

# Setting Up MobileFirst Server on IBM Bluemix using Scripts for IBM Containers

## Overview

Follow the instructions below to configure a MobileFirst Server instance as well as MobileFirst Analytics instance on IBM Bluemix. To achieve this you will go through the following steps:

- Setup your host computer with the required tools (Cloud Foundry CLI, Docker, and IBM Containers Extension (cf ic) Plug-in)
- Setup your Bluemix account
- Build a MobileFirst Server image and push it to the Bluemix repository.

Finally, you will run the image on IBM Containers as a single Container or a Container group, and register your applications as well as deploy your adapters.

### Notes:

- Windows OS is currently not supported for running these scripts.
- The MobileFirst Server Configuration tools cannot be used for deployments to IBM Containers.

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## Register an account at Bluemix

If you do not have an account yet, visit the Bluemix website (<https://bluemix.net>) and click **Get Started Free** or **Sign Up**. You need to fill up a registration form before you can move on to the next step.

## The Bluemix Dashboard

After signing in to Bluemix, you are presented with the Bluemix Dashboard, which provides an overview of the active Bluemix **space**. By default, this work area receives the name “dev”. You can create multiple work areas/spaces if needed.

## Set up your host machine

To manage containers and images, you need to install the following tools: Docker, Cloud Foundry CLI, and IBM Containers (cf ic) Plug-in.

## Docker

Go to the Docker Documentation (<https://docs.docker.com/>) on the left menu, select **Install → Docker Engine**, select your OS type, and follow the instructions to install the Docker Toolbox.

**Note:** IBM does not support Docker's Kitematic.

In macOS, two options are available to run Docker commands:

- From the macOS Terminal.app: No further setup is needed. You can work only from it.
- From the Docker Quickstart Terminal: proceed as follows.
- Run the command:

```
docker-machine env default
```

- Set the result as environment variables, for example:

```
$ docker-machine env default
export DOCKER_TLS_VERIFY="1"
export DOCKER_HOST="tcp://192.168.99.101:2376"
export DOCKER_CERT_PATH="/Users/mary/.docker/machine/machines/default"
export DOCKER_MACHINE_NAME="default"
```

For further information consult the Docker documentation.

## Cloud Foundry Plug-in and IBM Containers plug-in

1. Install the Cloud Foundry CLI ([https://github.com/cloudfoundry/cli/releases?cm\\_mc\\_uid=85906649576514533887001&cm\\_mc\\_sid\\_50200000=1454307195](https://github.com/cloudfoundry/cli/releases?cm_mc_uid=85906649576514533887001&cm_mc_sid_50200000=1454307195)).
2. Install the IBM Containers Plugin (cf ic) ([https://console.ng.bluemix.net/docs/containers/container\\_cli\\_cfic\\_install.html](https://console.ng.bluemix.net/docs/containers/container_cli_cfic_install.html)).

## Download the ibm-mfpf-container-8.0.0.0 archive

To set up IBM MobileFirst Foundation on IBM Containers, you must first create an image that will later be pushed to Bluemix.

Follow the instructions in this page (<http://www-01.ibm.com/support/docview.wss?uid=swg2C7000005>) to download the IBM MobileFirst Server 8.0 for IBM Containers archive (.zip file, search for: *CNBL0EN*).

The archive file contains the files for building an image (**dependencies** and **mfpf-lib**s), the files for building and deploying a MobileFirst Operational Analytics Container (**mfpf-analytics**) and files for configuring a MobileFirst Server Container (**mfpf-server**).

**Click to read more about the archive file contents and available environment properties to use**

## Prerequisites

The below steps are mandatory as you will be running IBM Containers commands during the following section.

1. Login to the IBM Bluemix environment.

Run: `cf login`.

When prompted, enter the following information:

- Bluemix API endpoint
  - Email
  - Password
  - Organization, if you have more than one
  - Space, if you have more than one
2. To run IBM Containers commands, you must first log in to the IBM Container Cloud Service.  
Run: `cf ic login`.
3. Make sure that the `namespace` for container registry is set. The `namespace` is a unique name to identify your private repository on the Bluemix registry. The namespace is assigned once for an organization and cannot be changed. Choose a namespace according to following rules:
- It can contain only lowercase letters, numbers, or underscores.
  - It can be 4 - 30 characters. If you plan to manage containers from the command line, you might prefer to have a short namespace that can be typed quickly.
  - It must be unique in the Bluemix registry.

To set a namespace, run the command: `cf ic namespace set <new_name>`.

To get the namespace that you have set, run the command: `cf ic namespace get`.

To learn more about IC commands, use the `ic help` command.

## Setting Up the MobileFirst and Analytics Servers on IBM Containers

As explained above, you can choose to run the scripts interactively or by using the configuration files:

- Using the configuration files - run the scripts and pass the respective configuration file as an argument.
- Interactively - run the scripts without any arguments.

**Note:** If you choose to run the scripts interactively, you can skip the configuration but it is strongly suggested to at least read and understand the arguments that you will need to provide.

### MobileFirst Foundation Operational Analytics

If you intend to use analytics with your MobileFirst Server start here.

Using the configuration files

Running the scripts

### MobileFirst Foundation Server

Using the configuration files

Running the scripts

**Note:** Containers must be restarted after any configuration changes have been made (`cf ic restart containerId`). For container groups, you must restart each container instance within the group. For example, if a root certificate changes, each container instance must be restarted after the new certificate has been added.

Launch the MobileFirst Console by loading the following URL: `http://MF_CONTAINER_HOST/mfpconsole` (it may take a few moments).

Add the remote server by following the instructions in the Using MobileFirst CLI to Manage MobileFirst Artifacts (`../application-development/using-mobilefirst-cli-to-manage-mobilefirst-artifacts/#add-a-new-server-instance`) tutorial.

With MobileFirst Server running on IBM Bluemix, you can now start your application development. Review the MobileFirst Foundation tutorials (`../all-tutorials`).

## Port number limitation

There is currently an IBM Containers limitation with the port numbers that are available for public domain. Therefore, the default port numbers given for the MobileFirst Analytics container and the MobileFirst Server container (9080 for HTTP and 9443 for HTTPS) cannot be altered. Containers in a container group must use HTTP port 9080. Container groups do not support the use of multiple port numbers or HTTPS requests.

## Applying MobileFirst Server Fixes

Interim fixes for the MobileFirst Server on IBM Containers can be obtained from IBM Fix Central (<http://www.ibm.com/support/fixcentral>).

Before you apply an interim fix, back up your existing configuration files. The configuration files are located in the `package_root/mfpf-analytics/usr` and `package_root/mfpf-server/usr` folders.

1. Download the interim fix archive and extract the contents to your existing installation folder, overwriting the existing files.
2. Restore your backed-up configuration files into the `/mfpf-analytics/usr` and `/mfpf-server/usr` folders, overwriting the newly installed configuration files.

You can now build and deploy new production-level containers.

## Removing a Container from Bluemix

When you remove a container from Bluemix, you must also remove the image name from the registry. Run the following commands to remove a container from Bluemix:

1. `cf ic ps` (Lists the containers currently running)
2. `cf ic stop container_id` (Stops the container)
3. `cf ic rm container_id` (Removes the container)

Run the following `cf ic` commands to remove an image name from the Bluemix registry:

1. `cf ic images` (Lists the images in the registry)
2. `cf ic rmi image_id` (Removes the image from the registry)

## Removing the database service configuration from Bluemix

If you ran the `prepareserverdbs.sh` script during the configuration of the MobileFirst Server image, the configurations and database tables required for MobileFirst Server are created. This script also creates the database schema for the container.

To remove the database service configuration from Bluemix, perform the following procedure using Bluemix dashboard.

1. From the Bluemix dashboard, select the dashDB service you have used. Choose the dashDB service name that you had provided as parameter while running the **prepareserverdbs.sh** script.
2. Launch the dashDB console to work with the schemas and database objects of the selected dashDB service instance.
3. Select the schemas related to IBM MobileFirst Server configuration. The schema names are ones that you have provided as parameters while running the **prepareserverdbs.sh** script.
4. Delete each of the schema after carefully inspecting the schema names and the objects under them. The database configurations are removed from Bluemix.

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