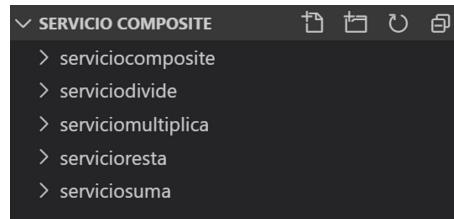
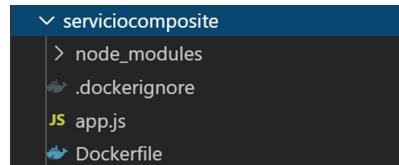


## Composite

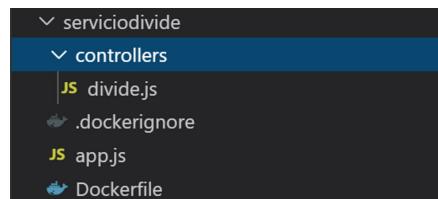
martes, 22 de octubre de 2019 12:19



Servicio composite orquesta el llamado de los otros containers



Estructura para cada servicio independiente



Controller de cada servicio

```
JS divide.js X
1 //Division function
2 exports.DivisionInq = function (req, res) {
3     var num1 = parseInt(req.params.num1);
4     var num2 = parseInt(req.params.num2);
5     var result;
6     console.log(num1);
7     console.log(num2);
8
9     if (num1 || num2) {
```

Servidor. endpoint de cada servicio

```
JS app.js X
25 app.get('/mathOperations/division/:num1/:num2', CalController.DivisionInq);
26
```

Ambientar librerías y generar package.json con el init en cada carpeta (ojo) para cada uno de los servicios

```
PS C:\Proyectos\Servicio Composite\serviciodivide> npm install --save express body-parser
[...]
```

Generar el dockerfile en cada servicio

```
Dockerfile X
1 FROM node:9-slim
2 RUN mkdir /src
3 WORKDIR /src
4 COPY package*.json .
5 RUN npm install
6 COPY .
7 CMD ["npm", "start"]
```

crear el .dockignore para subir solo lo necesario a la imagen

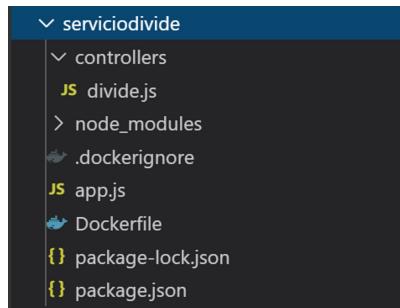
```
 .dockerignore X  
1 node_modules  
2 .git/
```

**npm init**

```
{} package.json X

1  {
2    "name": "serviciodivide",
3    "version": "1.0.0",
4    "description": "servicio de division 2 parametros req",
5    "main": "app.js",
6    "dependencies": {
7      "body-parser": "^1.19.0",
8      "express": "^4.17.1",
9      "nodemon": "^1.19.4"
```

asi queda despues del init, genera el json con las dependencias



Construir la imagen del servicio divide

```
 docker build -t divservice .
```

```
PS C:\Proyectos\Servicio Composite\serviciodivide> docker build -t ms-divservice .
Sending build context to Docker daemon 22.53kB
Step 1/8 : FROM node:9-slim
--> e20bb4abe4ee
Step 2/8 : RUN mkdir /src
--> Using cache
--> c640e22b25ce
Step 3/8 : WORKDIR /src
```

## Validar la imagen

## Docker Images

PS C:\Proyectos\Servicio Composite\serviciodivide> docker images				
REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
ms-divservice	latest	e30aa303744f	About a minute ago	184MB
bandala/ms-calculator	v1	c1ff42e4257f	45 hours ago	190MB
ms_calculator	latest	4abd0264f4c0	45 hours ago	190MB

Correr la imagen y validar que funcione como contenedor

## Crear la red

docker network create domain.calculus

```
PS C:\Proyectos\Servicio Composite\serviciodivide> docker network create domain.calculus
3765a073119d3138b8caff04e0339d4e65ed38f14adbb8b5e4294b13eea38660
PS C:\Proyectos\Servicio Composite\serviciodivide> docker network ls
NETWORK ID      NAME        DRIVER      SCOPE
39bec74926bc   bridge      bridge      local
3765a073119d   domain.calculus  bridge      local
3a9f6262c378   host        host        local
cdf900415a46   none        null       local
```

proceso para cada uno de los servicios

## -----Crear imagen del multiplicacion

```
docker build -t ms-multiplication .
```

-----Crear imagen del division

```
docker build -t ms-division .
```

-----Crear imagen del division

```
docker build -t ms-subtraction .
```

-----Crear imagen del suma

```
docker build -t ms-addition .
```

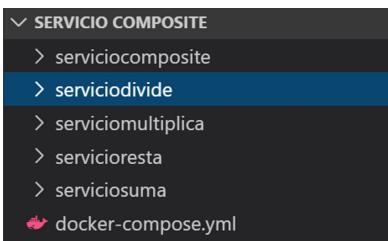
-----Crear el imagen del orquestador

```
docker build -t ms-composite .
```

## Validar las imágenes

docker images				
REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
ms-composite	latest	2c0939b37631	About an hour ago	195MB
ms-addition	latest	de8a1c4793f7	About an hour ago	190MB
ms-subtraction	latest	73311c8fb293	About an hour ago	190MB
ms-multiplication	latest	123e6c7648a8	About an hour ago	190MB
ms-division	latest	745b291df305	About an hour ago	190MB

Crear el docker-compose.yml donde se organizan los contenedores se crea fuera de los servicios a nivel del proyecto



```
docker-compose.yml ×

1   version: '3'
2
3   #Declarar los servicios
4   #Cada servicio con la imagen ya creada
5   #expose para comunicacion interna y ports para exponer al exterior
6   #depends_on para ligar conexion entre contenedores
7   #networks para agrupar los contenedores y solo se comuniquen entre
8   services:
9     multiplication:
10       container_name: multiplication
11       image: ms-multiplication
12       expose:
13         - '1000'
14       networks:
```

Crear la red

```
docker network create domain.calculus
```

Validar la red

```
docker network ls
```

```
PS C:\Proyectos\Servicio Composite> docker network ls
NETWORK ID      NAME      DRIVER      SCOPE
39bec74926bc   bridge    bridge      local
c289329c1c74   domain.calculus  bridge      local
3a9f6262c378   host      host      local
cdf900415a46   none      null      local
```

```
version: '3'
#Declarar los servicios
#Cada servicio con la imagen ya creada
#expose para comunicacion interna y ports para exponer al exterior
#depends_on para ligar conexion entre contenedores
#networks para agrupar los contenedores y solo se comuniquen entre esa red
services:
  multiplication:
    container_name: multiplication
    image: ms-multiplication
    expose:
      - '1000'
    networks:
      - domain.calculus
  division:
    container_name: division
    image: ms-division
    expose:
      - '1000'
    networks:
      - domain.calculus
  addition:
    container_name: addition
    image: ms-addition
    expose:
      - '1000'
    networks:
      - domain.calculus
  subtraction:
    container_name: subtraction
    image: ms-subtraction
    expose:
      - '1000'
    networks:
      - domain.calculus
  composite:
    container_name: composite
    image: ms-composite
    ports:
      - '5000:1000'
    networks:
      - domain.calculus
    depends_on:
      - multiplication
      - division
      - addition
      - subtraction
networks:
  domain.calculus:
    external: true
```

---Crear el paquete de servicios (contenedores)

```
docker-compose up -d
```

Validar la creacion de contenedores

```
docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
bd40134cf562	ms-composite	"npm start"	18 minutes ago	Up 18 minutes	0.0.0.0:5000->1000/tcp	composite
38f951fd81f0	ms-subtraction	"npm start"	18 minutes ago	Up 18 minutes	1000/tcp	subtraction
n						
b0a94c5dd46a	ms-addition	"npm start"	18 minutes ago	Up 18 minutes	1000/tcp	addition
dddf185ae301	ms-division	"npm start"	18 minutes ago	Up 18 minutes	1000/tcp	division
68fbf88164c7	ms-multiplication	"npm start"	18 minutes ago	Up 18 minutes	1000/tcp	multiplication

Validar que los contenedores estan en red

```
docker network inspect domain.calculus
```

```
"Containers": {
    "38f951fd81f074f731e074f7b3382c1767e5b2a2":
        "Name": "subtraction",
        "EndpointID": "d0fb29b85165434faa826d",
        "MacAddress": "02:42:ac:16:00:04",
        "IPv4Address": "172.22.0.4/16",
        "IPv6Address": ""
    },
    "68fbf88164c7bc0e2a052ea25b9608eaa46d5b8a":
        "Name": "multiplication",
        "EndpointID": "31e24784a5076dea48a66"
    },
    "bd40134cf562afaa77fd75f24fecac9d838":
        "Name": "composite",
        "EndpointID": "8395346e064f0a941",
        "MacAddress": "02:42:ac:16:00:06",
        "IPv4Address": "172.22.0.6/16",
        "IPv6Address": ""
    },
    "dddf185ae301a25bd965c5a93c4f90ad64f":
        "Name": "division",
        "EndpointID": "959bc2b836cac4d2a",
        "MacAddress": "02:42:ac:16:00:02",
        "IPv4Address": "172.22.0.3/16"
}
```

probar el funcionamiento del servicio orquestador y los otros servicios

```
PS C:\Proyectos\Servicio Composite> docker logs composite
> serviciocomposite@1.0.0 start /src
> nodemon app.js

[nodemon] 1.19.4
[nodemon] to restart at any time, enter `rs`
[nodemon] watching dir(s): ***!
[nodemon] watching extensions: js,mjs,json
[nodemon] starting `node app.js`
Server Inicializado en el puerto: 1000
```

```
PS C:\Proyectos\Servicio Composite> docker logs multiplication
> serviciomultiplica@1.0.0 start /src
> nodemon app.js

[nodemon] 1.19.4
[nodemon] to restart at any time, enter `rs`
[nodemon] watching dir(s): ***!
[nodemon] watching extensions: js,mjs,json
[nodemon] starting `node app.js`
Servicio de multiplicacion inicializado en el puerto: 1000
```

```
PS C:\Proyectos\Servicio Composite> docker logs division

> serviciodivide@1.0.0 start /src
> nodemon app.js

[nodemon] 1.19.4
[nodemon] to restart at any time, enter `rs`
[nodemon] watching dir(s): ***!
[nodemon] watching extensions: js,mjs,json
[nodemon] starting `node app.js`
Server Inicializado en el puerto: 1000
```

```
PS C:\Proyectos\Servicio Composite> docker logs addition

> serviciosuma@1.0.0 start /src
> nodemon app.js

[nodemon] 1.19.4
[nodemon] to restart at any time, enter `rs`
[nodemon] watching dir(s): ***!
[nodemon] watching extensions: js,mjs,json
[nodemon] starting `node app.js`
Server Inicializado...
```

```
PS C:\Proyectos\Servicio Composite> docker logs subtraction

> servicioresta@1.0.0 start /src
> nodemon app.js

[nodemon] 1.19.4
[nodemon] to restart at any time, enter `rs`
[nodemon] watching dir(s): ***!
[nodemon] watching extensions: js,mjs,json
[nodemon] starting `node app.js`
Server Inicializado en el puerto....
```

GET localhost:5000/mathOperations... + ...

GET localhost:5000/mathOperations/:operation/:num1/:num2

operation	a
num1	90
num2	5

Body Cookies Headers (8) Test Results

Pretty Raw Preview Visualize BETA JSON

```
1 []
2   "Entradas": {
3     "Operacion": "a",
4     "Numero1": 90,
5     "Numero2": 5
6   },
7   "Salidas": {
8     "Resultado": "95"
9   }
10 ]
```

GET localhost:5000/mathOperations... ● + ...

GET localhost:5000/mathOperations/:operation/:num1/:num2

operation	s
num1	90
num2	5

Body Cookies Headers (8) Test Results

Pretty Raw Preview Visualize BETA JSON

```
1 [ { "Entradas": { "Operacion": "s", "Numero1": 90, "Numero2": 5 }, "Salidas": { "Resultado": "85" } } ]
```

GET localhost:5000/mathOperations... ● + ...

GET localhost:5000/mathOperations/:operation/:num1/:num2

operation	m
num1	90
num2	5

Body Cookies Headers (8) Test Results

Pretty Raw Preview Visualize BETA JSON

```
1 [ { "Entradas": { "Operacion": "m", "Numero1": 90, "Numero2": 5 }, "Salidas": { "Resultado": "450" } } ]
```

GET localhost:5000/mathOperations... ● + ...

GET localhost:5000/mathOperations/:operation/:num1/:num2

operation	d
num1	90
num2	5

Body Cookies Headers (8) Test Results

Pretty Raw Preview Visualize BETA JSON

```
1 [ { "Entradas": { "Operacion": "d", "Numero1": 90, "Numero2": 5 }, "Salidas": { "Resultado": "18" } } ]
```

Validar que no se pueda accesar desde el puerto 1000 a cada servicio

GET localhost:5000/mathOperations... ● GET localhost:1000/mathOperations... ● + ...

GET localhost:1000/mathOperations/addition/:num1/:num2

KEY	VALUE
num1	3
num2	4

**Could not get any response**

There was an error connecting to [localhost:1000/mathOperations/addition/3/4](#).

**Why this might have happened:**

- The server couldn't send a response: Ensure that the backend is working properly
- Self-signed SSL certificates are being blocked: Fix this by turning off 'SSL certificate verification' in *Settings > General*
- Proxy configured incorrectly: Ensure that proxy is configured correctly in *Settings > Proxy*
- Request timeout: Change request timeout in *Settings > General*

GET localhost:5000/mathOperations... ● GET localhost:1000/mathOperations... ● + ...

GET localhost:1000/mathOperations/division/:num1/:num2

KEY	VALUE
num1	3
num2	4

**Could not get any response**

There was an error connecting to [localhost:1000/mathOperations/division/3/4](#).

Subir cada servicio al hub

Hacer commit al contenedor

Hacer push al contenedor para subirlo

Mismo proceso para cada uno

```
PS C:\Proyectos\Servicio Composite> docker commit 68fbff88164c7 bandala/ms-multiplication:v1
sha256:9df324cc541c876a2774ad527b2a7a7a93a3587e952980fbd8bbc3d4200c8a0e
PS C:\Proyectos\Servicio Composite> docker push bandala/ms-multiplication:v1
The push refers to repository [docker.io/bandala/ms-multiplication]
128c9e14b6e0: Pushing [=====] 4.608kB
17e5aac74af8: Pushing [=====] 100.4kB
f893e6a12749: Pushing [=====] 8.822MB
```

```
PS C:\Proyectos\Servicio Composite> docker commit dddf185ae301 bandala/ms-division:v1
sha256:431837987611198ecbe8a3427f35085c325be293e8a26310f357cbd3e177d8ae
PS C:\Proyectos\Servicio Composite> docker push bandala/ms-division:v1
The push refers to repository [docker.io/bandala/ms-division]
3d34a5e7c0dc: Pushed
2f3ac5693bda: Pushed
e190155907: Pushed
```

```
PS C:\Proyectos\Servicio Composite> docker commit b0a94c5dd46a bandala/ms-addition:v1
sha256:3f8c5f7165be763dd9ee86533a0a462fd16b7bd0f00f358d92ac64ed10fa633a
PS C:\Proyectos\Servicio Composite> docker push bandala/ms-addition:v1
The push refers to repository [docker.io/bandala/ms-addition]
b0dcdf00428f: Pushed
```

```
PS C:\Proyectos\Servicio Composite> docker commit 38f951fd81f0 bandala/ms-subtraction:v1
sha256:662d3275e6f3731f298ae6364631efef337f48386f83e2c8054c9e579c484337
PS C:\Proyectos\Servicio Composite> docker push bandala/ms-subtraction:v1
The push refers to repository [docker.io/bandala/ms-subtraction]
e981de288e89: Pushed
```

```
PS C:\Proyectos\Servicio Composite> docker commit bd40134cf562 bandala/ms-composite:v1
sha256:456a86a47d5e21d54c519532567b07be5e7bad9ad76f1e95ccdb881c266919e9
PS C:\Proyectos\Servicio Composite> docker push bandala/ms-composite:v1
The push refers to repository [docker.io/bandala/ms-composite]
765:555:11:12 - Pushed
```