- 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

- **Layer preview:** permite visualizar uma lista de temas com as seguintes informações:

## Layer Preview

List of all layers configured in GeoServer and provides previews in various formats for each.

<< < 1 > >> Results 1 to 22 (out of 22 items)

Type	Name	Title	Common Formats	All Formats
	tiger:poly_landmarks	Manhattan (NY) landmarks	OpenLayers KML GML	Select one
	tiger_roads	Ma		
	tiger:giant_polygon	World rectangle	OpenLayers KML GML	Select one
		Manhattan (NY) points of interest	OpenLayers KML GML	Select one
	nurc:Img_Sample	North America sample imagery	OpenLayers KML	Select one
	nurc:mosaic	mosaic	OpenLayers KML	Select one
	nurc:Arc_Sample	A sample ArcGrid file	OpenLayers KML	Select one
	nurc:Pk50095	Pk50095 is a A raster file accompanied by a spatial data file	OpenLayers KML	Select one

Formato tema

Título do tema

Formatos de visualização e **download**

workspace e nome do tema

- Permite efectuar o download dos temas em vários formatos.

- Configurações



Logged in as admin.

[Logout](#)

## About & Status

- [Server Status](#)
- [GeoServer Logs](#)
- [Contact Information](#)
- [About GeoServer](#)

## Data

- [Layer Preview](#)
- [Workspaces](#)
- [Stores](#)
- [Layers](#)
- [Layer Groups](#)
- [Styles](#)

## Services

- [CSW](#)
- [WCS](#)
- [WFS](#)
- [WMS](#)

## Settings

- [Global](#)
- [JAI](#)
- [Coverage Access](#)

## Tile Caching

- [Tile Layers](#)
- [Caching Defaults](#)
- [Gridsets](#)
- [Disk Quota](#)

## Security

- [Settings](#)
- [Authentication](#)
- [Passwords](#)
- [Users, Groups, Roles](#)
- [Data](#)
- [Services](#)

## Demos

## Tools

## Contact Information

Set the contact information for this server.

### Contact

Claudius Ptolomaeus

### Organization

The ancient geographies INC

### Position

Chief geographer

### Address Type

Work

### Address

### Address Delivery Point

### City

Alexandria

### State

### ZIP code

### Country

Egypt

### Address Electronic Mail Address

### Telephone

### Fax

### Email

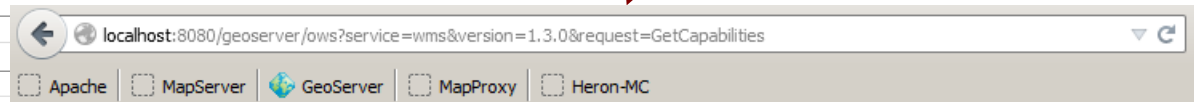
claudius.ptolomaeus@gmail.com

[Submit](#)

[Cancel](#)

- Informações de contacto.

- Metadados para os serviços OGC.



```
<ContactInformation>
  <ContactPersonPrimary>
    <ContactPerson>Claudius Ptolomaeus</ContactPerson>
    <ContactOrganization>The ancient geographies INC</ContactOrganization>
  </ContactPersonPrimary>
  <ContactPosition>Chief geographer</ContactPosition>
  <ContactAddress>
    <AddressType>Work</AddressType>
    <Address/>
    <City>Alexandria</City>
    <StateOrProvince/>
    <PostCode/>
    <Country>Egypt</Country>
  </ContactAddress>
  <ContactVoiceTelephone/>
  <ContactFacsimileTelephone/>
  <ContactElectronicMailAddress>claudius.ptolomaeus@gmail.com</ContactElectronicMailAddress>
```

- Configurações



Logged in as admin.



**Global Settings**

Settings that apply to the entire server.

- ☐ Verbose Messages
- ☐ Verbose Exception Reporting
- ☒ Enable Global Services

Handle data and configuration problems in capabilities documents by...

Choose One

Number of Decimals

8

Character Set

UTF-8

Proxy Base URL

Logging Profile

- DEFAULT\_LOGGING.properties
- GEOSESERVER\_DEVELOPER\_LOGGING.properties
- GEOTOOLS\_DEVELOPER\_LOGGING.properties
- PRODUCTION\_LOGGING.properties
- QUIET\_LOGGING.properties
- TEST\_LOGGING.properties
- VERBOSE\_LOGGING.properties

☒ Log to StdOut

**Por questões de segurança desactivar esta opção.**

**Configurações:**

- global (tem prevalência)
- local



- Configurações

---

## Services



- Configurar metadados globais comuns a todos os workspaces
  - Metadados
    - Maintainer
    - Online resource
    - Title
  - WMS Limited SRS list (3763, 4326, 4258, 3857). Caso contrário é apresentado todos os SRS que o Geoserver suporta (cerca de 4000).
  - WMS Settings → Queryable e Opaque
  - Maximum number of features (WFS)
  - Extra SRS codes for WFS 2.0 (WFS)
  - Service Level (WFS), colocar como **basic**

- Configurações - WFS
  - Por defeito, o WFS está sempre activo, pelo que caso não se pretenda disponibilizar um serviço de descarregamento, é necessário desactivar esta opção.

## Web Feature Service

Manage the publishing of feature data.

### Workspace

---

### Service Metadata

---

☒ Enable WFS

☐ Strict CITE compliance

- Configurações - WFS
  - **Basic**: só permite o download dos dados.
  - **Transactional**: além das características do Basic, permite criar, apagar e actualizar os dados no servidor.
  - **Complete**: inclui também o **lock** da entidade a editar.

## Service Level

---

- ☐ Basic
- ☒ Transactional
- ☐ Complete

- Configurações - WFS
  - Nº máximo de entidades permitidas para descarregamento.

## Features

---

Maximum number of features

1000000

Maximum number of features for preview (Values  $\leq 0$  use the maximum number of features)

50

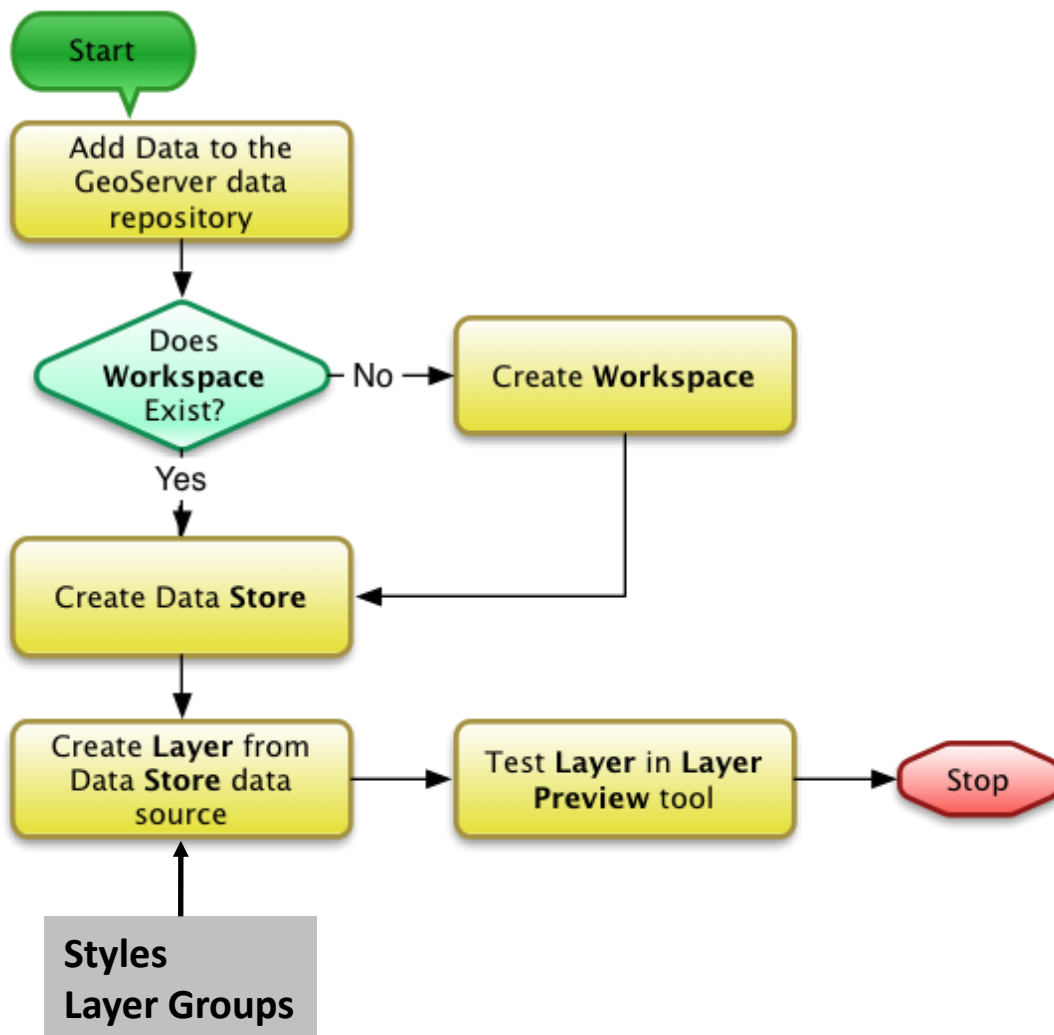
- ☐ Return bounding box with every feature
- ☐ Ignore maximum number of features when calculating hits

- Configurações - WFS
  - O WFS 1.1.0 e 2.0 permitem transformação on-the-fly para outros SRS.

## Extra SRS codes for WFS capabilities generation

4326, códigoEPSG, códigoEPSG

- Workflow de carregamento dos dados



- Conceitos

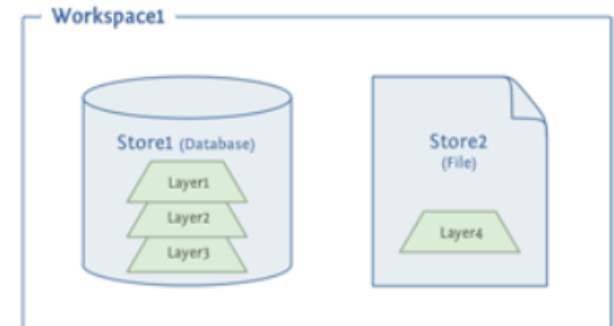
- **Workspace:** área utilizada para agrupar temas semelhantes.
  - Pode-se associar quantos temas quisermos a um workspace
  - Podem existir vários temas com o mesmo nome desde que estejam em workspaces diferentes.
  - O nome de um tema é dado pelo par **workspace:layer** (eg. topp:states).

Com a configuração **Global**

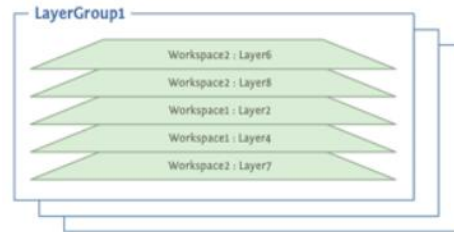
workspace      layer



- **Store:** repositório de dados e indica ao GeoServer a forma de se ligar a eles.
  - Uma store tem de estar numa workspace.
- **Layers:** raster, vectores ou WMS.



- Conceitos
  - **Layers Group:** permite compor um mapa a partir dos diferentes temas.



- **Styles:** por defeito via SLD - Styled Layer Descriptor.
  - Existe uma extensão para css - Cascading Style Sheets (compacto).
  - QGIS exporta para sld.

## Style Editor

Edit the current SLD style. The editor can provide syntax highlight and be brought to full screen. Click on the "validate" button to verify the style is a valid SLD document.

Name  
burg

Workspace  
[dropdown]

Format  
SLD [dropdown] Format only editable for new styles

Copy from existing style  
Choose One [dropdown] Copy...

```
1 <?xml version="1.0" encoding="ISO-8859-1"?>
2 <StyledLayerDescriptor version="1.0.0" xmlns="http://www.opengis.net/sld"
3   xmlns:ogc="http://www.opengis.net/ogc"
4   xmlns:xlink="http://www.w3.org/1999/xlink" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
5   xsi:schemaLocation="http://www.opengis.net/sld http://schemas.opengis.net/sld/1.0.0
6   /StyledLayerDescriptor.xsd">
7   <NamedLayer>
8     <Name>redflag</Name>
9     <UserStyle>
10    <Name>burg</Name>
11    <Title>A small red flag</Title>
12    <Abstract>A sample of how to use an SVG based symbolizer</Abstract>
```

## CSS Styles

Create and modify GeoCSS styles.

12pt [dropdown]

1 No CSS file was found for this style. Please make sure this is the style you intended to edit, since saving the CSS will destroy the existing SLD.

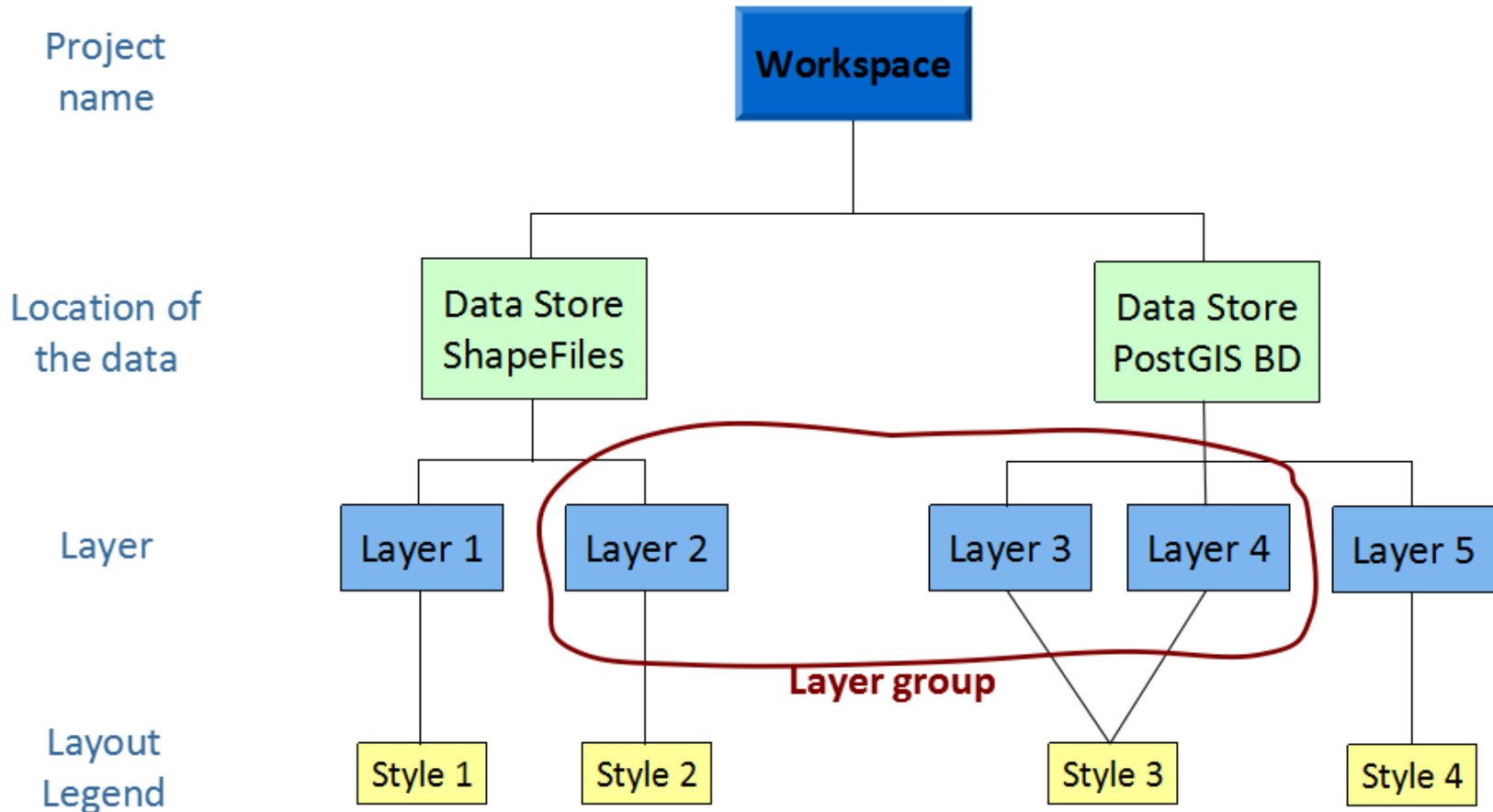
- Editing style: population
- Previewing on layer: toppstates
- Create new CSS style
- Set style "population" as the default style for layer "toppstates"
- Change layer associations for this style.



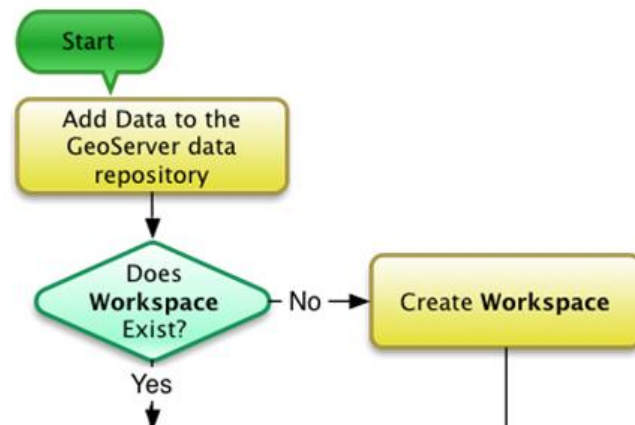
- SLD - Styled Layer Descriptor

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<StyledLayerDescriptor version="1.0.0"
  xsi:schemaLocation="http://www.opengis.net/sld StyledLayerDescriptor.xsd"
  xmlns="http://www.opengis.net/sld"
  xmlns:ogc="http://www.opengis.net/ogc"
  xmlns:xlink="http://www.w3.org/1999/xlink"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <NamedLayer>
    <Name>Simple point</Name>
    <UserStyle>
      <Title>Simple point</Title>
      <FeatureTypeStyle>
        <Rule>
          <PointSymbolizer>
            <Graphic>
              <Mark>
                <WellKnownName>circle</WellKnownName>
                <Fill>
                  <CssParameter name="fill">#FF0000</CssParameter>
                </Fill>
              </Mark>
              <Size>6</Size>
            </Graphic>
          </PointSymbolizer>
        </Rule>
      </FeatureTypeStyle>
    </UserStyle>
  </NamedLayer>
</StyledLayerDescriptor>
```

- Conceitos



- Workspace



## Workspaces

Manage GeoServer workspaces

- Add new workspace <sup>2</sup>
- Remove selected workspace(s)

<< < 1 > >> Results 1 to 7 (out of 7 items)

<input type="checkbox"/> Workspace Name	Default
<input type="checkbox"/> cite	✓
<input type="checkbox"/> it.geosolutions	
<input type="checkbox"/> nurc	
<input type="checkbox"/> sde	
<input type="checkbox"/> sf	
<input type="checkbox"/> tiger	
<input type="checkbox"/> topp	



## New Workspace

Configure a new workspace

<sup>3</sup>

Name  
dgt

Namespace URI  
http://dgterritorio.pt/dgt  
The namespace uri associated with this workspace

☐ Default Workspace

- Workspace



Logged in as admin.

### About & Status

- Server Status
- GeoServer Logs
- Contact Information
- About GeoServer

### Data


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

### Services


- WMTS
- WCS
- WFS
- WMS

## Workspaces

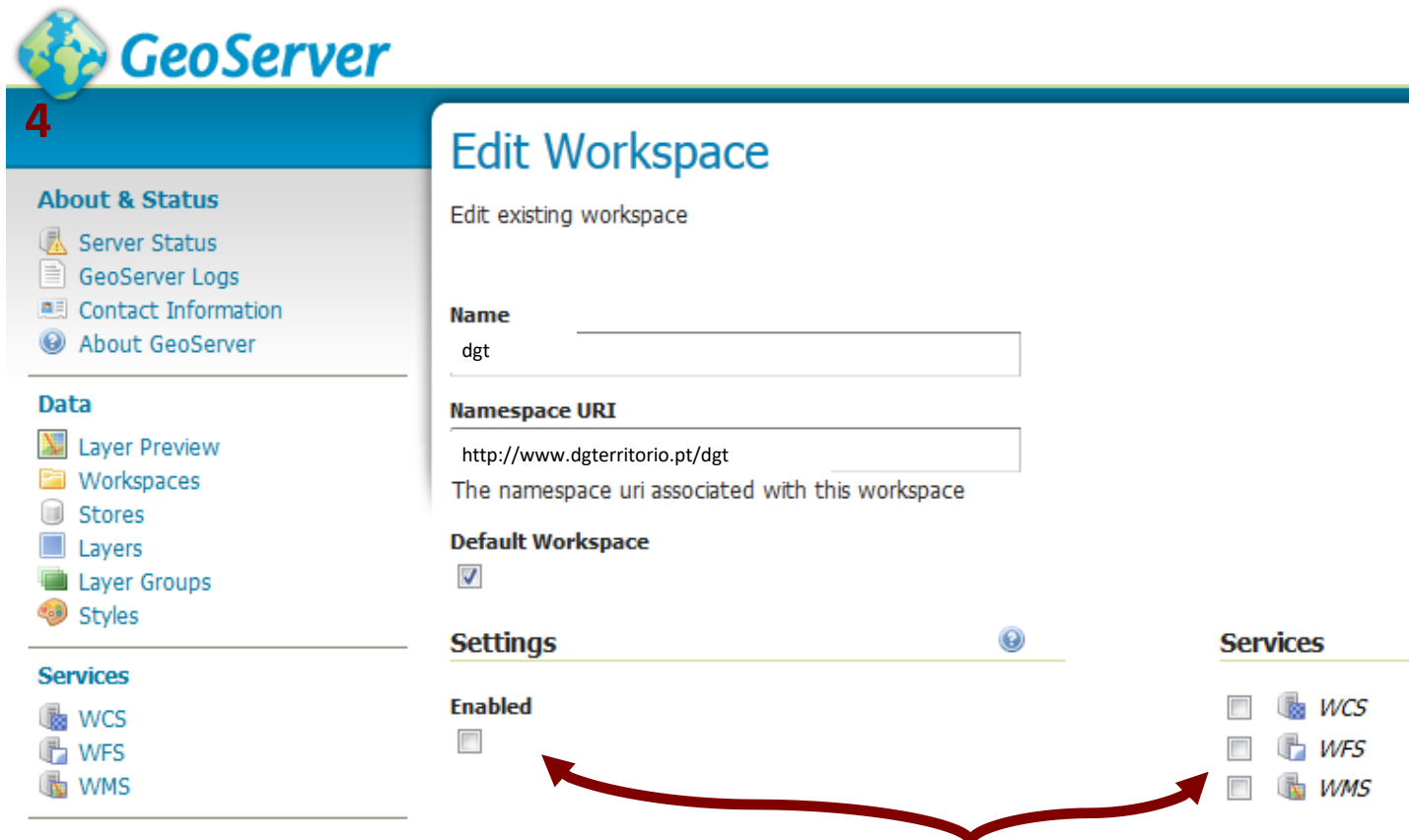
Manage GeoServer workspaces

-  Add new workspace
-  Remove selected workspace(s)

Results 1 to 8 (out of 8 items)

<input type="checkbox"/>	Workspace Name	Default
<input type="checkbox"/>	cite	
<input checked="" type="checkbox"/>	dgt	
<input type="checkbox"/>	it.geosolutions	
<input type="checkbox"/>	nurc	
<input type="checkbox"/>	sde	
<input type="checkbox"/>	sf	
<input type="checkbox"/>	tiger	
<input type="checkbox"/>	topp	

- Workspace – Edit



**4** **GeoServer**

**About & Status**

- Server Status
- GeoServer Logs
- Contact Information
- About GeoServer

**Data**

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

**Services**

- WCS
- WFS
- WMS

**Edit Workspace**

Edit existing workspace

**Name**  
dgt

**Namespace URI**  
http://www.dgterritorio.pt/dgt  
The namespace uri associated with this workspace

**Default Workspace**  
☒

**Settings**

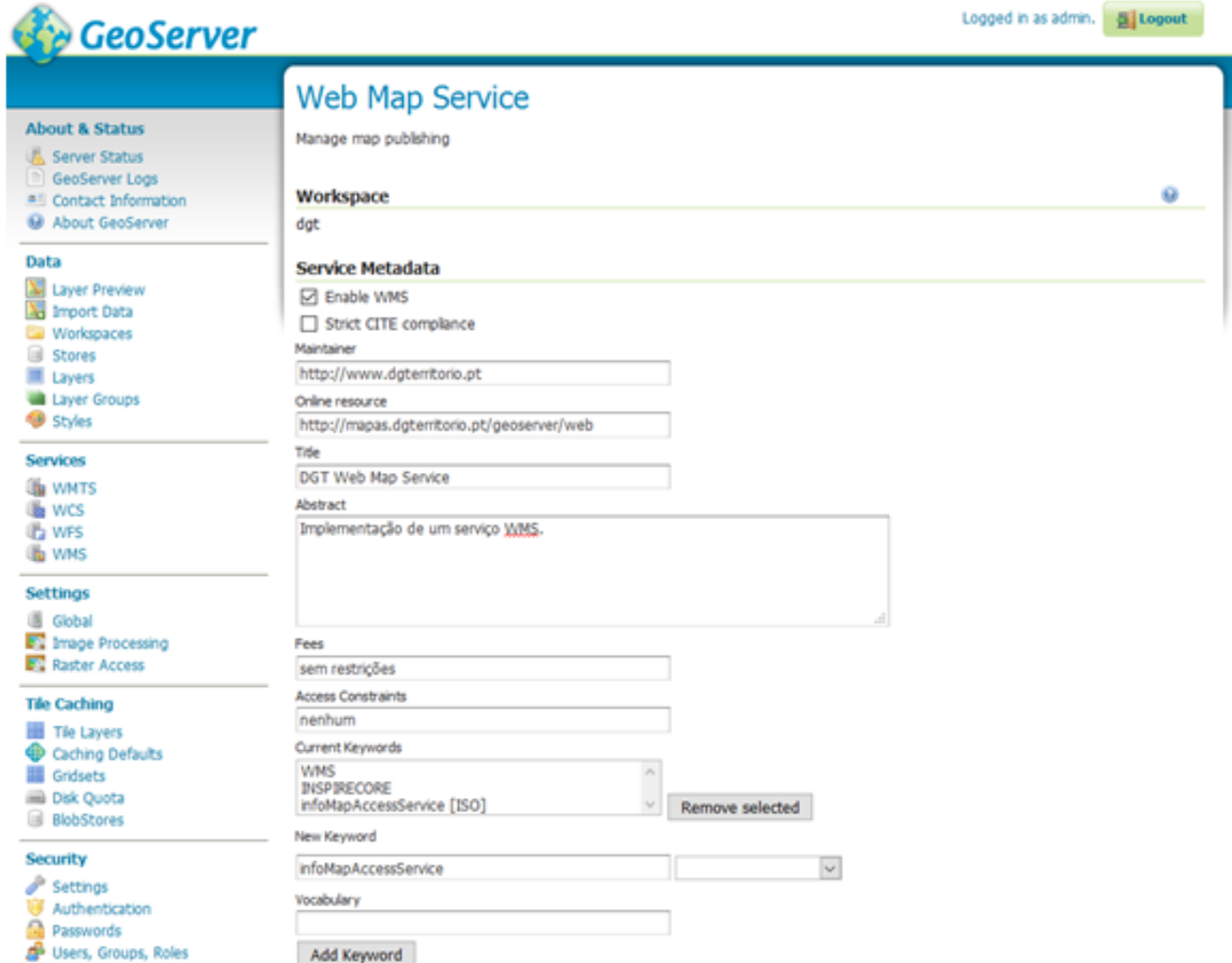
**Enabled**  
☐

**Services**

- ☐ WCS
- ☐ WFS
- ☐ WMS

**Metadados  
Global ou local**

- Workspace – Edit



The screenshot shows the GeoServer Web Map Service configuration page. The left sidebar contains navigation links for About & Status, Data, Services, Settings, Tile Caching, and Security. The main content area is titled "Web Map Service" and includes a "Workspace" section with a dropdown menu showing "dgt". Below this is the "Service Metadata" section, which includes checkboxes for "Enable WMS" and "Strict CITE compliance". The "Maintainer" field is set to "http://www.dgterritorio.pt", and the "Online resource" field is set to "http://mapas.dgterritorio.pt/geoserver/web". The "Title" field is set to "DGT Web Map Service". The "Abstract" field contains the text "Implementação de um serviço WMS.". The "Fees" field is set to "sem restrições". The "Access Constraints" field is set to "nenhum". The "Current Keywords" field is a dropdown menu showing "WMS", "INSPIRECORE", and "infoMapAccessService [ISO]". The "New Keyword" field is set to "infoMapAccessService". The "Vocabulary" field is empty. The "Add Keyword" button is visible at the bottom.

- Workspace – Edit

Data  
Services

---

Demos

---

Tools

---

### Authority URLs for the root WMS Layer

Authority Name	Authority URL	
DGT	http://www.dgterritorio.pt	Remove

Add new authority URL

### Root Layer Identifiers

Authority	Identifier	
DGT	PT_DGT_CAOP2016	Remove

Add new layer identifier

### Limited SRS list

3763, 4326, 4258, 3857

☒ Output bounding box for every supported CRS

...

### INSPIRE

☒ Create INSPIRE ExtendedCapabilities element

Language

por

Service Metadata URL

/xml&outputSchema=http://www.isotc211.org/2005/gmd

Service Metadata Type

CSW GetRecord by ID request

Submit Cancel



- Stores

Logged in as admin.



## Stores

Manage the stores providing data to GeoServer

- Add new Store 2
- Remove selected Stores

<< < 1 > >> Results

<input type="checkbox"/> Data Type	Workspaces
<input type="checkbox"/> nurc	
<input type="checkbox"/> nurc	
<input type="checkbox"/> nurc	
<input type="checkbox"/> tiger	
<input type="checkbox"/> sf	
<input type="checkbox"/> sf	
<input type="checkbox"/> topp	
<input type="checkbox"/> topp	
<input type="checkbox"/> nurc	

<< < 1 > >> Results



### About & Status

- Server Status
- GeoServer Logs
- Contact Information
- About GeoServer

### Data

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

### Services

- WMTS
- WCS
- WFS
- WMS

### Settings

- Global
- Image Processing
- Raster Access

## New data source

Choose the type of data source you wish to configure

3

### Vector Data Sources

- CSV - Comma delimited text file
- Directory of spatial files (shapefiles) - Takes a directory of shapefiles and exposes it as a data source
- PostGIS - PostGIS Database
- PostGIS (JNDI) - PostGIS Database (JNDI)
- Properties - Allows access to Java Property files containing Feature information
- Shapefile - ESRI(tm) Shapefiles (\*.shp)
- Web Feature Server (NG) - Provides access to the Features published a Web Feature Service (when supported / allowed).

### Raster Data Sources

- ArcGrid - ARC/INFO ASCII GRID Coverage Format
- GeoTIFF - Tagged Image File Format with Geographic information
- Gtopo30 - Gtopo30 Coverage Format
- ImageMosaic - Image mosaicking plugin
- WorldImage - A raster file accompanied by a spatial data file

### Other Data Sources

- WMS - Cascades a remote Web Map Service





- Stores - SHP

## New Vector Data Source

Add a new vector data source

Shapefile  
ESRI(tm) Shapefiles (\*.shp)

### Basic Store Info

Workspace \*

dgt

Data Source Name \*

caop

Description

☒ Enabled

### Connection Parameters

Shapefile location \*

file:data/example.extension

Browse...

DBF charset

ISO-8859-1

☒ Create spatial index if missing/outdated

☐ Use memory mapped buffers (Disable on Windows)

☒ Cache and reuse memory maps (Requires 'Use Memory mapped buffers' to be enabled)

Save

Cancel

### Shapefile location

Data directory GeoServer\_Data\_Dir/

Name	Last modified	Size
coverages/	28/jan/2017 17:15	
data/	7/fev/2017 4:49	
demo/	28/jan/2017 17:15	
gwc/	28/jan/2017 17:15	
gwc-layers/	11/fev/2017 15:47	
layergroups/	28/jan/2017 17:15	
layouts/	28/jan/2017 17:15	
legendsamples/	29/jan/2017 16:57	
logs/	28/jan/2017 17:15	
palettes/	28/jan/2017 17:15	
plugIns/	28/jan/2017 17:15	
security/	28/jan/2017 18:34	
styles/	7/fev/2017 4:49	



- Stores – Raster Tiff

**About & Status**

- Server Status
- GeoServer Logs
- Contact Information
- About GeoServer

**Data**

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

**Services**

- WMTS
- WCS
- WFS
- WMS

**Settings**

- Global
- Image Processing
- Raster Access

## Add Raster Data Source

Description

GeoTIFF  
Tagged Image File Format with Geographic info

### Basic Store Info

Workspace \*

dgt

Data Source Name \*

ortos

Description

☒ Enabled

### Connection Parameters

URL \*

file:data/example.extension|

Browse...

Save

Cancel

URL

Data directory: GeoServer\_Data\_Dir/ data/

Name	Last modified	Size
PorNorte-PT/	11/fev/2017 17:10	
431_4_21_15.tif	29/dez/2016 1:14	33,9M

- Layer

## New Layer

Add a new layer

You can create a new feature type by manually configuring the attribute names and types. [Create new feature type...](#)

Here is a list of resources contained in the store 'Norte'. Click on the layer you wish to configure

<<
<
1
>
>>

Results 1 to 1 (out of 1 items)

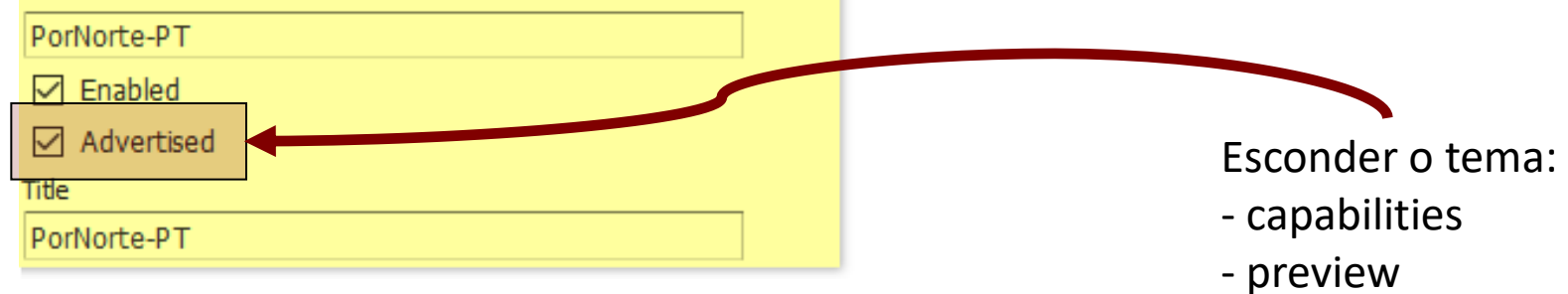
Search

Published	Layer name	Action
	PorNorte-PT	<a href="#">Publish</a>

<<
<
1
>
>>

Results 1 to 1 (out of 1 items)

- Layer



## dgt:PorNorte-PT

Configure the resource and publishing information for the current layer

Data

Publishing

Dimensions

Tile Caching

### Edit Layer

#### Basic Resource Info

Name

PorNorte-PT

☒ Enabled
 ☒ Advertised

Title

PorNorte-PT

Abstract

Dados IHRU

#### Keywords

Current Keywords

PorNorte-PT

features

IHRU

Remove selected

New Keyword

Vocabulary

Add Keyword

#### Metadata links

No metadata links so far

[Add link](#) *Note only FGDC and TC211 metadata links show up in WMS 1.1.1 capabilities*

#### Data links

No data links so far

[Add link](#)

Go

#### Coordinate Reference Systems

Native SRS

UNKNOWN

ETRS89\_Portugal\_TM06...

Declared SRS

EPSG:3763

Find...

EPSG:ETRS89 / Portugal TM06...

SRS handling

Force declared

#### Bounding Boxes

Native Bounding Box

Min X	Min Y	Max X	Max Y
-127.096,8068700	-301.702,0293137	173.081,7938279	278.541,6694684

[Compute from data](#)

[Compute from SRS bounds](#)

Lat/Lon Bounding Box

Min X	Min Y	Max X	Max Y
-8,849925542431	40,819198085690	-6,745756730782	41,819636603058

[Compute from native bounds](#)

#### Curved geometries control

☐ Linear geometries can contain circular arcs

Linearization tolerance (useful only if your data contains curved geometries)

#### Feature Type Details

Property	Type	Nullable	Min/Max Occurrences
the_geom	MultiPolygon	true	0/1
OID_	Integer	true	0/1
Name	String	true	0/1
FolderPath	String	true	0/1
SymbolID	Integer	true	0/1
AltMode	Integer	true	0/1
Base	Double	true	0/1
Clamped	Integer	true	0/1
Extruded	Integer	true	0/1
Snippet	String	true	0/1
PopupInfo	String	true	0/1
Shape_Leng	Double	true	0/1
Shape_Area	Double	true	0/1

## Edit Layer

Edit layer data and publishing

### dgt:PorNorte-PT

Configure the resource and publishing information for the current layer

Data **Publishing** Dimensions Tile Caching

### HTTP Settings

#### Caching Settings

☐ Response Cache Headers

Cache Time (seconds)

### WFS Settings

#### Feature Settings

Per-Request Feature Limit

0

Maximum number of decimals

0

#### NumberMatched skip

☐ Skip the counting of the numberMatched attribute

#### Extra SRS codes for WFS capabilities generation

☐ Override WFS wide SRS list

### WMS Settings

#### Layer Settings

☒ Queryable

☐ Opaque

Default Style

polygon



Additional Styles

Available Styles		Selected Styles
<ul style="list-style-type: none"> <li>burg</li> <li>capitals</li> <li>cite_lakes</li> <li>dem</li> <li>generic</li> <li>giant_polygon</li> <li>grass</li> <li>green</li> <li>line</li> <li>poi</li> </ul>	<div>+</div> <div>-</div>	

Default Rendering Buffer

Default WMS Path

#### Authority URLs for this WMS Layer

No authority URLs so far

Add new authority URL

#### Layer Identifiers

No layer identifiers so far

Add new layer identifier

#### WMS Attribution

Attribution Text

Attribution Link

Logo URL

Logo Content Type

Logo Image Width

0

Logo Image Height

0

Auto-detect image size and type

#### KML Format Settings

Default Regionating Attribute

Escolha

Default Regionating Method

Escolha

Features Per Regionated Tile



Save

Cancel








- Layer

## Layers

Manage the layers being published by GeoServer

 Add a new layer  
 Remove selected layers

<< < 1 > >> Results 1 to 20 (out of 20 items)

<input type="checkbox"/>	Type	Title	Name	Store	Enabled	Native SRS
<input type="checkbox"/>		A sample ArcGrid file	nurc:Arc_Sample	arcGridSample	✓	EPSG:4326
<input type="checkbox"/>		North America sample imagery	nurc:Img_Sample	worldImageSample	✓	EPSG:4326
<input type="checkbox"/>		Pk50095	nurc:Pk50095	img_sample2	✓	EPSG:32633
<input checked="" type="checkbox"/>		PorNorte-PT	<u>dgt:PorNorte-PT</u>	Norte	✓	EPSG:3763
<input type="checkbox"/>		Spearfish archeological sites	sf:archsites	sf	✓	EPSG:26713
<input type="checkbox"/>		Spearfish bug locations	sf:bugsites	sf	✓	EPSG:26713
<input type="checkbox"/>		World rectangle	tiger:giant_polygon	nyc	✓	EPSG:4326

- Layer Preview

### About & Status

- Server Status
- GeoServer Logs
- Contact Information
- About GeoServer

### Data

- Layer Preview**
- Import Data
- Workspaces
- Stores
- Layers
- Layer Groups
- Styles







### Services

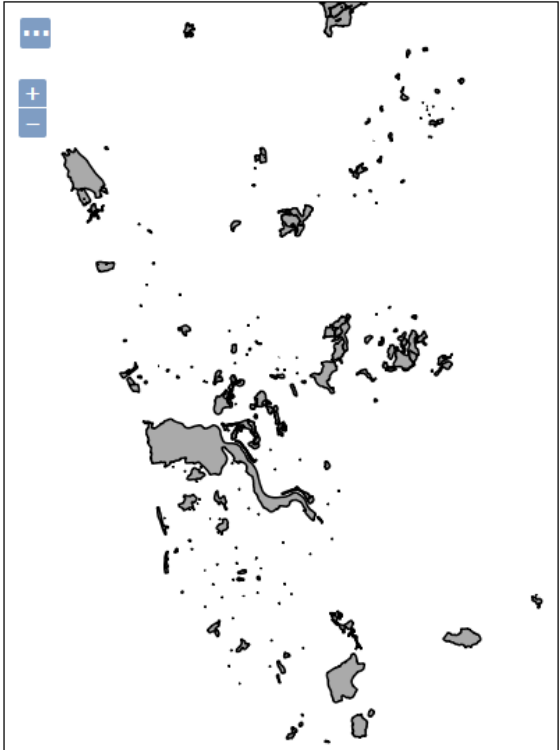
- WMTS
- WCS
- WFS
- WMS

## Layer Preview

List of all layers configured in GeoServer and provides previews in various formats for each.

Results 1 to 23 (out of 23 items)

Type	Title	Name	Common Formats	All Formats
	PorNorte-PT	dgt:PorNorte-PT	OpenLayers	KML GML <input type="text" value="Select one"/>
	A sample ArcGrid file	nurc:Arc_Sample		
	North America sample imagery	nurc:Img_Sample		
	Pk50095	nurc:Pk50095		
	mosaic	nurc:mosaic		
	Spearfish archeological sites	sf:archsites		






- Serviços OGC – documento GetCapabilities


## Welcome


Welcome

This GeoServer belongs to [The Ancient Geographers](#).

20 Layers	<a href="#">+ Add layers</a>
10 Stores	<a href="#">+ Add stores</a>
8 Workspaces	<a href="#">+ Create workspaces</a>

 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](#)

 No strong cryptography available, installation of the unrestricted policy jar files is recommended

This GeoServer instance is running version **2.10.1**. For more information please contact the [administrator](#).

### Service Capabilities

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

- Recursos:

- GeoServer User Manual

- <http://docs.geoserver.org/stable/en/user/>

- GeoServer Training Modules

- <http://geoserver.geo-solutions.it/edu/en/>

# ***Serviços de Dados Geográficos***

***Danilo Furtado***  
**Direção-Geral do Território**