UPDATE: The following now uses an image which is on a different hub to the standard Docker Hub - 2022-12-06

The following steps will allow you to set up a DataPower runnable Docker image to run the IBM DataPower courses WE75x.
It is presumed that Docker is already installed on a workstation with at least 8GB of memory.

If you do not have Docker installed, read the information on the following link to see the System Requirements, there is a link on that page that allows you to download the CE version: https://docs.docker.com/docker-for-windows/install/

Docker settings (Preferences / Advanced) recommended are for CPUs: 4 and Memory: 5.0GB.
The same workstation needs to have SOAPUI and cURL installed.
The initial DataPower username / password to use is `admin` / `admin`.

Download DataPower Docker *image*

Need to ensure that the docker desktop is running, if not, start it, and wait until it has started.
The following was successful on 2022-11-30.
Below, if `icr.io/integration/datapower/datapower-limited` not available, try `icr.io/cpopen/datapower/datapower-limited`.

```
$ docker pull icr.io/integration/datapower/datapower-limited:10.0.3.0
10.0.3.0: Pulling from integration/datapower/datapower-limited
ad62d8acaeb8: Pull complete
8a4cee2d3973: Pull complete
. . .
Digest: . . .
Status: Downloaded newer image for icr.io/integration/datapower/datapower-limited:10.0.3.0
icr.io/integration/datapower/datapower-limited:10.0.3.0

$ docker images
REPOSITORY                                      TAG              IMAGE ID       CREATED         SIZE
icr.io/integration/datapower/datapower-limited  10.0.3.0         54dfd20a14cc   17 months ago   1.72GB
```

Create Runnable Docker *container*

*** Change to a folder where you want the DataPower **`config:`** and **`local:`** folders to exist in the host filing system. ***
(In later firmware versions, the '-v' values are different to allow access to these folders on the host.)
(See bottom of this document: for Windows 10 example; for summary of the switches used below.)

Windows (run in PowerShell)

```
$ docker run -it `
  -v $PWD/config:/opt/ibm/datapower/drouter/config `
  -v $PWD/local:/opt/ibm/datapower/drouter/local `
  -e DATAPOWER_ACCEPT_LICENSE=true `
  -e DATAPOWER_INTERACTIVE=true `
  -e DATAPOWER_WORKER_THREADS=4 `
  -p 9090:9090 `
  -p 5550:5550 `
  -p 5554:5554 `
  -p 9022:9022 `
  -p 2068:2068 `
  -p 9080:9080 `
  -p 12011-12019:12011-12019 `
  -p 13011-13015:13011-13015 `
  -p 7010-7015:7010-7015 `
  -p 9500-9600:9500-9600 `
  --name datapower-10-WE75x `
  --hostname datapower-10-WE75x `
   icr.io/integration/datapower/datapower-limited:10.0.3.0
```

Linux, MacOSx

```
$ docker run -it \
  -v $PWD/config:/opt/ibm/datapower/drouter/config \
  -v $PWD/local:/opt/ibm/datapower/drouter/local \
  -e DATAPOWER_ACCEPT_LICENSE=true \
  -e DATAPOWER_INTERACTIVE=true \
  -e DATAPOWER_WORKER_THREADS=4 \
  -p 9090:9090 \
  -p 5550:5550 \
  -p 5554:5554 \
  -p 9022:9022 \
  -p 2068:2068 \
  -p 9080:9080 \
  -p 12011-12019:12011-12019 \
  -p 13011-13015:13011-13015 \
  -p 7010-7015:7010-7015 \
  -p 9500-9600:9500-9600 \
  --name datapower-10-WE75x \
  --hostname datapower-10-WE75x \
   icr.io/integration/datapower/datapower-limited:10.0.3.0
```

```
20180123T112115.939Z [0x8040006b][system][notice] logging target(default-log):
Logging started.
20180123T112116.211Z [0x804000fe][system][notice] : Container instance UUID:
e3a6abdc-d46c-41ab-9216-2ac46affdd32, Cores: 4, vCPUs: 4, CPU model: Intel(R)
Core(TM) i7-3667U CPU @ 2.00GHz, Memory: 4949.3MB, Platform: docker, OS: dpos,
Edition: developers-limited, Up time: 0 minutes
20180123T112116.216Z [0x8040001c][system][notice] : DataPower IDG is on-line.
20180123T112116.217Z [0x8100006f][system][notice] : Executing default startup
configuration.
20180123T112117.414Z [0x8100006d][system][notice] : Executing system
configuration.
20180123T112117.415Z [0x8100006b][mgmt][notice] domain(default): tid(8015):
Domain operational state is up.
docker-we75x
Unauthorized access prohibited.
20180123T112122.503Z [0x806000dd][system][notice] cert-monitor(Certificate
Monitor): tid(399): Enabling Certificate Monitor to scan once every 1 days for
soon to expire certificates
20180123T112123.901Z [0x8100003b][mgmt][notice] domain(default): Domain
configured successfully.

login: admin
Password: *****

Welcome to IBM DataPower Gateway console configuration.
Copyright IBM Corporation 1999-2017

Version: IDG.10.0.3.0
Serial number: 0000001
```

Enable DataPower WebGUI

```
idg# co
Global configuration mode
idg(config)# web-mgmt
Modify Web Management Service configuration

idg(config web-mgmt)# admin-state enabled
idg(config web-mgmt)# exit
idg(config)# 20180123T112238.198Z [0x8100003f][mgmt][notice] domain(default): tid(319): Domain configuration has been modified.
20180123T112238.200Z [0x00350014][mgmt][notice] web-mgmt(WebGUI-Settings): tid(303): Operational state up
write mem
Overwrite previously saved configuration? Yes/No [y/n]: y
Configuration saved successfully.
idg(config)# 20180123T112312.100Z [0x8100000c][mgmt][notice] : tid(8015): Saved current configuration to 'config:///auto-startup.cfg'
20180123T112312.100Z [0x81000040][mgmt][notice] domain(default): tid(8015): Domain configuration has been saved.
20180123T112312.120Z [0x8100000c][mgmt][notice] : tid(111): Saved current configuration to 'config:///auto-user.cfg'
```

WebGUI Access

Now the DataPower can be accessed, via its WebGUI:

from the host machine:	https://localhost:9090
from another machine using the host's ip address:	https://<host-ip>:9090

You can also set up SSH access, but be aware that the port used by the DataPower would need to be different to the port used for SSH access on the host.
In the example above 9022 is being used, and the SSH settings on the DataPower should correspond, in addition to using the same ssh command port settings

Create DataPower domains for backend services and student labs

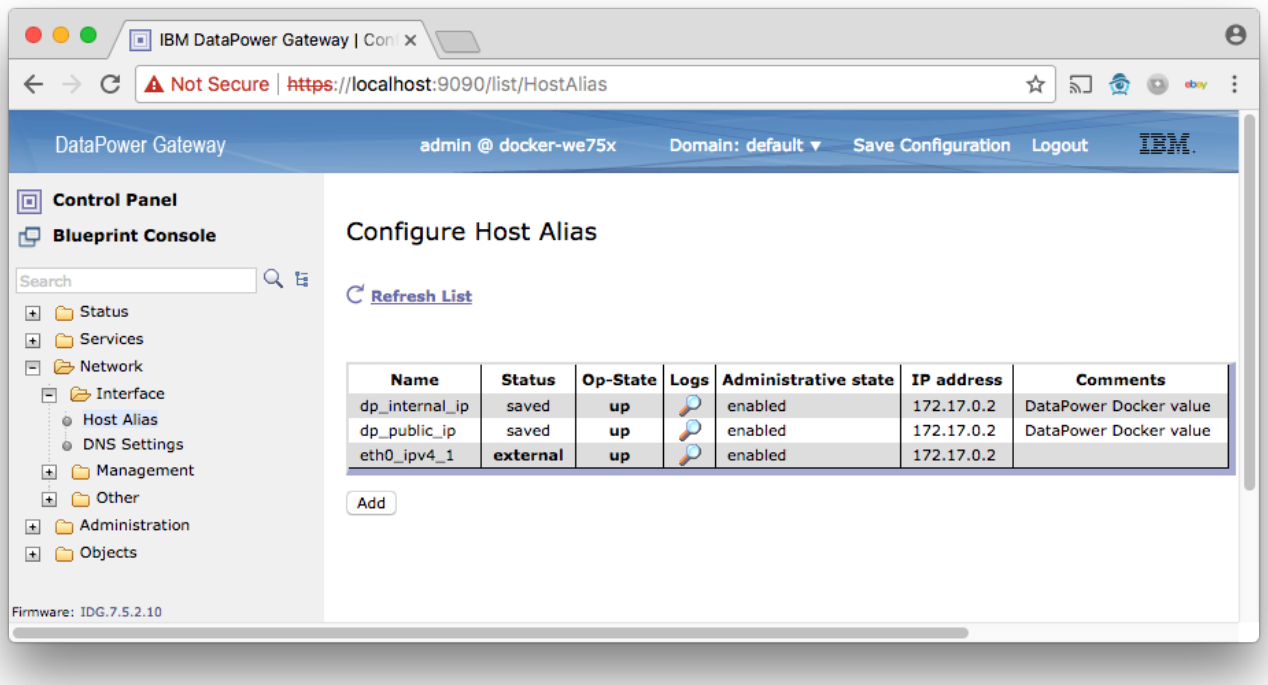
```
idg(config)# domain FLYServices
New Application Domain configuration

idg(config domain FLYServices)# summary "WE75x backend services domain"
idg(config domain FLYServices)# visible-domain default
idg(config domain FLYServices)# exit
20180123T113759.614Z [0x8100006b][mgmt][notice] domain(FLYServices): tid(40879): Domain operational state is up.
20180123T113759.618Z [0x8100003f][mgmt][notice] domain(default): tid(40879): Domain configuration has been modified.
20180123T113759.624Z [0x8100001f][mgmt][notice] domain(FLYServices): tid(40879): Created domain folder 'local:'
20180123T113759.626Z [0x8100001f][mgmt][notice] domain(FLYServices): tid(40879): Created domain folder 'logtemp:'
20180123T113759.626Z [0x8100001f][mgmt][notice] domain(FLYServices): tid(40879): Created domain folder 'logstore:'
20180123T113759.630Z [0x8100001f][mgmt][notice] domain(FLYServices): tid(40879): Created domain folder 'temporary:'
20180123T113759.633Z [0x8100001f][mgmt][notice] domain(FLYServices): tid(40879): Created domain folder 'export:'
20180123T113759.635Z [0x8100001f][mgmt][notice] domain(FLYServices): tid(40879): Created domain folder 'config:'
20180123T113759.635Z [0x8100001f][mgmt][notice] domain(FLYServices): tid(40879): Created domain folder 'cert:'
20180123T113759.637Z [0x8100001f][mgmt][notice] domain(FLYServices): tid(40879): Created domain folder 'chkpoints:'
20180123T113759.637Z [0x8100001f][mgmt][notice] domain(FLYServices): tid(40879): Created domain folder 'policyframework:'
20180123T113759.639Z [0x8100001f][mgmt][notice] domain(FLYServices): tid(40879): Created domain folder 'dpnfsstatic:'
20180123T113759.639Z [0x8100001f][mgmt][notice] domain(FLYServices): tid(40879): Created domain folder 'dpnfsauto:'
20180123T113759.639Z [0x8100001f][mgmt][notice] domain(FLYServices): tid(40879): Created domain folder 'ftp-response:'
20180123T113759.639Z [0x8100001f][mgmt][notice] domain(FLYServices): tid(40879): Created domain folder 'xm70store:'
20180123T113759.640Z [0x8100001f][mgmt][notice] domain(FLYServices): tid(40879): Created domain folder 'intisamwebroot:'
20180123T113759.640Z [0x8100001f][mgmt][notice] domain(FLYServices): tid(40879): Created domain folder 'isamwebroot:'
20180123T113759.640Z [0x8100001f][mgmt][notice] domain(FLYServices): tid(40879): Created domain folder 'intisamconfig:'
20180123T113759.640Z [0x8100001f][mgmt][notice] domain(FLYServices): tid(40879): Created domain folder 'isamconfig:'
20180123T113759.640Z [0x8100001f][mgmt][notice] domain(FLYServices): tid(40879): Created domain folder 'intisamcert:'
20180123T113759.640Z [0x8100001f][mgmt][notice] domain(FLYServices): tid(40879): Created domain folder 'isamcert:'
20180123T113759.645Z [0x8100001d][mgmt][notice] domain(FLYServices): tid(40879): Created domain configuration 'config:///FLYServices.cfg'
20180123T113759.753Z [FLYServices][0x8040006b][system][notice] logging target(default-log): tid(111): Logging started.
20180123T113759.997Z [0x8100003b][mgmt][notice] domain(FLYServices): Domain configured successfully.
idg(config)# write mem
```

```
Overwrite previously saved configuration? Yes/No [y/n]: y
Configuration saved successfully.
idg(config)# 20180123T113810.655Z [0x8100000c][mgmt][notice] : tid(8015): Saved current configuration to 'config:///auto-startup.cfg'
20180123T113810.656Z [0x81000040][mgmt][notice] domain(default): tid(8015): Domain configuration has been saved.
20180123T113810.678Z [0x8100000c][mgmt][notice] : tid(111): Saved current configuration to 'config:///auto-user.cfg'
```

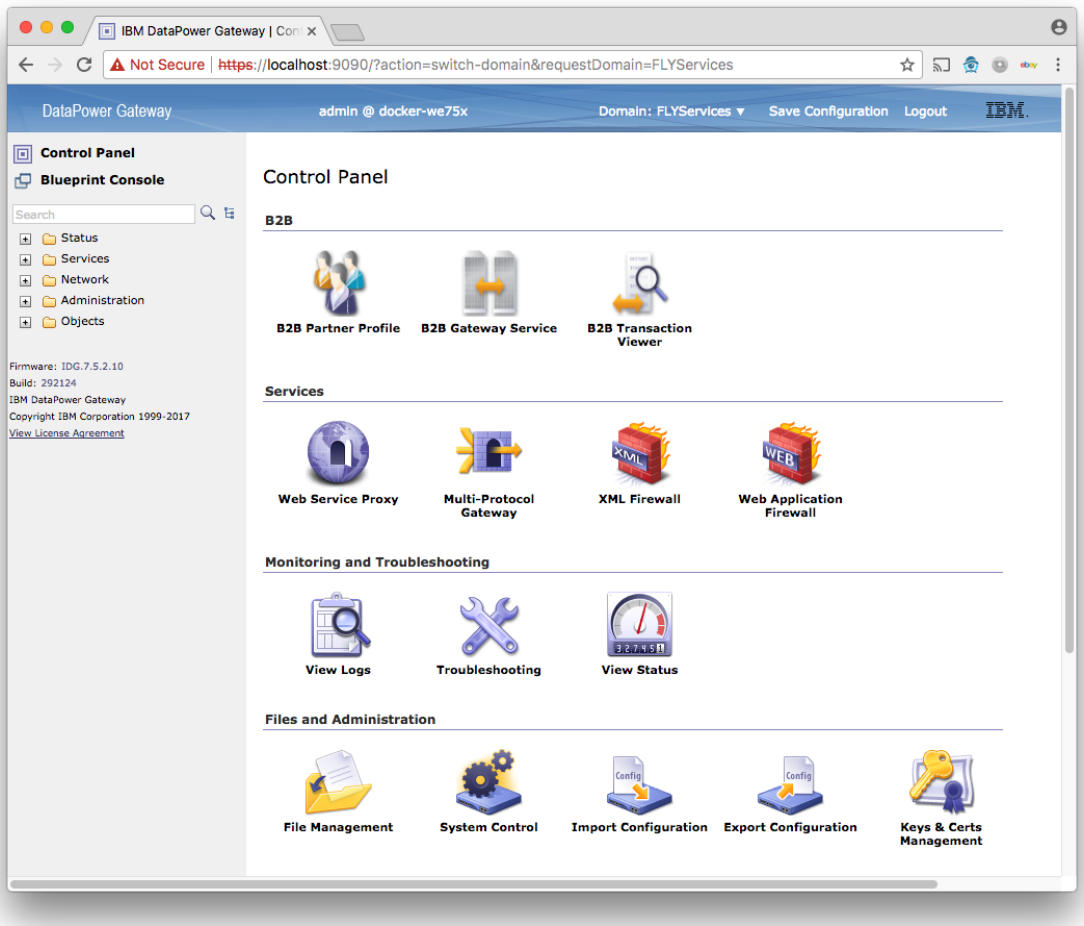
```
idg(config)# domain student01_domain
New Application Domain configuration

idg(config domain student01_domain)# summary "Test domain for student account 01."
idg(config domain student01_domain)# visible-domain default
idg(config domain student01_domain)# exit
20180123T113215.326Z [0x8100006b][mgmt][notice] domain(student01_domain): tid(34303): Domain operational state is up.
20180123T113215.332Z [0x8100001f][mgmt][notice] domain(student01_domain): tid(34303): Created domain folder 'local:'
20180123T113215.333Z [0x8100001f][mgmt][notice] domain(student01_domain): tid(34303): Created domain folder 'logtemp:'
20180123T113215.333Z [0x8100001f][mgmt][notice] domain(student01_domain): tid(34303): Created domain folder 'logstore:'
20180123T113215.333Z [0x8100001f][mgmt][notice] domain(student01_domain): tid(34303): Created domain folder 'temporary:'
idg(config)# 20180123T113215.333Z [0x8100001f][mgmt][notice] domain(student01_domain): tid(34303): Created domain folder 'export:'
20180123T113215.335Z [0x8100001f][mgmt][notice] domain(student01_domain): tid(34303): Created domain folder 'config:'
20180123T113215.335Z [0x8100001f][mgmt][notice] domain(student01_domain): tid(34303): Created domain folder 'cert:'
20180123T113215.335Z [0x8100001f][mgmt][notice] domain(student01_domain): tid(34303): Created domain folder 'chkpoints:'
20180123T113215.335Z [0x8100001f][mgmt][notice] domain(student01_domain): tid(34303): Created domain folder 'policyframework:'
20180123T113215.335Z [0x8100001f][mgmt][notice] domain(student01_domain): tid(34303): Created domain folder 'dpnfsstatic:'
20180123T113215.336Z [0x8100001f][mgmt][notice] domain(student01_domain): tid(34303): Created domain folder 'dpnfsauto:'
20180123T113215.336Z [0x8100001f][mgmt][notice] domain(student01_domain): tid(34303): Created domain folder 'ftp-response:'
20180123T113215.336Z [0x8100001f][mgmt][notice] domain(student01_domain): tid(34303): Created domain folder 'xm70store:'
20180123T113215.336Z [0x8100001f][mgmt][notice] domain(student01_domain): tid(34303): Created domain folder 'intisamwebroot:'
20180123T113215.336Z [0x8100001f][mgmt][notice] domain(student01_domain): tid(34303): Created domain folder 'isamwebroot:'
20180123T113215.336Z [0x8100001f][mgmt][notice] domain(student01_domain): tid(34303): Created domain folder 'intisamconfig:'
20180123T113215.336Z [0x8100001f][mgmt][notice] domain(student01_domain): tid(34303): Created domain folder 'isamconfig:'
20180123T113215.336Z [0x8100001f][mgmt][notice] domain(student01_domain): tid(34303): Created domain folder 'intisamcert:'
20180123T113215.337Z [0x8100001f][mgmt][notice] domain(student01_domain): tid(34303): Created domain folder 'isamcert:'
20180123T113215.339Z [0x8100001d][mgmt][notice] domain(student01_domain): tid(34303): Created domain configuration 'config:///student01_domain.cfg'
20180123T113215.426Z [student01_domain][0x8040006b][system][notice] logging target(default-log): tid(111): Logging started.
20180123T113215.653Z [0x8100003b][mgmt][notice] domain(student01_domain): Domain configured successfully.
idg(config)# write mem
Overwrite previously saved configuration? Yes/No [y/n]: y
Configuration saved successfully.
idg(config)# 20180123T113241.658Z [0x8100000c][mgmt][notice] : tid(8015): Saved current configuration to 'config:///auto-startup.cfg'
20180123T113241.658Z [0x81000040][mgmt][notice] domain(default): tid(8015): Domain configuration has been saved.
20180123T113241.695Z [0x8100000c][mgmt][notice] : tid(111): Saved current configuration to 'config:///auto-user.cfg'
```

Entering Host Alias Values

Open the WebGUI on the default domain, and provide the course Host Alias values, making them the same as the initial existing one:



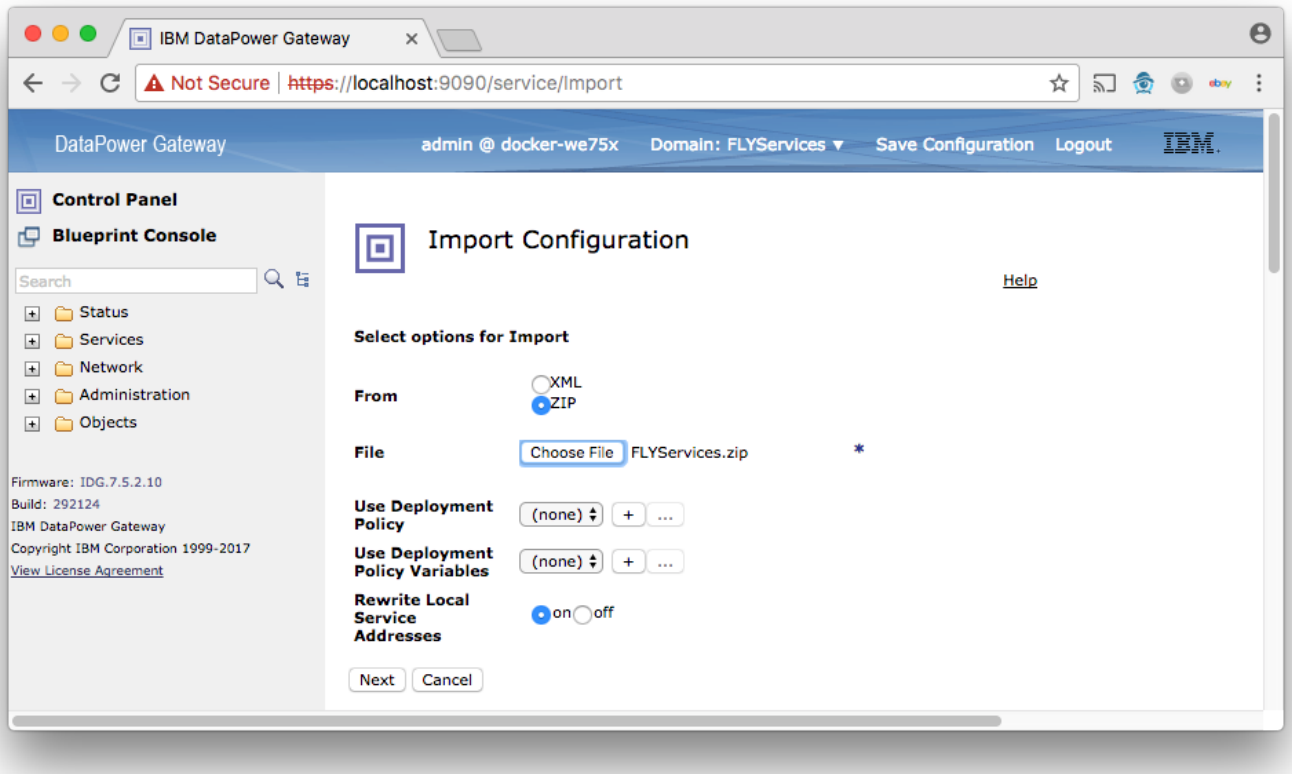
Open DataPower WebGUI on domain *FlyServices* and import backend services



Download the fixed `FlyServices` domain export file to your workstation (this contains some fixes made to that in the original labfiles):

https://github.com/steve-a-edwards/we751/raw/master/exports/FlyServices-2018-11-22-export.zip

Import `FLYServices-2018-11-22-export.zip` into *FlyServices* domain:



DataPower IP on Docker

All Lab exercises should now send messages to DataPower using `localhost` (`127.0.0.1`)

Exercise 1 works as follows, with the following entries in the browser:

> http://**localhost**:12017/xsl
> http://**localhost**:12017/javascript

Exercises using cURL should also use localhost. The SOAPUI Global Preferences should also be set up appropriately (see below).

Setup SOAPUI

Install SOAPUI 5.2.1

Install SOAPUI 5.2.1, using appropriate download link in page (still available 2022-02-07):

https://www.soapui.org/downloads/soapui/soapui-os-older-versions.html

Import Labs Project

Import the Labs SOAPUI projects

File -> Import Project

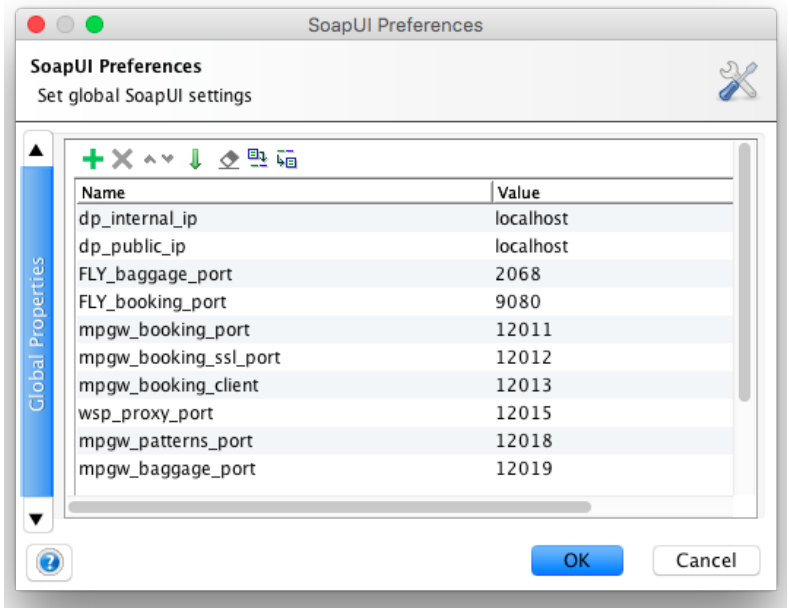
`<lab_files>/dp/setup/SoapUI/BookingServices-soapui-project.xml`

File -> Import Project

`<lab_files>/dp/setup/SoapUI/BaggageServices-soapui-project.xml`

Setup

Preferences / Global Preferences



Useful Links

Docker Installation

https://docs.docker.com/docker-for-windows/install/

> "The current version of Docker for Windows runs on 64bit Windows 10 Pro, Enterprise and Education (1607 Anniversary Update, Build 14393 or later). In the future we will support more versions of Windows 10."

https://docs.docker.com/docker-for-mac/install/

cURL Installation

If the workstation is Unix / Linux / OSX, then curl would normally already be installed.

For windows platforms:
https://curl.haxx.se/download.html

Windows 10 Example

See here for example run on Windows 10 Pro:
https://docs.google.com/document/d/e/2PACX-1vQ5XIpwPyqtZ1Ro2UdOW4eK4a-6eBMOdxA0VJ7fh8ZmzOubYZkuCiE0xDZXM-6IuhZLdMpvTi6Fayc9/pub

Docker run switches

https://docs.docker.com/engine/reference/commandline/run/

`-it`	instructs Docker to allocate a pseudo-TTY connected to the container's stdin, creating an interactive bash shell in the container
`-v`	flag mounts the current working directory into the container
`-e`	set simple (non-array) environment variables in the container you're running
`-p`	publish a container's port(s) to the host
`--name`	assign a name to the container
`--hostname`	container host name

$PWD is the Pathname of the current Working Directory