

# Sistemas de Informação II

<https://github.com/genilsonmm/sistemas-de-informacao-2>

## Avaliação Contínua

### P1

- Web Service REST | JSON
- Web Service e Banco de dados

### P2

- Projeto 3
- Projeto 4

## Web Service



# Interoperabilidade





## API

**API** é um conjunto de rotinas e padrões de programação para acesso a um aplicativo de software ou plataforma baseado na Web. A sigla **API** refere-se ao termo em inglês "**Application Programming Interface**" que significa em tradução para o português "Interface de Programação de Aplicativos".

## API x Web Service

Todos os Web Services são API. Mas nem todas as API são Web Service. Web Services podem não executar todas as tarefas que uma API normalmente realiza. Um serviço Web utiliza apenas três estilos de comunicação: SOAP, REST e XML-RPC enquanto que a API pode usar qualquer estilo de comunicação.

## Protocolo HTTP

**HTTP** (Hypertext Transfer Protocol) é um protocolo que permite a obtenção de recursos, tais como documentos HTML. É a base de qualquer troca de dados na Web e um protocolo cliente-servidor, o que significa que as requisições são iniciadas pelo destinatário, geralmente um navegador da Web

**HTML** é uma linguagem de marcação utilizada na construção de páginas na Web



## Protocolo SOAP

O protocolo **SOAP**, abreviação para ***Simple Object Access Protocol***, é uma especificação para a troca de informação entre sistemas, ou seja, uma **especificação de formato de dados** para envio de estruturas de dados entre serviços, com um padrão para permitir a interoperabilidade entre eles.

Seu design parte do princípio da utilização de **XMLs** para a transferência de objetos entre aplicações, e a utilização, como transporte, do protocolo de rede HTTP

<https://www.devmedia.com.br/web-services-rest-versus-soap/32451>

## Protocolo SOAP

```
1 <?xml version="1.0"?>
2 <soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
3   <soap:Header>
4   </soap:Header>
5   <soap:Body>
6     <m:GetRevista xmlns:m="http://www.example.org/revista">
7       <m:RevistaNome>Java Magazine</m:RevistaNome>
8     </m:GetRevista>
9   </soap:Body>
10 </soap:Envelope>
```

<https://www.devmedia.com.br/web-services-rest-versus-soap/32451>

# REST

## A Quick Overview of REST

REST provides a lighter-weight alternative. Many developers found SOAP cumbersome and hard to use. For example, working with SOAP in JavaScript means writing a ton of code to perform simple tasks because you must create the required XML structure every time.

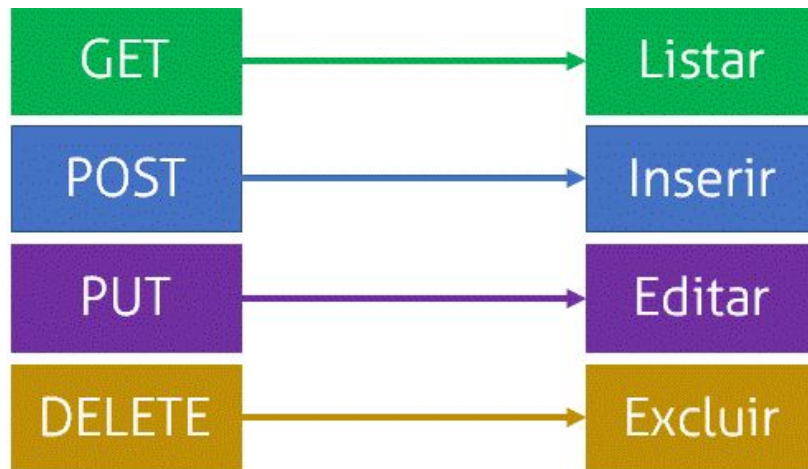
Situações em que há limitação de recursos e de largura de banda:

A Transferência de Estado Representativo (Representational State Transfer) ou somente (REST) é uma técnica de engenharia de software para sistemas hipermídia distribuídos como a World Wide Web. O termo se originou no ano de 2000, em uma tese de doutorado (PHD) sobre a web escrita por Roy Fielding, um dos principais autores da especificação do protocolo HTTP que é utilizado por sites da internet.

# REST

```
{  
  "id": 1000501,  
  "name": "Wilson Júnior",  
  "city": {  
    "name": "Rio de Janeiro",  
    "state": "RJ"  
  },  
  "age": 24  
}
```

## Verbos HTTP



## Códigos de erro HTTP

Error #	Error Code
100	Continue
101	Switching Protocols

Error #	Error Code
200	OK
201	Created
202	Accepted
203	Non-Authoritative Information
204	No Content
205	Reset Content
206	Partial Content

Error #	Error Code
300	Multiple Choices
301	Moved Permanently
302	Found
303	See Other
304	Not Modified
305	Use Proxy
307	Temporary Redirect

Error #	Error Code
400	Bad Request
401	Unauthorized
402	Payment Required
403	Forbidden
404	Not Found
405	Method Not Allowed
406	Not Acceptable
407	Proxy
408	Request Timeout
409	Conflict
410	Gone
411	Length Required
412	Precondition Failed
413	Request Entity Too Large
414	Request-URI Too Large
415	Unsupported Media Type
416	Requested Range Not Satisfiable
417	Expectation Failed

# Códigos de erro HTTP



A Unifacisa ▾

Graduação ▾

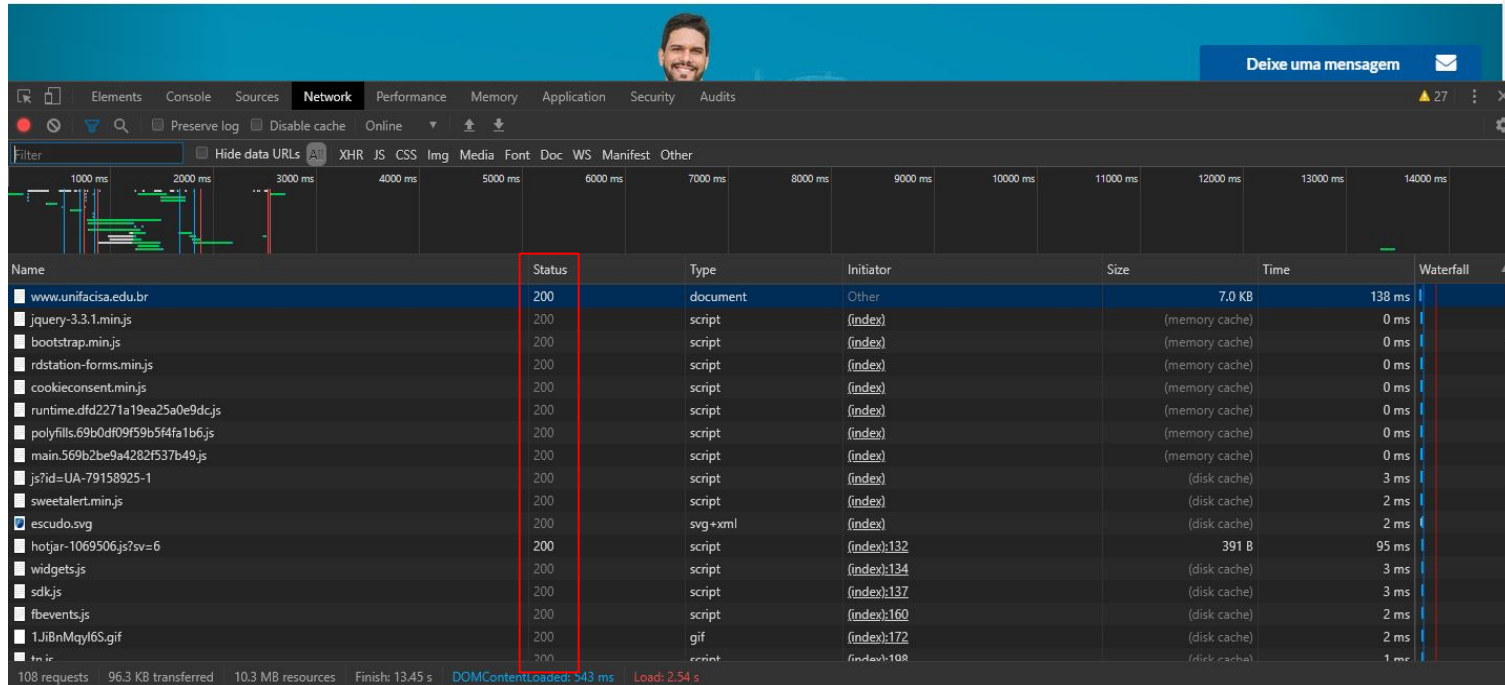
Pós-Graduação

Cursos Livres

Pesquisa

Sou Unifacisa ▾

Inscreva-se



Deixe uma mensagem

Elements Console Sources **Network** Performance Memory Application Security Audits

Filter Hide data URLs XHR JS CSS Img Media Font Doc WS Manifest Other

Name	Status	Type	Initiator	Size	Time	Waterfall
www.unifacisa.edu.br	200	document	Other	7.0 KB	138 ms	
jquery-3.3.1.min.js	200	script	(index)	(memory cache)	0 ms	
bootstrap.min.js	200	script	(index)	(memory cache)	0 ms	
rdstation-forms.min.js	200	script	(index)	(memory cache)	0 ms	
cookieconsent.min.js	200	script	(index)	(memory cache)	0 ms	
runtime.dfd2271a19ea25a0e9dcjs	200	script	(index)	(memory cache)	0 ms	
polyfills.69b0df09f59b5f4fa1b6js	200	script	(index)	(memory cache)	0 ms	
main.569b2be9a4282f537b49js	200	script	(index)	(memory cache)	0 ms	
js?id=UA-79158925-1	200	script	(index)	(disk cache)	3 ms	
sweetalert.min.js	200	script	(index)	(disk cache)	2 ms	
escudo.svg	200	svg+xml	(index)	(disk cache)	2 ms	
hotjar-1069506js?sv=6	200	script	(index):132	391 B	95 ms	
widgets.js	200	script	(index):134	(disk cache)	3 ms	
sdk.js	200	script	(index):137	(disk cache)	3 ms	
fbevents.js	200	script	(index):160	(disk cache)	2 ms	
1Ji8nMqyl6S.gif	200	gif	(index):172	(disk cache)	2 ms	
in iz	200	script	(index):108	(disk cache)	1 ms	

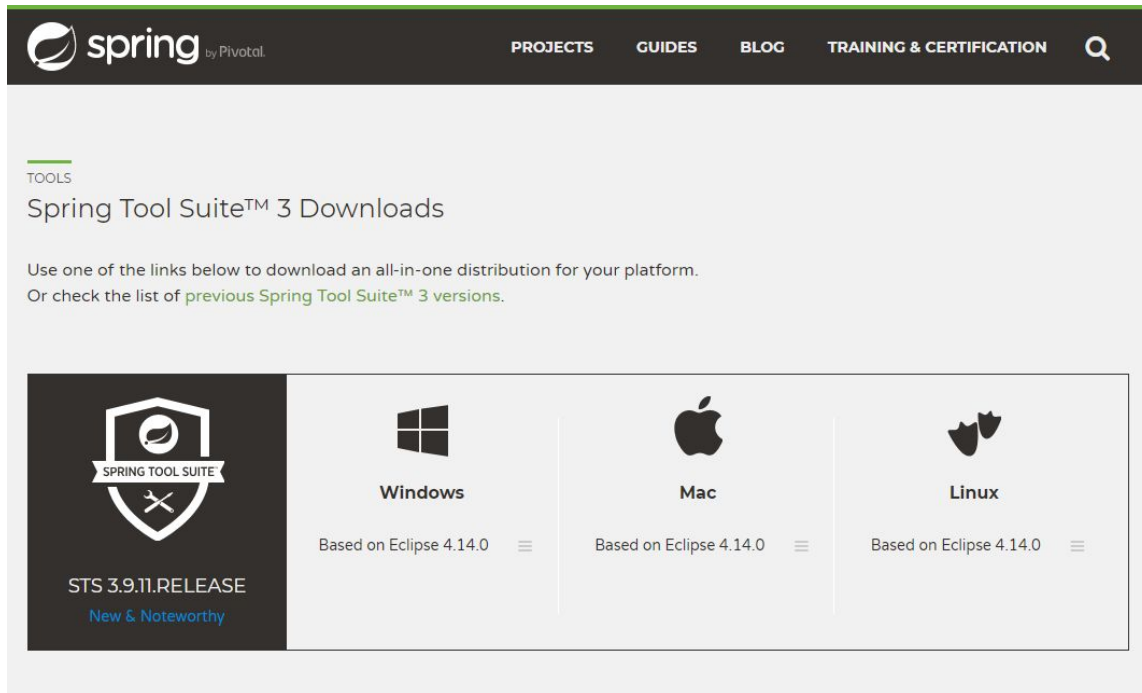
108 requests 96.3 KB transferred 10.3 MB resources Finish: 13.45 s DOMContentLoaded: 343 ms Load: 2.54 s

## IDE



O Spring Boot é um projeto da Spring que veio para facilitar o processo de configuração e publicação de nossas aplicações. A intenção é ter o seu projeto rodando o mais rápido possível e sem complicação





The screenshot shows the Spring Tool Suite 3 Downloads page. The header features the Spring logo and navigation links: PROJECTS, GUIDES, BLOG, and TRAINING & CERTIFICATION. The main content area is titled "Spring Tool Suite™ 3 Downloads" and includes a sub-header "TOOLS". Below the title, there is a paragraph explaining that users can download an all-in-one distribution for their platform or check the list of previous versions. The page is divided into three columns for Windows, Mac, and Linux. Each column contains a download link and a note that the suite is based on Eclipse 4.14.0. A sidebar on the left displays the Spring Tool Suite logo and the version "STS 3.9.11.RELEASE" with a "New & Noteworthy" link.


spring by Pivotal.

PROJECTS GUIDES BLOG TRAINING & CERTIFICATION

TOOLS

## Spring Tool Suite™ 3 Downloads


Use one of the links below to download an all-in-one distribution for your platform.  
Or check the list of [previous Spring Tool Suite™ 3 versions](#).



SPRING TOOL SUITE


STS 3.9.11.RELEASE

[New & Noteworthy](#)




Windows

Based on Eclipse 4.14.0



Mac

Based on Eclipse 4.14.0



Linux

Based on Eclipse 4.14.0

<https://spring.io/tools3/sts/all>

# Instalação/Configuração

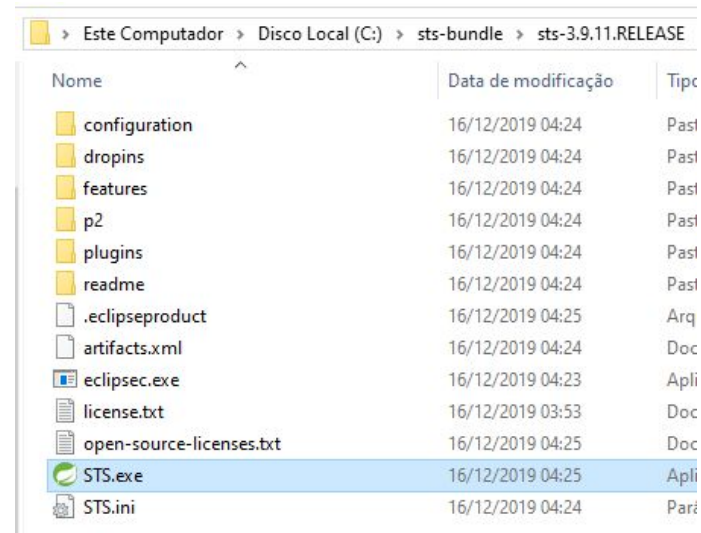
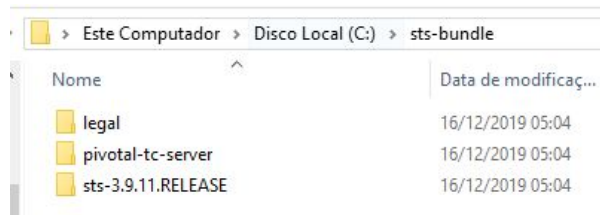
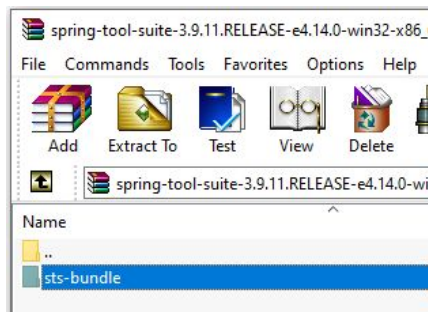
1



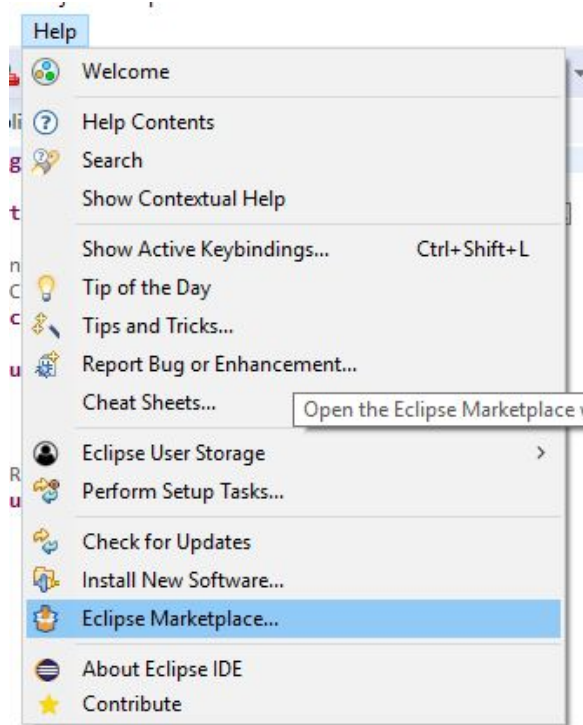
2



3



## Configurando o Spring boot no Eclipse



# Configurando o Spring boot no Eclipse


Eclipse Marketplace

**Eclipse Marketplace**


Select solutions to install. Press Install Now to proceed with installation.  
Press the "more info" link to learn more about a solution.

Search Recent Popular Favorites Installed Giving IoT an Edge

Find:  All Markets All Categories Go




**Spring Tools 4 (aka Spring Tool Suite 4) 4.5.1.RELEASE**  
Spring Tools 4 is the next generation of Spring Boot tooling for your favorite coding environment. Largely rebuilt from scratch, it provides world-class support... [more info](#)  
by Pivotal EPL  
[spring](#) [Spring IDE](#) [Cloud](#) [Spring Tool Suite](#) [STS](#) ...  
★ 2367 Installs: 1.44M (27,152 last month) [Installed](#)



**Spring Tools 3 Add-On for Spring Tools 4 3.9.12.CI**  
Spring Tools 3 Add-On for Spring Tools 4 Attention: This add-on pack provides additional components from the previous Spring Tools 3 generation to be installed... [more info](#)  
by Pivotal EPL  
[J2EE](#) [spring](#) [Spring IDE](#) [Cloud](#) [jee](#) ...  
★ 208 Installs: 281K (7,393 last month) [Install](#)

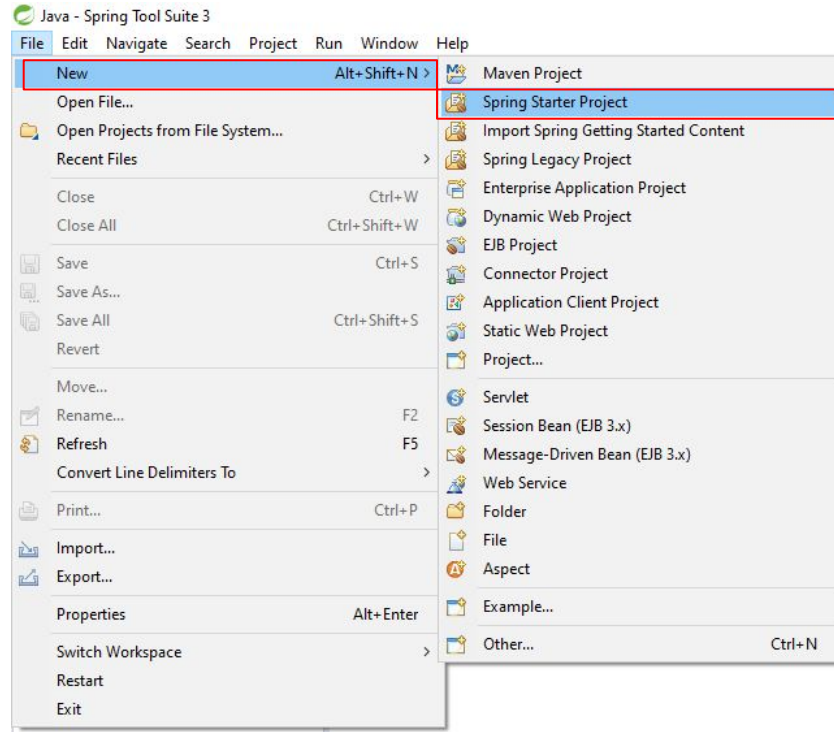
**Spring Tools 3 (Standalone Edition) 3.9.11.RELEASE**

**Marketplaces**



[?](#) [< Back](#) [Install Now >](#) [Finish](#) [Cancel](#)

## Olá Web Service



## Olá Web Service

New Spring Starter Project

Service URL:

Name:

☒ Use default location

Location:

Type:  Packaging:

Java Version:  Language:

Group:

Artifact:

Version:

Description:

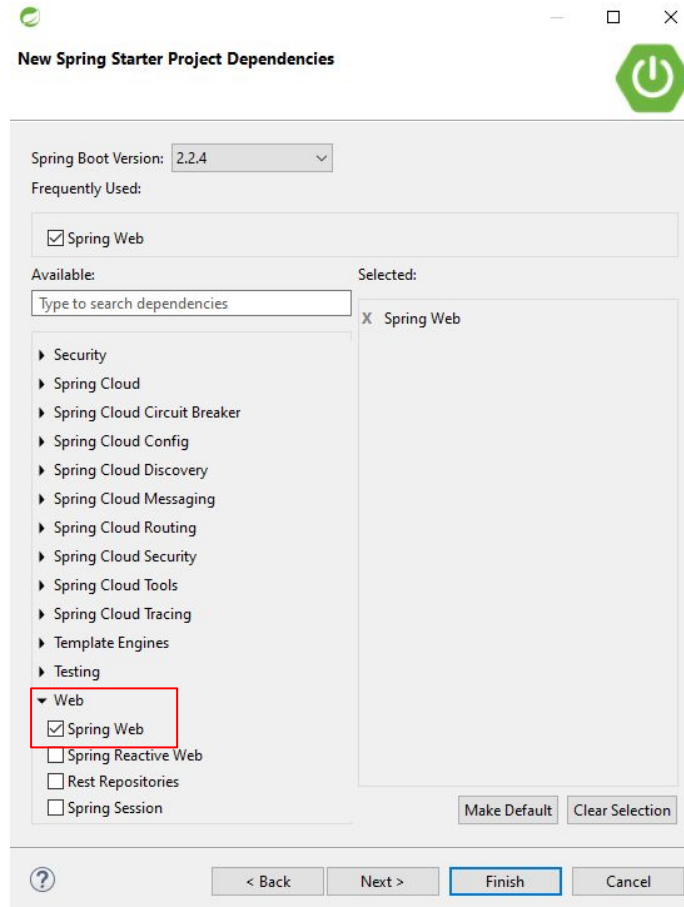
Package:

Working sets

☐ Add project to working sets

Working sets:

# Olá Web Service



New Spring Starter Project Dependencies

Spring Boot Version: 2.2.4

Frequently Used:

☒ Spring Web

Available:

Type to search dependencies

- ▶ Security
- ▶ Spring Cloud
- ▶ Spring Cloud Circuit Breaker
- ▶ Spring Cloud Config
- ▶ Spring Cloud Discovery
- ▶ Spring Cloud Messaging
- ▶ Spring Cloud Routing
- ▶ Spring Cloud Security
- ▶ Spring Cloud Tools
- ▶ Spring Cloud Tracing
- ▶ Template Engines
- ▶ Testing
- ▼ Web
  - ☒ Spring Web
  - ☐ Spring Reactive Web
  - ☐ Rest Repositories
  - ☐ Spring Session

Selected:

X Spring Web

Make Default Clear Selection

< Back Next > Finish Cancel

## Olá Web Service

- si2api [boot]
  - Spring Elements
  - src/main/java
  - src/main/resources
  - src/test/java
  - JRE System Library [JavaSE-1.8]
  - Maven Dependencies
  - src
  - target
  - HELP.md
  - mvnw
  - mvnw.cmd
  - pom.xml

Service URL:

Name:

☒ Use default location

Location:

Type:  Packaging:

Java Version:  Language:

Group:

Artifact:

Version:

Description:

Package:

Working sets

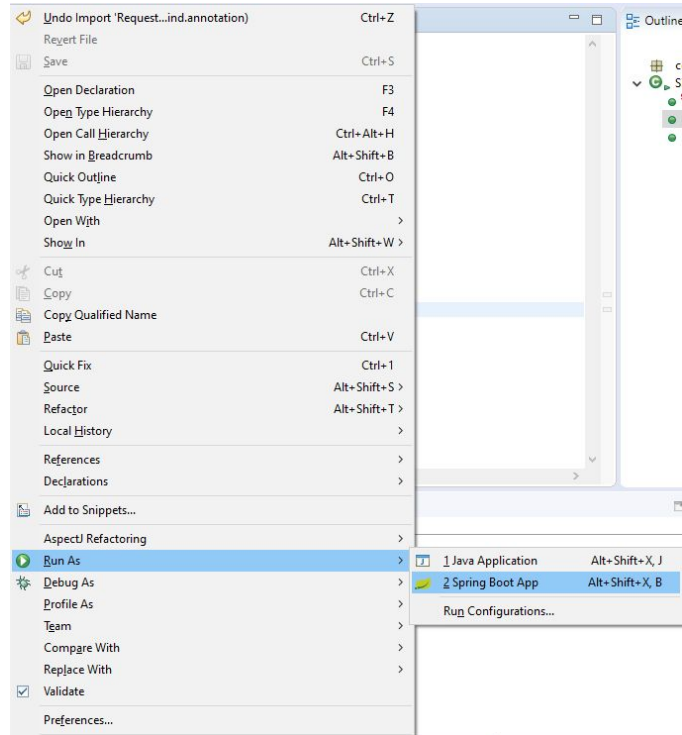
- si2api [boot]
  - Spring Elements
  - src/main/java
    - com.si2.api
      - Si2apiApplication.java



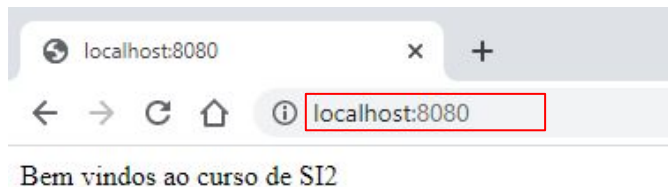
## Olá Web Service

```
Si2apiApplication.java
1 package com.si2.api;
2
3 import org.springframework.boot.SpringApplication;
4 import org.springframework.boot.autoconfigure.SpringBootApplication;
5 import org.springframework.web.bind.annotation.RequestMapping;
6 import org.springframework.web.bind.annotation.RestController;
7
8 @SpringBootApplication
9 @RestController
10 public class Si2apiApplication {
11
12     public static void main(String[] args) {
13         SpringApplication.run(Si2apiApplication.class, args);
14     }
15
16     @RequestMapping("/")
17     public String bemVindo() {
18         return "Bem vindos ao curso de SI2";
19     }
20 }
```

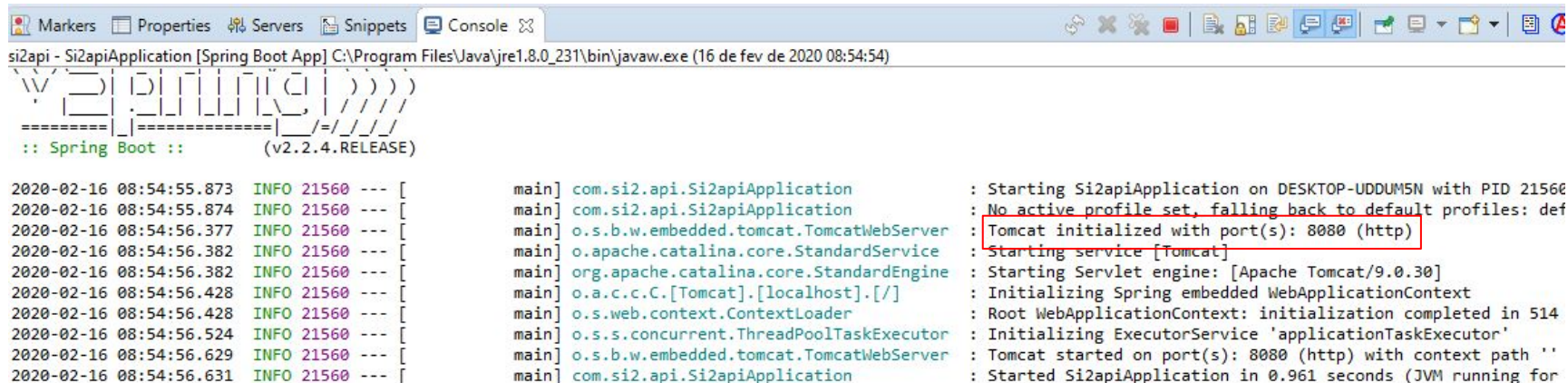
# Olá Web Service



## Olá Web Service



## Olá Web Service

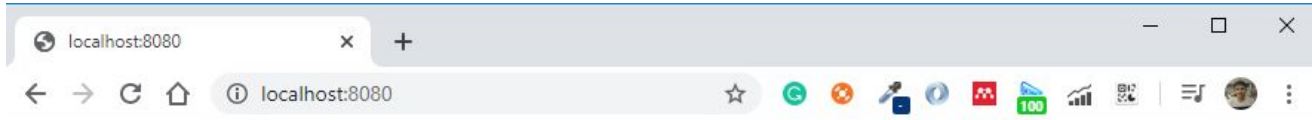


```
si2api - Si2apiApplication [Spring Boot App] C:\Program Files\Java\jre1.8.0_231\bin\javaw.exe (16 de fev de 2020 08:54:54)

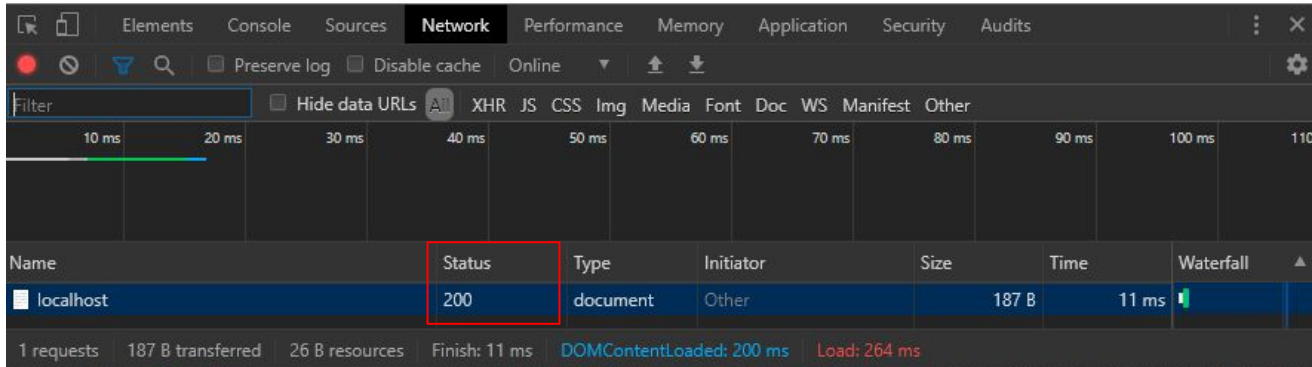
:: Spring Boot :: (v2.2.4.RELEASE)

2020-02-16 08:54:55.873 INFO 21560 --- [main] com.si2.api.Si2apiApplication : Starting Si2apiApplication on DESKTOP-UDDUM5N with PID 21560
2020-02-16 08:54:55.874 INFO 21560 --- [main] com.si2.api.Si2apiApplication : No active profile set, falling back to default profiles: default
2020-02-16 08:54:56.377 INFO 21560 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat initialized with port(s): 8080 (http)
2020-02-16 08:54:56.382 INFO 21560 --- [main] o.apache.catalina.core.StandardService : Starting service [Tomcat]
2020-02-16 08:54:56.382 INFO 21560 --- [main] org.apache.catalina.core.StandardEngine : Starting Servlet engine: [Apache Tomcat/9.0.30]
2020-02-16 08:54:56.428 INFO 21560 --- [main] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring embedded WebApplicationContext
2020-02-16 08:54:56.428 INFO 21560 --- [main] o.s.web.context.ContextLoader : Root WebApplicationContext: initialization completed in 514 ms
2020-02-16 08:54:56.524 INFO 21560 --- [main] o.s.s.concurrent.ThreadPoolTaskExecutor : Initializing ExecutorService 'applicationTaskExecutor'
2020-02-16 08:54:56.629 INFO 21560 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port(s): 8080 (http) with context path ''
2020-02-16 08:54:56.631 INFO 21560 --- [main] com.si2.api.Si2apiApplication : Started Si2apiApplication in 0.961 seconds (JVM running for ...)
```

## Olá Web Service



Bem vindos ao curso de SI2



## Olá Web Service

```
Si2apiApplication.java
1 package com.si2.api;
2
3 import org.springframework.boot.SpringApplication;
4 import org.springframework.boot.autoconfigure.SpringBootApplication;
5 import org.springframework.web.bind.annotation.RequestMapping;
6 import org.springframework.web.bind.annotation.RequestMethod;
7 import org.springframework.web.bind.annotation.RestController;
8
9 @SpringBootApplication
10 @RestController
11 public class Si2apiApplication {
12
13     public static void main(String[] args) {
14         SpringApplication.run(Si2apiApplication.class, args);
15     }
16
17     @RequestMapping("/")
18     public String bemVindo() {
19         return "Bem vindos ao curso de SI2";
20     }
21
22     @RequestMapping(value="/listar", method = RequestMethod.GET)
23     public String listar() {
24         return "Listar valores";
25     }
26
27 }
28
```

## Olá Web Service

```
--
11 @SpringBootApplication
12 @RestController
13 public class Si2apiApplication {
14
15     public static void main(String[] args) {
16         SpringApplication.run(Si2apiApplication.class, args);
17     }
18
19     @RequestMapping("/")
20     public String bemVindo() {
21         return "Bem vindos ao curso de SI2";
22     }
23
24     @RequestMapping(value="/listar", method = RequestMethod.GET)
25     public String listar() {
26         return "Listar valores";
27     }
28
29     @GetMapping("/usuario/id/{numero}")
30     public String user(@PathVariable String numero) {
31         return "usuário de id: " + numero;
32     }
33 }
```