

Αυτοματοποιημένη Διαχείριση Συστημάτων

Διάλεξη 7η

Θωμάς Καμαλάκης

Χαροκόπειο Πανεπιστήμιο Αθηνών

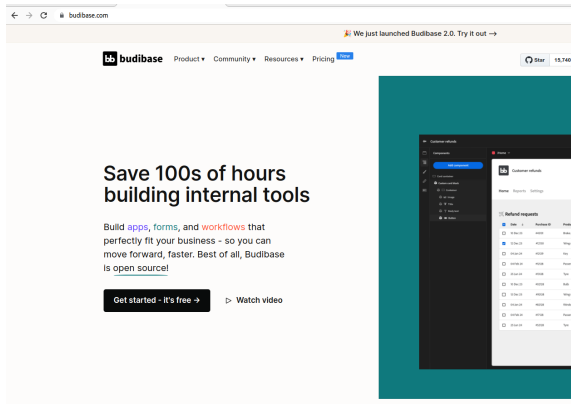
Οκτώβριος 2022

Περιεχόμενα

- 1 Budibase
- 2 Εγκατάσταση
- 3 Μία απλή εφαρμογή

Εισαγωγή

- Στα προηγούμενα είδαμε την διαχείριση μίας βάσης postgres
- Αυτό γινόταν με την βοήθεια της βιβλιοθήκης psycopg2
- Θα δούμε τώρα ένα παράδειγμα χρήσης API, χωρίς βιβλιοθήκη
- για τον σκοπό αυτό θα χρησιμοποιήσουμε την πλατφόρμα Budibase



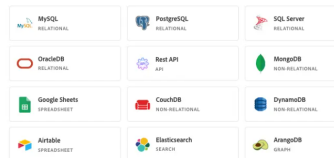
Budibase

Connect to anything

Securely connect to a number of datasources including Postgres, MySQL, MSSQL, Oracle, Google Sheets, and build apps in minutes.

Add data source

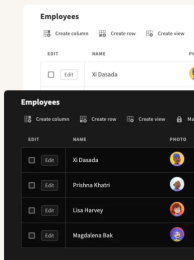
With Budibase, you can connect to a data source or start from scratch.



Budibase

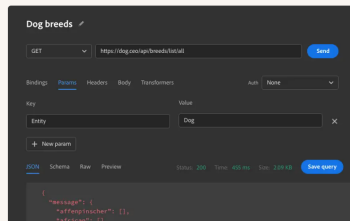
Internal database

Create apps from scratch with our no-code internal database.



Rest API connector NEW

Use our powerful Rest API connector to connect with REST APIs, fetch data, receive form data, authenticate with external APIs, and build modern business apps in minutes.



Budibase



Conditional UI

Change your user interface based on app conditions.



Actions

Choose from a number of actions to chain to user events.



Roles

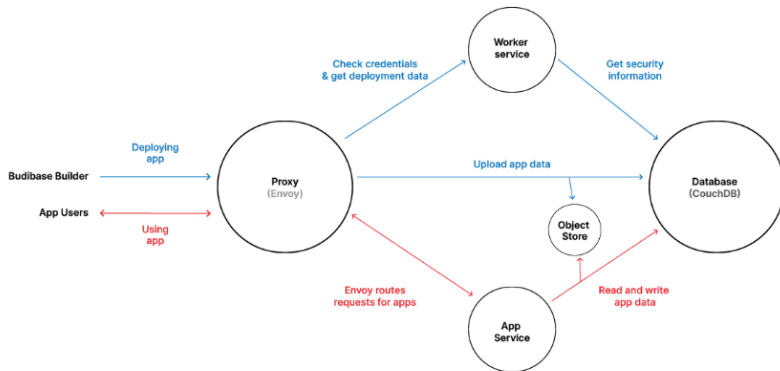
Ensure certain groups of people can only access certain screens.



JavaScript

Increase the power of your apps with JS and Handlebars.

Αρχιτεκτονική



CouchDB

- Μη σχεσιακή βάση!
- Open-source
- Τα πάντα είναι συλλογές από κείμενα
- Ξεκίνηση το 2005 από τον Damien Katz (IBM)
- ACID: atomicity, consistency, isolation, durability
- Κατανεμημένη (με replication)
- Built-in API
- Χρησιμοποιείται από το CERN, IBM, United Airlines, BBC, ...



MinIO

- Λύση αποθήκευσης (software defined)
- Δηλαδή η διαχείριση του δεν εξαρτάται από το hardware
- Open-source
- Χρησιμοποιείται πολύ συχνά σε Kubernetes
- Active-active replication (!)
- Κρυπτογράφηση
- Συμβατό με AWS S3



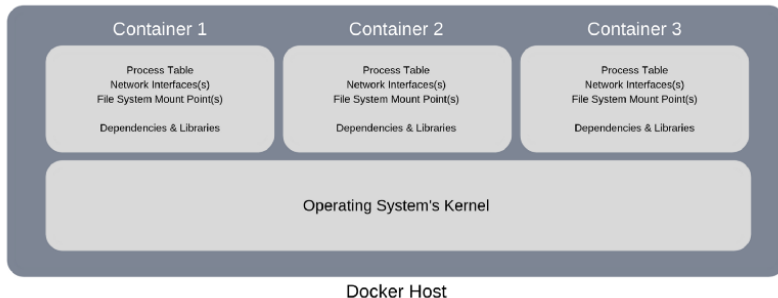
Worker + app service

- Worker: ελέγχει την πρόσβαση των χρηστών στα διάφορα συστατικά στοιχεία (π.χ. admin περιβάλλον κτλ)
- App: ο κορμός του Budibase, εκεί εκτελούνται οι εφαρμογές και το API.
- Proxy: Ένας webserver (Nginx) που καθορίζει την πρόσβαση των εφαρμογών μέσω Web.

Docker

- Μία πλατφόρμα για την απλοποίηση της δημιουργίας, εκτέλεσης και διαχείρισης εφαρμογών.
- Το docker δημιουργεί containers που δανείζονται το λειτουργικό σύστημα.
- Δεν είναι ιδεατές μηχανές!
- Κάθε container έχει τις δικές (ιδεατές) του κάρτες δικτύου, file system κτλ.
- Κάθε container είναι απομονωμένος από τους υπόλοιπους: τρέχει το δικό του λογισμικό, βιβλιοθήκες κτλ.
- Η επικοινωνία γίνεται με συγκεκριμένο τρόπο που ελέγχεται από το docker.
- Μία εφαρμογή που χρησιμοποιεί το docker λογικά θα πρέπει να εγκαθίσταται και να τρέχει με παρόμοιο τρόπο σε διαφορετικά περιβάλλοντα host.

Docker



Docker

```
root@debian:~# apt-get update
Get:1 http://security.debian.org/debian-security bullseye-security InRelease [48.4 kB]
Hit:2 http://deb.debian.org/debian bullseye InRelease
Get:3 http://deb.debian.org/debian bullseye-updates InRelease [44.1 kB]
Get:4 http://security.debian.org/debian-security bullseye-security/main Sources [167 kB]
Get:5 http://security.debian.org/debian-security bullseye-security/main amd64 Packages [194 kB]
Get:6 http://security.debian.org/debian-security bullseye-security/main Translation-en [123 kB]
Fetched 577 kB in 1s (727 kB/s)
Reading package lists... Done
root@debian:~#
```

Docker

```
root@debian:~# apt-get install ca-certificates curl gnupg lsb-release
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
ca-certificates is already the newest version (20210119).
lsb-release is already the newest version (11.1.0).
lsb-release set to manually installed.
The following additional packages will be installed:
  dirmngr gnupg-l10n gnupg-utils gpg gpg-agent gpg-wks-client
  gpg-wks-server gpgconf gpgsm libassuan0 libcurl4 libksba8 libnpth0
  pinentry-curses
Suggested packages:
  dbus-user-session pinentry-gnome3 tor parcimonie xloadimage scdaemon
  pinentry-doc
The following NEW packages will be installed:
  curl dirmngr gnupg gnupg-l10n gnupg-utils gpg gpg-agent gpg-wks-client
  gpg-wks-server gpgconf gpgsm libassuan0 libcurl4 libksba8 libnpth0
  pinentry-curses
0 upgraded, 16 newly installed, 0 to remove and 1 not upgraded.
Need to get 8280 kB of archives.
After this operation, 16.9 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```

Docker

```
root@debian:~# mkdir -p /etc/apt/keyrings
root@debian:~# curl -fsSL https://download.docker.com/linux/debian/gpg | sudo gpg --dearmor -o /etc/ap
t/keyrings/docker.gpg
-bash: sudo: command not found
(23) Failed writing body
root@debian:~# curl -fsSL https://download.docker.com/linux/debian/gpg | gpg --dearmor -o /etc/apt/key
rings/docker.gpg
root@debian:~# echo \
"deb [arch=$(dpkg --print-architecture) signed-by=/etc/apt/keyrings/docker.gpg] https://download.doc
ker.com/linux/debian \
$(lsb_release -cs) stable" | tee /etc/apt/sources.list.d/docker.list > /dev/null
root@debian:~#
```

Docker

```
root@debian:~# apt-get update
Get:1 https://download.docker.com/linux/debian bullseye InRelease [43.3 kB]
Hit:2 http://deb.debian.org/debian bullseye InRelease
Hit:3 http://security.debian.org/debian-security bullseye-security InRelease
Hit:4 http://deb.debian.org/debian bullseye-updates InRelease
Get:5 https://download.docker.com/linux/debian bullseye/stable amd64 Packages [14.7 kB]
Fetched 58.0 kB in 1s (97.1 kB/s)
Reading package lists... Done
root@debian:~#
```

```
root@debian:~# apt-get install docker-ce docker-ce-cli containerd.io docker-compose-plugin
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  dbus-user-session docker-ce-rootless-extras docker-scan-plugin git git-man iptables liberror-perl
  libip6tc2 libltdl7 libnetfilter-conntrack3 libnfnetlink0 libslirp0 patch pigz slirp4netns
Suggested packages:
  aufs-tools cgroupfs-mount | cgroup-lite git-daemon-run | git-daemon-sysvinit git-doc git-el
  git-email git-gui gitk gitweb git-cvs git-mediawiki git-svn firewalld ed diffutils-core
The following NEW packages will be installed:
  containerd.io dbus-user-session docker-ce docker-ce-cli docker-ce-rootless-extras
  docker-compose-plugin docker-scan-plugin git git-man iptables liberror-perl libip6tc2 libltdl7
  libnetfilter-conntrack3 libnfnetlink0 libslirp0 patch pigz slirp4netns
0 upgraded, 19 newly installed, 0 to remove and 1 not upgraded.
Need to get 120 MB of archives.
After this operation, 469 MB of additional disk space will be used.
Do you want to continue? [y/n]
```

Docker

```
root@debian:~# docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
2db29710123e: Pull complete
Digest: sha256:e18f0a777aefabe047a671ab3ec3eed05414477c951ab1a6f352a06974245fe7
Status: Downloaded newer image for hello-world:latest
```

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:

1. The Docker client contacted the Docker daemon.
2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
(amd64)
3. The Docker daemon created a new container from that image which runs the executable that produces the output you are currently reading.
4. The Docker daemon streamed that output to the Docker client, which sent it to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
\$ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker Hub:
<https://hub.docker.com/>

For more examples and ideas, visit:
<https://docs.docker.com/get-started/>

```
root@debian:~#
```

```
root@debian:~# docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED        STATUS        PORTS          NAMES
dc0bf7f612d2   hello-world "/hello"              24 seconds ago Exited (0) 23 seconds ago          crazy_b
rown
```

```
root@debian:~#
```

docker-compose

```
root@debian:~# curl -SL https://github.com/docker/compose/releases/download/v2.12.2/docker-compose-linux-x86_64 -o /usr/local/bin/docker-compose
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left   Speed
100 42.8M 100 42.8M    0     0  4386k      0  0:00:10  0:00:10 --:--:-- 3916k
root@debian:~#
```

```
ux-x86_64 -o /usr/local/bin/docker-compose
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left   Speed
100 42.8M 100 42.8M    0     0  4386k      0  0:00:10  0:00:10 --:--:-- 3916k
root@debian:~# ln -s /usr/local/bin/docker-compose /usr/bin/docker-compose
root@debian:~#
```

```
root@debian:~# chmod +x /usr/local/bin/docker-compose
root@debian:~#
```

```
root@debian:~# docker-compose version
Docker Compose version v2.12.2
root@debian:~#
```

Budibase

```
root@debian:~# wget https://github.com/Budibase/budibase/releases/latest/download/cli-linux
--2022-11-06 12:12:50-- https://github.com/Budibase/budibase/releases/latest/download/cli-linux
Resolving github.com (github.com)... 140.82.121.4
Connecting to github.com (github.com)|140.82.121.4|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://github.com/Budibase/budibase/releases/download/v2.1.15/cli-linux [following]
--2022-11-06 12:12:51-- https://github.com/Budibase/budibase/releases/download/v2.1.15/cli-linux
Reusing existing connection to github.com:443.
HTTP request sent, awaiting response... 302 Found
Location: https://objects.githubusercontent.com/github-production-release-asset-2e65be/190729906/4e36b7de-7820-4fac-b807-156f3ae63545?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIAIWNJYAX4CSVEH53A%2F20221106%2Fus-east-1%2Fs3%2Faws4_request&X-Amz-Date=20221106T101251Z&X-Amz-Expires=300&X-Amz-Signature=6c7b6d84adc58fba0162ac517f762fc5d60f8955d0fc4e8697ae82e1dedba08c&X-Amz-SignedHeaders=host&actor_id=0&key_id=0&repo_id=190729906&response-content-disposition=attachment%3B%20filename%3Dcli-linux&response-content-type=application%2Foctet-stream [following]
--2022-11-06 12:12:51-- https://objects.githubusercontent.com/github-production-release-asset-2e65be/190729906/4e36b7de-7820-4fac-b807-156f3ae63545?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIAIWNJYAX4CSVEH53A%2F20221106%2Fus-east-1%2Fs3%2Faws4_request&X-Amz-Date=20221106T101251Z&X-Amz-Expires=300&X-Amz-Signature=6c7b6d84adc58fba0162ac517f762fc5d60f8955d0fc4e8697ae82e1dedba08c&X-Amz-SignedHeaders=host&actor_id=0&key_id=0&repo_id=190729906&response-content-disposition=attachment%3B%20filename%3Dcli-linux&response-content-type=application%2Foctet-stream
Resolving objects.githubusercontent.com (objects.githubusercontent.com)... 185.199.108.133, 185.199.111.133, 185.199.110.133, ...
Connecting to objects.githubusercontent.com (objects.githubusercontent.com)|185.199.108.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 150473361 (144M) [application/octet-stream]
Saving to: 'cli-linux'
```

Budibase

```
cli-linux
root@debian:~# mkdir budibase
root@debian:~# mv cli-linux budibase/
root@debian:~#
```

```
cli-linux
root@debian:~# mkdir budibase
root@debian:~# mv cli-linux budibase/
root@debian:~# cd budibase/
root@debian:~/budibase# ls -la
total 140956
drwxr-xr-x 2 root root    4096 Nov  6 12:16 .
drwx----- 5 root root    4096 Nov  6 12:16 ..
-rwxr-xr-x 1 root root 150473361 Nov  4 23:06 cli-linux
root@debian:~/budibase# mv cli-linux budi
root@debian:~/budibase#
```

Budibase

```
root@debian:~/budibase# ./budi hosting --init
bb-alert: No JWT Secret supplied, cannot configure JWT strategy
! This will create multiple files in current directory, should continue? Yes
! Please enter the port on which you want your installation to run: 10000
Configuration has been written successfully - please check /root/.budibase/.env for more details.
root@debian:~/budibase#
```

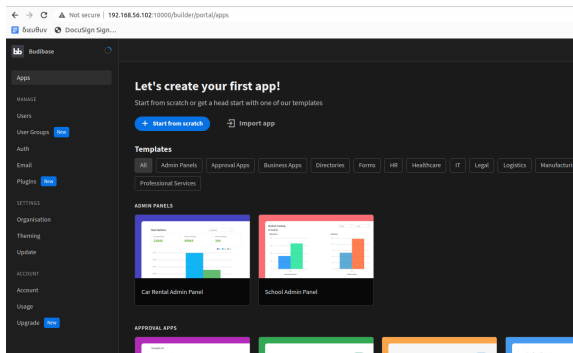
```
root@debian:~/budibase# ./budi hosting --start
Starting services, this may take a moment - first time this may take a few minutes to download images.
time="2022-11-06T12:18:46+02:00" level=warning msg="The \"BB_ADMIN_USER_EMAIL\" variable is not set. D
efaulting to a blank string."
time="2022-11-06T12:18:46+02:00" level=warning msg="The \"BB_ADMIN_USER_PASSWORD\" variable is not set
. Defaulting to a blank string."
time="2022-11-06T12:18:46+02:00" level=warning msg="The \"PLUGINS_DIR\" variable is not set. Defaultin
g to a blank string."
app-service Pulling
worker-service Pulling
minio-service Pulling
proxy-service Pulling
couchdb-service Pulling
couch-init Pulling
redis-service Pulling
watchtower-service Pulling
e9995326b091 Pulling fs layer
71689475aec2 Pulling fs layer
```

```
Container budibase-minio-service-1 Starting
Container budibase-redis-service-1 Starting
Container budibase-couchdb-service-1 Starting
Container budibase-watchtower-service-1 Starting
Container budibase-minio-service-1 Started
Container budibase-watchtower-service-1 Started
Container budibase-couchdb-service-1 Started
Container budibase-couch-init-1 Starting
Container budibase-redis-service-1 Started
Container budibase-couch-init-1 Started
Container bbworker Starting
Container bbworker Started
Container bbapps Starting
Container bbapps Started
Container bbproxy Starting
Container bbproxy Started
Services started, please go to http://localhost:10000 for next steps.
root@debian:~/budibase#
```

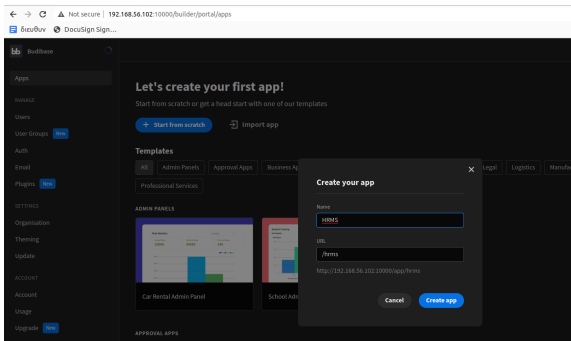
Admin Χρήστης

The screenshot shows a web browser window with the address bar displaying "192.168.56.102:10000/builder/admin". The browser's address bar also shows "Not secure" and "DocuSign Sign...". The main content area is dark-themed and features the Budibase logo (bb) at the top. Below the logo, the heading "Create an admin user" is displayed, followed by the text "The admin user has access to everything in Budibase." There are three input fields for "Email", "Password", and "Repeat Password". Below these fields are two buttons: "Create super admin user" and "Import from cloud".

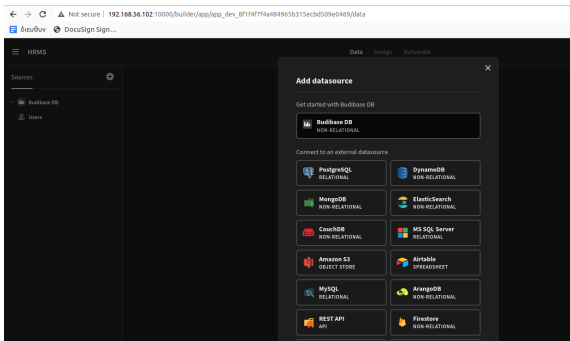
Landing Page



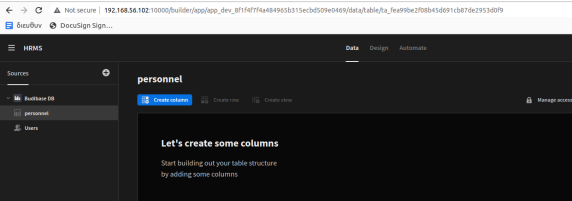
Δημιουργία



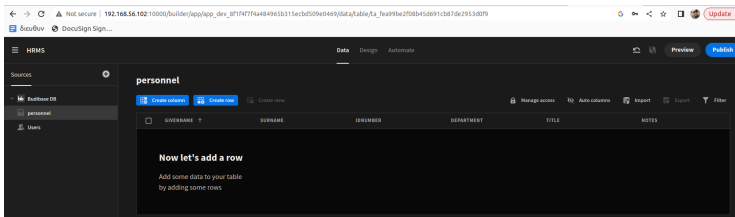
Δεδομένα



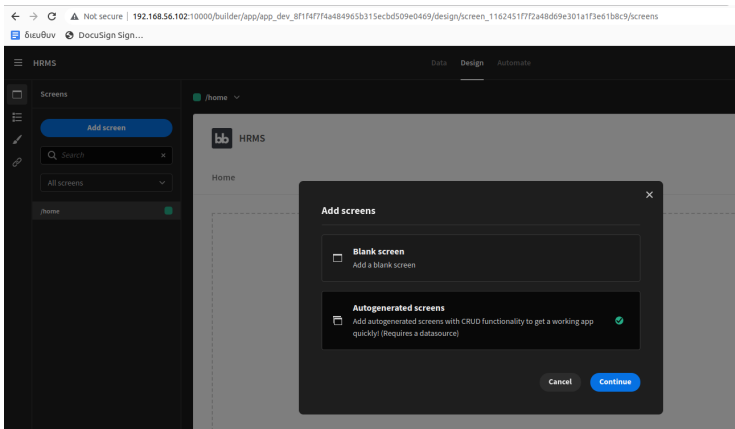
Δεδομένα



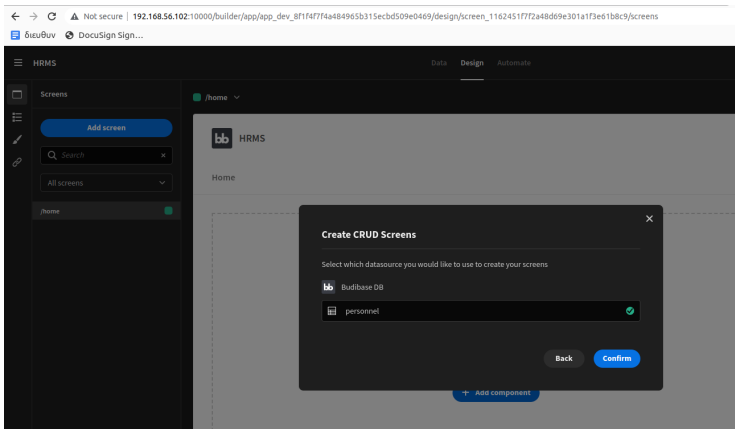
Δεδομένα



UI



UI



Δοκιμαστικά Δεδομένα

← → ↻ ⚠ Not secure | 192.168.56.102:10000/builder/app/app_dev_8f1f4f7f4a484965b315ecbd509e0469/data/table/ta_fea99be2f08b45d691cb87de29

📄 διευθυν DocuSign Sign...

☰ HRMS

Sources

▼ Budibase DB

personnel

Users

personnel

Create column Create row Create view

GIVENNAME SURNAME

Now let's add a row

Add some data to your table by adding some rows

Create Row

GivenName

Thomas

Surname

Kamalakis

IdNumber

83875476

Department

Informatics and Telematics

Title

Professor

Notes

API key

