自动配置

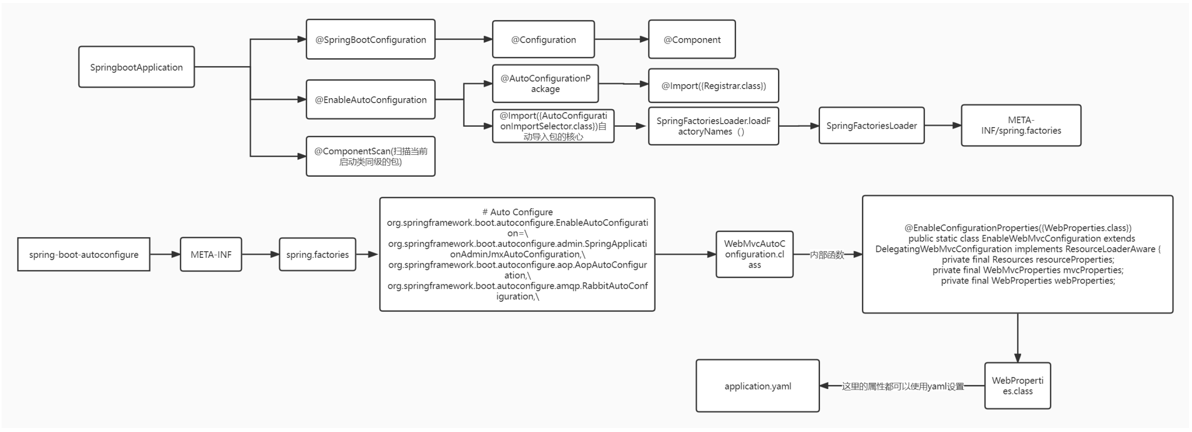
springbot启动类

```java
package com.springbootstudy;

import com.springbootstudy.bean.User;
import org.springframework.boot.SpringApplication;
import org.springframework.boot.autoconfigure.SpringBootApplication;
import org.springframework.context.ConfigurableApplicationContext;
@SpringBootApplication
public class Springboot01HelloworldApplication {

    public static void main(String[] args) {
        //
        ConfigurableApplicationContext run =
SpringApplication.run(Springboot01HelloworldApplication.class, args);
        //bean获取
        String names[] = run.getBeanDefinitionNames();
        User user = (User)run.getBean("user");
        boolean car = run.containsBean("car");
    }
}
```

SpringBoot自动配置


SpringbootApplication
@SpringBootConfiguration
@Configuration
@Component
@EnableAutoConfiguration
@AutoConfigurationPackage
@Import({Registrar.class})
@Import({AutoConfigurationImportSelector.class})自动导入包的核心
SpringFactoriesLoader.loadFactoryNames ()
SpringFactoriesLoader
META-INF/spring.factories
@ComponentScan(扫描当前启动类同级的包)
spring-boot-autoconfigure
META-INF
spring.factories
# Auto Configure
org.springframework.boot.autoconfigure.EnableAutoConfiguration=\
org.springframework.boot.autoconfigure.admin.SpringApplicationAdminJmxAutoConfiguration,\
org.springframework.boot.autoconfigure.aop.AopAutoConfiguration,\
org.springframework.boot.autoconfigure.amqp.RabbitAutoConfiguration,\
WebMvcAutoConfiguration.class
内部函数
@EnableConfigurationProperties({WebProperties.class})
public static class EnableWebMvcConfiguration extends DelegatingWebMvcConfiguration implements ResourceLoaderAware {
private final Resources resourceProperties;
private final WebMvcProperties mvcProperties;
private final WebProperties webProperties;
WebProperties.class
这里的属性都可以使用yaml设置
application.yaml

常用注解

@SpringBootApplication

```java
@Target(ElementType.TYPE)
@Retention(RetentionPolicy.RUNTIME)
@Documented
@Inherited
@SpringBootConfiguration
@EnableAutoConfiguration
```

```
@ComponentScan(excludeFilters = { @Filter(type = FilterType.CUSTOM, classes =
TypeExcludeFilter.class),
        @Filter(type = FilterType.CUSTOM, classes =
AutoConfigurationExcludeFilter.class) })
public @interface SpringBootApplication {
    @AliasFor(annotation = EnableAutoConfiguration.class)
    Class<?>[] exclude() default {};
    @AliasFor(annotation = EnableAutoConfiguration.class)
    String[] excludeName() default {};
    @AliasFor(annotation = ComponentScan.class, attribute = "basePackages")
    String[] scanBasePackages() default {};
    @AliasFor(annotation = ComponentScan.class, attribute =
"basePackageClasses")
    Class<?>[] scanBasePackageClasses() default {};
    @AliasFor(annotation = ComponentScan.class, attribute = "nameGenerator")
    Class<? extends BeanNameGenerator> nameGenerator() default
BeanNameGenerator.class;
    @AliasFor(annotation = Configuration.class)
    boolean proxyBeanMethods() default true;
}
```

@SpringBootConfiguration

```
@Target({ElementType.TYPE})
@Retention(RetentionPolicy.RUNTIME)
@Documented
@Configuration
@Indexed
public @interface SpringBootConfiguration {
    @AliasFor(
        annotation = Configuration.class
    )
    boolean proxyBeanMethods() default true;
}
```

@Configuration

```
@Target({ElementType.TYPE})
@Retention(RetentionPolicy.RUNTIME)
@Documented
@Component
public @interface Configuration {
    @AliasFor(
        annotation = Component.class
    )
    String value() default "";
    boolean proxyBeanMethods() default true;
}
```

配置类，将类注入为组件

@Configuration 配置类

@Bean

```
/*
 * 1. 声明为配置类,本身就是组件
 * 2. MyConfig bean, proxybeanmethods=true
 * 3. proxyBeanMethods=false,
 */
@Configuration
public class ConfigurationTest {
    @Bean//方法名是id
    public User user1(){//
        return new User(1,"tom","?",13);
    }
}
```

@Import

```
@Import({Car.class})
@Configuration//
public class ImportTest {}
```

- @Bean
- @import

@ConditionalOnBean@ConditionalOnMissingBean@ConditionalOnWebApplication...........

@ImportResource("classpath:bean.xml")

属性绑定配置文件两种方式

@ConfigurationProperties+Compont

比如db.properties   key:value?

```
/*
 *Dog.java
 */
@Component//将组件放到容器中
@ConfigurationProperties(prefix = "dog")//绑定配置文件  application.yaml,  前缀dog
public class Dog {
    private Integer id;
    private String name;
}

/*
 *application.yaml
 */
dog.id=1
dog.name=wangcai
```

@ConfigurationProperties+EnableConfigurationProperties:更常用！！！

```
/*
 *Dog.java
 */
@ConfigurationProperties(prefix = "dog")//绑定配置文件  application.yaml， 前缀dog
public class Dog {
    private Integer id;
    private String name;
}
/*
 *EnableConfigurationPropertisTest.java
 */
@Configuration// 声明配置类，本身就是组件
@EnableConfigurationProperties({Dog.class})//??
public class EnableConfigurationPropertisTest {

}
//###########################??####################################
//        Dog dog = run.getBean("dog", Dog.class);
//        System.out.println(dog);
//

@RestController
public class DogController {
    @Autowired
    Dog dog;
    @RequestMapping("/dog")
    public Dog getDog(){
        return dog;
    }
}
```

@ConfigurationProperties作用在@Bean上，Bean绑定配置文件！！！！！

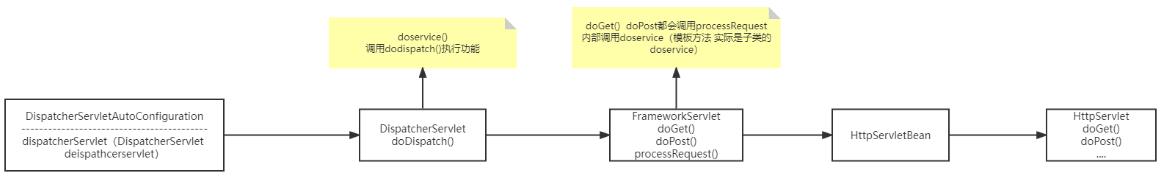
```
@Configuration
public class MyDataSourceConfig{
    @ConfigurationProperties(prefix="spring.datasource")
    @Bean
    public DataSource datasource(){
        return new DruidDataSource();
    }
}
```

springboot AOP

```
@Configuration(proxyBeanMethods = false)
@ConditionalOnProperty(prefix = "spring.aop", name = "auto", havingValue =
"true", matchIfMissing = true)
public class AopAutoConfiguration {

    @Configuration(proxyBeanMethods = false)
    @ConditionalOnClass(Advice.class)
    static class AspectJAutoProxyingConfiguration {
        // jdk动态代理
        @Configuration(proxyBeanMethods = false)
        @EnableAspectJAutoProxy(proxyTargetClass = false)
        @ConditionalOnProperty(prefix = "spring.aop", name = "proxy-target-
class", havingValue = "false")
        static class JdkDynamicAutoProxyConfiguration {}
        //cglib动态代理
        @Configuration(proxyBeanMethods = false)
        @EnableAspectJAutoProxy(proxyTargetClass = true)
        @ConditionalOnProperty(prefix = "spring.aop", name = "proxy-target-
class", havingValue = "true",
                matchIfMissing = true)
        static class CglibAutoProxyConfiguration {
        }
}
```

DispatcherServlet原理分析


doservice()
调用dodispatch()执行功能
doGet() doPost()都会调用processRequest 内部调用doservice（模板方法 实际是子类的doservice）
DispatcherServletAutoConfiguration
dispatcherServlet（DispatcherServlet deispathcerservlet）
DispatcherServlet doDispatch()
FrameworkServlet doGet() doPost() processRequest()
HttpServletBean
HttpServlet doGet() doPost() ....

DispatcherServletAutoConfiguration.java

```
@AutoConfigureOrder(Ordered.HIGHEST_PRECEDENCE)
@Configuration(proxyBeanMethods = false)
@ConditionalOnWebApplication(type = Type.SERVLET)
@ConditionalOnClass(DispatcherServlet.class)
@AutoConfigureAfter(ServletWebServerFactoryAutoConfiguration.class)
public class DispatcherServletAutoConfiguration {
    @Configuration(proxyBeanMethods = false)
    @Conditional(DefaultDispatcherServletCondition.class)
    @ConditionalOnClass(ServletRegistration.class)

@EnableConfigurationProperties(WebMvcProperties.class)//?????????????????????
@ConfigurationProperties  ??????????????
    protected static class DispatcherServletConfiguration {
        @Bean(name = DEFAULT_DISPATCHER_SERVLET_BEAN_NAME)
        public DispatcherServlet dispatcherServlet(WebMvcProperties
webMvcProperties) {
            DispatcherServlet dispatcherServlet = new DispatcherServlet();

dispatcherServlet.setDispatchOptionsRequest(webMvcProperties.isDispatchOptionsRe
quest());

dispatcherServlet.setDispatchTraceRequest(webMvcProperties.isDispatchTraceReques
t());

dispatcherServlet.setThrowExceptionIfNoHandlerFound(webMvcProperties.isThrowExce
ptionIfNoHandlerFound());

dispatcherServlet.setPublishEvents(webMvcProperties.isPublishRequestHandledEvent
s());
dispatcherServlet.setEnableLoggingRequestDetails(webMvcProperties.isLogRequestDe
tails());
            return dispatcherServlet;
        }

        @Bean
        @ConditionalOnBean(MultipartResolver.class)
        @ConditionalOnMissingBean(name =
DispatcherServlet.MULTIPART_RESOLVER_BEAN_NAME)//name=multipartResolver

        public MultipartResolver multipartResolver(MultipartResolver resolver) {
            // Detect if the user has created a MultipartResolver but named it
incorrectly
            return resolver;
        }

    ....
    ....
}
```

WebMvcProperties.java

```
@ConfigurationProperties(prefix = "spring.mvc")
public class WebMvcProperties {
    /**
     * Path pattern used for static resources.   ??????
     */
    private String staticPathPattern = "/**";
    private final Async async = new Async();
    private final Servlet servlet = new Servlet();
    private final View view = new View();
    private final Contentnegotiation contentnegotiation = new
Contentnegotiation();
    private final Pathmatch pathmatch = new Pathmatch();

    public static class Async {
    }

    public static class Servlet {
    }
    //????????????
    public static class View {
        private String prefix;
        private String suffix;
        get/set
    }
    ...
}
```

webmvc

WebMVCAutoConfiguration.java

```
@Configuration(proxyBeanMethods = false)
@ConditionalOnWebApplication(type = Type.SERVLET)
@ConditionalOnClass({ Servlet.class, DispatcherServlet.class,
WebMvcConfigurer.class })
@ConditionalOnMissingBean(WebMvcConfigurationSupport.class)
@AutoConfigureOrder(Ordered.HIGHEST_PRECEDENCE + 10)
@AutoConfigureAfter({ DispatcherServletAutoConfiguration.class,
TaskExecutionAutoConfiguration.class,
        ValidationAutoConfiguration.class })
public class WebMvcAutoConfiguration {
    @Configuration(proxyBeanMethods = false)
    @EnableConfigurationProperties(WebProperties.class)
    public static class EnableWebMvcConfiguration extends
DelegatingWebMvcConfiguration implements ResourceLoaderAware {
        private final Resources resourceProperties;
        private final WebMvcProperties mvcProperties;
        private final WebProperties webProperties;
        private final ListableBeanFactory beanFactory;
        private final WebMvcRegistrations mvcRegistrations;
        private ResourceLoader resourceLoader;
        public EnableWebMvcConfiguration(WebMvcProperties mvcProperties,
WebProperties webProperties,
                ObjectProvider<WebMvcRegistrations> mvcRegistrationsProvider,
                ObjectProvider<ResourceHandlerRegistrationCustomizer>
resourceHandlerRegistrationCustomizerProvider,
                ListableBeanFactory beanFactory) {
            this.resourceProperties = webProperties.getResources();
            this.mvcProperties = mvcProperties;
            this.webProperties = webProperties;
            this.mvcRegistrations = mvcRegistrationsProvider.getIfUnique();
            this.beanFactory = beanFactory;
        }
    }

    public void addResourceHandlers(ResourceHandlerRegistry registry) {
            if (!this.resourceProperties.isAddMappings()) {
                logger.debug("Default resource handling disabled");
                return;
            }
            addResourceHandler(registry, "/webjars/**", "classpath:/META-
INF/resources/webjars/");
            addResourceHandler(registry,
this.mvcProperties.getStaticPathPattern(), (registration) -> {

registration.addResourceLocations(this.resourceProperties.getStaticLocations());
                if (this.servletContext != null) {
                    ServletContextResource resource = new
ServletContextResource(this.servletContext, SERVLET_LOCATION);
                    registration.addResourceLocations(resource);
                }
            });
        }
    ....
}
```

WebProperties.java

```
@ConfigurationProperties("spring.web")
public class WebProperties {
    private Locale locale;
    private LocaleResolver localeResolver = LocaleResolver.ACCEPT_HEADER;
    private final Resources resources = new Resources();
    public static class Resources {
        private static final String[] CLASSPATH_RESOURCE_LOCATIONS = {
"classpath:/META-INF/resources/",
                "classpath:/resources/", "classpath:/static/",
"classpath:/public/" };
        /**
         * Locations of static resources. Defaults to classpath:[/META-
INF/resources/,
         * /resources/, /static/, /public/].
         */
        private String[] staticLocations = CLASSPATH_RESOURCE_LOCATIONS;
    }
}
```

Rest风格

UserController.java

```
@RestController
public class UserController {
    @RequestMapping(value = "/user",method = RequestMethod.GET)
    public String getUser(){
        return "GET request";
    }
    @RequestMapping(value = "/user",method = RequestMethod.PUT)//Putmapping
    public String addUser(){
        return "PUT request";
    }
    @RequestMapping(value = "/user" ,method = RequestMethod.DELETE) //
DeleteMapping
    public String deleteUser(){
        return "DELETE request";
    }
    @RequestMapping(value = "/user",method = RequestMethod.POST)//PostMapping
    public String updateUser(){
        return "POST request";
    }
}
```

index.html

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Title</title>
</head>
<body>
<h1>this is index page</h1>
<form action="/user" method="post">
    <input name="_method" type="hidden" value="GET">
    <input type="submit" value="GET">
</form>
<form action="/user" method="post">
    <input name="_method" type="hidden" value="PUT">
    <input type="submit" value="PUT">
</form>
<form action="/user" method="post">
    <input name="_method" type="hidden" value="DELETE">
    <input type="submit" value="DELETE">
</form>
<form action="/user" method="post">
    <input name="_method" type="hidden" value="POST">
    <input type="submit" value="POST">
</form>
</body>
</html>
```

WebMvcAutoConfiguration.java

```
@Configuration(proxyBeanMethods = false)
@ConditionalOnWebApplication(type = Type.SERVLET)
@ConditionalOnClass({ Servlet.class, DispatcherServlet.class,
WebMvcConfigurer.class })
@ConditionalOnMissingBean(WebMvcConfigurationSupport.class)
@AutoConfigureOrder(Ordered.HIGHEST_PRECEDENCE + 10)
@AutoConfigureAfter({ DispatcherServletAutoConfiguration.class,
TaskExecutionAutoConfiguration.class,
        ValidationAutoConfiguration.class })
public class WebMvcAutoConfiguration {
    @Bean
    @ConditionalOnMissingBean(HiddenHttpMethodFilter.class)//?????
Bean?????????????  ????????bean
    @ConditionalOnProperty(prefix = "spring.mvc.hiddenmethod.filter", name =
"enabled")//????
    public OrderedHiddenHttpMethodFilter hiddenHttpMethodFilter() {
        return new OrderedHiddenHttpMethodFilter();
    }
}
```

HiddenHttpMethodFilter.java

```
public class HiddenHttpMethodFilter extends OncePerRequestFilter {
    protected void doFilterInternal(HttpServletRequest request,
HttpServletResponse response, FilterChain filterChain)
            throws ServletException, IOException {

        HttpServletRequest requestToUse = request;

        if ("POST".equals(request.getMethod()) &&
request.getAttribute(WebUtils.ERROR_EXCEPTION_ATTRIBUTE) == null) {
            String paramValue = request.getParameter(this.methodParam);
            if (StringUtils.hasLength(paramValue)) {
                String method = paramValue.toUpperCase(Locale.ENGLISH);
                if (ALLOWED_METHODS.contains(method)) {
                    requestToUse = new HttpMethodRequestWrapper(request,
method);
                }
            }
        }

        filterChain.doFilter(requestToUse, response);
    }
}
```

修改参数"_method"

```
//WebMvcAutoConfiguration.java
@Bean
@ConditionalOnMissingBean(HiddenHttpMethodFilter.class)
@ConditionalOnProperty(prefix = "spring.mvc.hiddenmethod.filter", name =
"enabled")
public OrderedHiddenHttpMethodFilter hiddenHttpMethodFilter() {
    return new OrderedHiddenHttpMethodFilter();
}

//HiddenHttpMethodFilter
//HiddenHttpMethodFilter.java
public static final String DEFAULT_METHOD_PARAM = "_method";
private String methodParam = DEFAULT_METHOD_PARAM;
public void setMethodParam(String methodParam) {
    Assert.hasText(methodParam, "'methodParam' must not be empty");
    this.methodParam = methodParam;
}

protected void doFilterInternal(HttpServletRequest request, HttpServletResponse
response, FilterChain filterChain)
            throws ServletException, IOException {

    HttpServletRequest requestToUse = request;

    if ("POST".equals(request.getMethod()) &&
request.getAttribute(WebUtils.ERROR_EXCEPTION_ATTRIBUTE) == null) {
        String paramValue = request.getParameter(this.methodParam);
        if (StringUtils.hasLength(paramValue)) {
            String method = paramValue.toUpperCase(Locale.ENGLISH);
            if (ALLOWED_METHODS.contains(method)) {
                requestToUse = new HttpMethodRequestWrapper(request, method);
            }
        }
    }

    filterChain.doFilter(requestToUse, response);
}


@Configuration
public class OverrideBeanTest {
    @Bean
    public HiddenHttpMethodFilter hiddenHttpMethodFilter(){
        HiddenHttpMethodFilter methodFilter =  new HiddenHttpMethodFilter();
        methodFilter.setMethodParam("__method");
        return methodFilter;
    }
}
```

主要方法

DispatcherServlet.java

```
protected void doDispatch(HttpServletRequest request, HttpServletResponse
response) throws Exception {
    HttpServletRequest processedRequest = request;
    HandlerExecutionChain mappedHandler = null;
    boolean multipartRequestParsed = false;
    WebAsyncManager asyncManager = WebAsyncUtils.getAsyncManager(request);
    try {
        ModelAndView mv = null;
        Exception dispatchException = null;

        try {
            processedRequest = checkMultipart(request);//???????????
            multipartRequestParsed = (processedRequest != request);

            // Determine handler for the current request.
            mappedHandler = getHandler(processedRequest);//??5?handlermapping
??????handler?controller????
            if (mappedHandler == null) {
                noHandlerFound(processedRequest, response);
                return;
            }

            // Determine handler adapter for the current request.//????????
            HandlerAdapter ha = getHandlerAdapter(mappedHandler.getHandler());

            // Process last-modified header, if supported by the handler.
            String method = request.getMethod();//POST  ????
            boolean isGet = HttpMethod.GET.matches(method);
            if (isGet || HttpMethod.HEAD.matches(method)) {
                long lastModified = ha.getLastModified(request,
mappedHandler.getHandler());
                if (new ServletWebRequest(request,
response).checkNotModified(lastModified) && isGet) {
                    return;
                }
            }

            if (!mappedHandler.applyPreHandle(processedRequest, response)) {
                return;
            }

            // Actually invoke the handler.
            mv = ha.handle(processedRequest, response,
mappedHandler.getHandler());

            if (asyncManager.isConcurrentHandlingStarted()) {
                return;
            }
            applyDefaultViewName(processedRequest, mv);
            mappedHandler.applyPostHandle(processedRequest, response, mv);
        }
        processDispatchResult(processedRequest, response, mappedHandler, mv,
dispatchException);
    }

 //??handlermapping  ??request???handler??????????xxx?????xxx????
 /*
  *RequestMappingHandlerMapping  ?????@RequestMapping?handler???????????????
controller????
  *WelcomePageHandlerMapping
  *BeanNameUrlHandlerMapping
  *RouterFunctionMapping
  *SimpleUrlHandlerMapping
  */
 protected HandlerExecutionChain getHandler(HttpServletRequest request) throws
Exception {
     if (this.handlerMappings != null) {
         for (HandlerMapping mapping : this.handlerMappings) {
             HandlerExecutionChain handler = mapping.getHandler(request);
             if (handler != null) {
                 return handler;
             }
         }
     }
     return null;
 }

//????????
protected HandlerAdapter getHandlerAdapter(Object handler) throws
ServletException {
    if (this.handlerAdapters != null) {
        for (HandlerAdapter adapter : this.handlerAdapters) {
            if (adapter.supports(handler)) {
                return adapter;
            }
        }
    }
    throw new ServletException("No adapter for handler [" + handler +
                               "]: The DispatcherServlet configuration needs to
include a HandlerAdapter that supports this handler");
}
```

WebMvcAutoConfiguraion.java RequestMappingHandlerMapping WelcomePageHandlerMapping

请求参数解析

```
//其他得还有@Cookie @RequestBody  @RequestAttribute(页面跳转时)?
@RestController
public class HelloController {
    /**
```

```
     * @RequestParam
     * url:http://localhost:8888/hello?name=sunzhong
     */
    @RequestMapping("/hello")
    public String hello(@RequestParam(name = "name") String name){
        return "hello,"+name+", this is a springboot application ...";
    }
    /**
     * @PathVariable
     * url:http://localhost:8888/car/1
     */
    @RequestMapping("/car/{id}")
    public Map<String,Object> getCar(@PathVariable("id") Integer id){
        HashMap<String, Object> map = new HashMap<>();
        map.put("id",id);
        return map;
    }
    /**
     * @PathVariable
     *http://localhost:8888/car/1/brand/tsl
     */
    @RequestMapping("/car/{id}/brand/{brand}")
    public Map<String,Object> getCar1(@PathVariable("id") Integer
id,@PathVariable("brand") String brand,@PathVariable Map<String,Object> pv){
        HashMap<String, Object> map = new HashMap<>();
        map.put("id",id);
        map.put("brand",brand);
        map.put("map",pv);
        return map;
    }
}
```