安全-服务间交互

```
示例项目:
* spring-boot-ms1
* spring-boot-ms2
```

场景描述

两个服务:spring-boot-ms1和spring-boot-ms2,分别对外提供Rest API服务。当ms2服务访问ms2服务中的某一API时,应该如何做?下面给出简单示例工程。

准备

目标

ms2 提供服务API:/api/ms1/user,在该接口中调用了ms1的API:/api/user。

实现

ms2作为OAuth Client,通过OAuth2RestTemplate达到访问ms1 API的目的。

RestTemplate代码:

```
@Configuration
public class OAuthConfig {
    private final String GRANT_CLIENT_CREDENTIALS = "client_credentials";

    @Value("${ms1.clientId}")
    private String oAuth2ClientId;

    @Value("${ms1.clientSecret}")
    private String oAuth2ClientSecret;

    @Value("${ms1.accessTokenUri}")
    private String accessTokenUri;

    @Autowired
    private OAuth2ClientContext oauth2Context;

@Bean
    OAuth2ProtectedResourceDetails resource() {
         ClientCredentialsResourceDetails resource = new ClientCredentialsResourceDetails();
```

```
resource.setClientAuthenticationScheme(AuthenticationScheme.header);
    resource.setAccessTokenUri(accessTokenUri);
    resource.setClientId(oAuth2ClientId);
    resource.setClientSecret(oAuth2ClientSecret);
    resource.setGrantType(GRANT_CLIENT_CREDENTIALS);
    return resource;
}

@Bean
OAuth2RestTemplate restTemplate() {
    OAuth2RestTemplate restTemplate = new OAuth2RestTemplate(resource(), oauth2Context);
    //restTemplate.setAuthenticator(new ApiConnectOAuth2RequestAuthenticator())
    return restTemplate;
}
```

ms2服务API定义:

```
@RestController
public class MS1Controller {
    @Autowired
    private OAuth2RestTemplate restTemplate;
    @RequestMapping("/ms1/user")
    public String user() {
        try {
            // OAuth2AccessToken accessToken = restTemplate.getAccessToken();
            // HttpHeaders headers = new HttpHeaders();
            ResponseEntity<String> response = restTemplate.exchange("http://localhost:18080/api/user", HttpMethod.GET,
                   null, String.class);
            return response.getBody();
        } catch (Exception e) {
            e.printStackTrace();
        return "";
    }
}
```

期望输出:ms1 user...

测试

```
1. 依次启动UAA、启动ms1、ms2;
2. 为了能访问ms2,先获取一个token(暂使用client_credentials)
```

```
curl −X POST \
         'http://192.168.66.158:18080/oauth/token?
\verb|client_id=wanghq&client_secret=wanghq&redirect_uri=http:|3A%2F%2Flocalhost%3A489%2F&response_type=token'| \setminus (A_{i}) = A_{i} + A_{i
         -H 'cache-control: no-cache' \
         -H 'content-type: multipart/form-data; boundary=----WebKitFormBoundary7MA4YWxkTrZu0gW' \
          -H 'postman-token: 68440efd-4c00-f5fd-5c83-7455f1650182' \
         -F grant type=client credentials
                  "access_token":
"eyJhbGciOiJSUzI1NiIsInR5cCI6IkpXVCJ9.eyJ6aWQiOiJ1YWEiLCJzY29wZSI6WyJvcGVuaWQiLCJjb3JlIiwidWFhLm5vbmUiLCJhY3MucG9saWNpZXMu
\verb|cmVhZCIsImFjcy5wb2xpY2llcy53cml0ZSIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzlnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzlnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiLcMVzlnJlYWqiL
VzLndyaXRlIiwiYWNzLnpvbmVzLmFkbWluIiwicHJlZGl4LWFjcy56b25lcy5kZWlvLmFkbWluIl0sImlzcyI6Imh0dHA6Ly9sb2NhbGhvc3Q60Tk50S91YWEv
b2FldGgvdG9rZW4iLCJleHAiOjE1MTA2MDg4MDIsImlhdCI6MCwianRpIjoiMjUxM2ZkYmUtYjBlYS00MDZjLWFhNGItOGZjMGUxNZM50WFhIiwiY2xpZW50X2
lkIjoid2FuZ2hxIn0.BPyNVj8rOlQlUMHh41UH26V3tNznNUQNHtMfSyjWlopZC0-
ZTpawhObmybL0ACYmp7dtwyEDVb3gnzQIgr74Q7jym5AeIqJq0fMLqM0U32xfN6rbz-
6N_4YhURiTSIFiaZzFlSBFjDOeCsuuZxhSc8nDyG_iRCp7GEvAo25SLffBH2G0-
\tt e41zq7svLeka9F5Z4qv1qWiLSemwQsxIBNCYDgTyEwnIgCKi4nqqmKWeAVjFGPCSvmzIUBe8FZ7fCEg", \\ \tt fallowed find the first open for the 
                  "token_type": "bearer",
                   "expires_in": 43199,
                   "scope": "openid core uaa.none acs.policies.read acs.policies.write acs.attributes.read predix-acs.zones.demo.user
acs.attributes.write acs.zones.admin predix-acs.zones.demo.admin",
                    "jti": "2513fdbe-b0ea-406c-aa4b-8fc0e17399aa"
    }
```

```
curl -X GET \
        http://localhost:28080/api/ms1/user \
         -H 'authorization: bearen
eyJhbGci0iJSUzI1NiIsInR5cCI6IkpXVCJ9.eyJ6aWQi0iJ1YWEiLCJzY29wZSI6WyJvcGVuaWQiLCJjb3JlIiwidWFhLm5vbmUiLCJhY3MucG9saWNpZXMuc
\verb|mVhZCIsImFjcy5wb2xpY2llcy53cml@ZSIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWQiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWqiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWqiLCJwcmVkaXgtYWNzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWqiLCJwcmVkaXgtYWnzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWqiLCJwcmVkaXgtYWnzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWqiLCJwcmVkaXgtYWnzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWqiLCJwcmVkaXgtYWnzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWqiLCJwcmVkaXgtYWnzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWqiLCJwcmVkaXgtYWnzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWqiLCJwcmWkaXgtYWnzLnpvbmVzLmRlbW8udXNlciIsImFjcy5hdHRyaWJ1dGVzLnJlYWqiLCJwcmWhiteWqiLcJwcmWhiteWqiLcJwcmWhiteWqiLcJwcmWhiteWqiLcJwcmWhiteWqiLcJwcmWhiteWqiLcJwcmWhiteWqiLcJwcmWhiteWqiLcJwcmWhiteWqiLcJwcmWhiteWqiLcJwcmWhiteWqiLcJwcmWhiteWqiLcJwcmWhiteWqiLcJwcmWhiteWqiLcJwcmWhiteWqiLcJwcmWhiteWqiLcJwcmWhiteWqiLcJwcmWhiteWqiLcJwcmWhiteWqiLcJwcmWhiteWqiLcJwcmWhiteWqiLcdwwdiaWqiLcdwwww\| \qquad \qqquad \qqqqqq \qqqqq \qqqqq \qqqqq \qqqqq \qqqq \qqq \qqqq \qqqq \qqqq \qqq \qqqq \qqqq \qqqq \qqqq \qqqq \qqqq \qqqq
2FldGgvdG9rZW4iLCJleHAiOjE1MTA2MDg4MDIsImlhdCI6MCwianRpIjoiMjUxM2ZkYmUtYjBlYS00MDZjLWFhNGItOGZjMGUxNzM50WFhIiwiY2xpZW50X2l
kIjoid2FuZ2hxIn0.BPyNVj8r0lQlUMHh41UH26V3tNznNUQNHtMfSyjWlopZC0-
ZTpawhObmybL0ACYmp7dtwyEDVb3gnzQIgr74Q7jym5AeIqJq0fMLqM0U32xfN6rbz-
dt5yyI61t2xT7Vwbx99PcbwyrfeqJYJ8XT08Y460sZS_nG9fMU8dDjkN49PryhXffBza-ZLNHLR_uK_jou_nP-
6N\_4YhURiTSIFiaZzFlSBFjD0eCsuuZxhSc8nDyG\_iRCp7GEvAo25SLffBH2G0-figure and the control of the c
-H 'cache-control: no-cache' \
         -H 'content-type: application/json' \
         -H 'postman-token: 208252dc-e7ba-ed90-875e-325b7f6ba69a'
输出: msl user...
```

输出和预期一致。