



## Product summary

**IOblend** is an end-to-end enterprise data integration solution offering true DataOps capability built into its DNA.

IOblend is an advanced ETL product for building and managing data estates with production-grade dataflows. From the simple to the most complex, it significantly speeds up development effort and reduces the costs of data projects and data science initiatives.

Powered by our revolutionary engine (kappa architecture) and utilising the power and efficiency of Apache Spark™, IOblend takes Data Engineering and Data Management to the next level.

Connect to any source, perform in-memory transforms of streaming and batch data, and sink the results to any destination with little effort. There is no need to land your data for staging – perform your ETL in flight, which greatly reduces processing times. When persisting your data, IOblend will automatically create and manage data lakes and data warehouses for you on any cloud, on-prem and hybrid environment.

IOblend will manage your data through its full journey – *record-level lineage, CDC, metadata, schema, eventing, de-duping, SCD, chained aggregations, MDM, cataloguing, regressions* – full DataOps in-flight. This aspect is critical for successful Operational Analytics and MLOps.

IOblend is a low code solution, making it very easy to learn and master advanced ETL by data analysts and SMEs.

**IOblend has two core components: - IOblend Designer and IOblend Engine.**

IOblend Designer is a desktop GUI for interactively designing, building and testing data pipeline DAGs. This will produce the IOblend metadata describing the data pipelines that need to be executed.

IOblend Engine: The heart of IOblend that takes IOblend data pipeline metadata and converts it into Spark streaming jobs to be executed on any Spark cluster.

IOblend comes in two flavours: [IOblend Developer Edition](#) and [IOblend Enterprise Edition](#)

### **IOblend Developer Edition:**

Both the IOblend Designer and IOblend Engine are installed on a developer's desktop/laptop. IOblend automatically creates a local Spark environment for the IOblend Engine to work with and executes pipelines created by IOblend Designer.

Although the IOblend engine is running on your local machine, it can still connect to any Cloud or On-prem source you have access to pull the data from and use within your data pipeline. Likewise, it also writes the results of a data pipeline to any Cloud or On-prem structure that you have access to. Data pipelines can only be executed from the Designer – you cannot use SSH to run the IOblend engine remotely.

### **IOblend Enterprise Edition:**

Like the Development Edition but this time you have a remote IOblend Engine, packaged to run on any Cloud or On-prem Spark environment (*SSH*). IOblend Designer will generate 'run' files that can be executed/scheduled to run in your enterprise Spark infrastructure.

IOblend designer can be connected to either the local IOblend Engine or the remote IOblend engine for development and testing. The IOblend run files can be scheduled by any scheduling software such as Airflow.

The Development Edition is **FREE** to use. The Enterprise Edition requires a paid annual license.

Data Pipeline collaborative development and versioning.

A quick note on one aspect of the 'nuts and bolts'. All IOblend data pipelines are stored as JSON metadata files, which means they can be placed in any code repository and versioned, just like standard software development.

### **Recommended (*min*) system requirements:**

Most modern development machines: MacBook Air and Windows laptops with 16gb and 2.5 Ghz.

*Note: make sure you have enough disk space – the IOblend download will take approx. 2Gb. We recommend a fast SSD drive for the best performance.*

## Installation guide

### IOblend Developer Edition installation – MacOS

Download and install IOblend Developer Edition. IOblend Developer Edition is **FREE** to use for development purposes only **for as long as you need it** - experience the full power of IOblend at your own pace.

#### Pre-Requisites:

**MacOS system**

**Internet connection**

**Python**

#### Download IOblend MacOS:

- Visit IOblend [Download](#) web page or click [here](#) to fill in the registration form.
    - Once you have completed and submitted the form, you will see the download link in the confirmation message on the same screen.
    - Select the **MacOS** version.
    - Please do not leave the page before you see the link. Click on your selected version and the download will begin.
    - Note: your Firewall and Antivirus Editions may flag the file as “risky”, depending on your settings. Adjust to let it pass through.
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- Extract the zipped file onto your local machine.
    - Ensure the installation is fully on your local environment or the software will not work.
    - IOblend does not provide infrastructure – you install and run it entirely within your own infrastructure and associated security protocols. In your local Dev environment, IOblend will utilise your local resources (CPU, RAM). In the Enterprise version, you can run IOblend in the Cloud, Data centres or on-prem.
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### Installation Steps:

#### 1. Install Python 3.10.11:

Download Python 3.10.11 for Mac from the following [link](#)

Download the MacOS 64-bit universal installer [here](#)

Run the installer and allow the installer to add to *\_profile*.

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## 2. Set Up Virtual Environment (venv):

- **Verify Python Installation**

Make sure it is the right version running for Mac. Type the following from a terminal window:

```
bash Copy code  
  
python3 --version
```

Ensure that the correct version (**3.10.11**) is displayed.

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- **Locate Python Installation**

At the python command line, execute the following commands to confirm where your python is located:

```
python Copy code  
  
import os  
import sys  
os.path.dirname(sys.executable)
```

**Code:**

```
import os  
import sys  
os.path.dirname(sys.executable)
```

The typical output should be:

*Make your data estate "state-of-the-art"*

***/Library/Frameworks/Python.framework/Versions/3.10/bin***

If an incorrect path and version are displayed, check your environment path variables and ensure that *'your python version dir'*scripts is the last in the list.

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- **Create Virtual Environment**

Exit from Python back to the terminal prompt and execute the following command to create a *venv*.

```
bash Copy code  
  
python3 -m venv /Users/your_path/python_venvs/p310
```

**Code:**

`python3 -m venv /Users/your_path/python_venvs/p310`

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- **Activate Virtual Environment**

In a terminal window, type:

```
bash Copy code  
  
source /Users/your_path/python_venvs/p310/bin/activate
```

**Code:**

`source /Users/your_path/python_venvs/p310/bin/activate`

---

### 3. Install Required Python Modules:

With the virtual environment (venv) activated, execute the following commands to install the necessary python modules for IOblend:

```
bash Copy code  
pip3 install pyinstaller Pillow Tornado psutil boto3 retrying tzlocal py4j t
```

#### Code:

```
pip3 install pyinstaller  
pip3 install Pillow  
pip3 install Tornado  
pip3 install psutil  
pip3 install boto3  
pip3 install retrying  
pip3 install tzlocal  
pip3 install py4j  
pip3 install tabulate  
pip3 install pandas  
pip3 install cryptography  
pip3 install google-cloud-storage  
pip3 install --upgrade google-cloud-storage  
pip3 install azure-storage-blob  
pip3 install azure-identity  
pip3 install azure-common  
pip3 install azure-storage-file-datalake  
pip3 install pyarmor
```

To deactivate the *venv*, simply type *deactivate* from the command line.

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#### 4. Once Python has been setup, proceed with unzipping IOblend.

- Extract IOblend Software

Unzip the *ioblend\_designer\_mac.zip* file.

Navigate to the *ioblend\_designer* directory that has been unzipped.

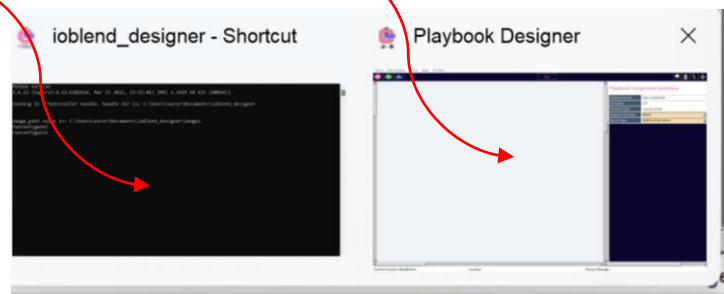
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- Launch IOblend Designer

Launch the *ioblend\_designer* executable by clicking on it from the Finder.

Once IOblend has started, it will launch a new terminal window which in turn will launch the *ioblend\_designer* GUI.

Once IOblend is running (it will have two windows running in the background: **Script terminal** and **Playbook Designer**).

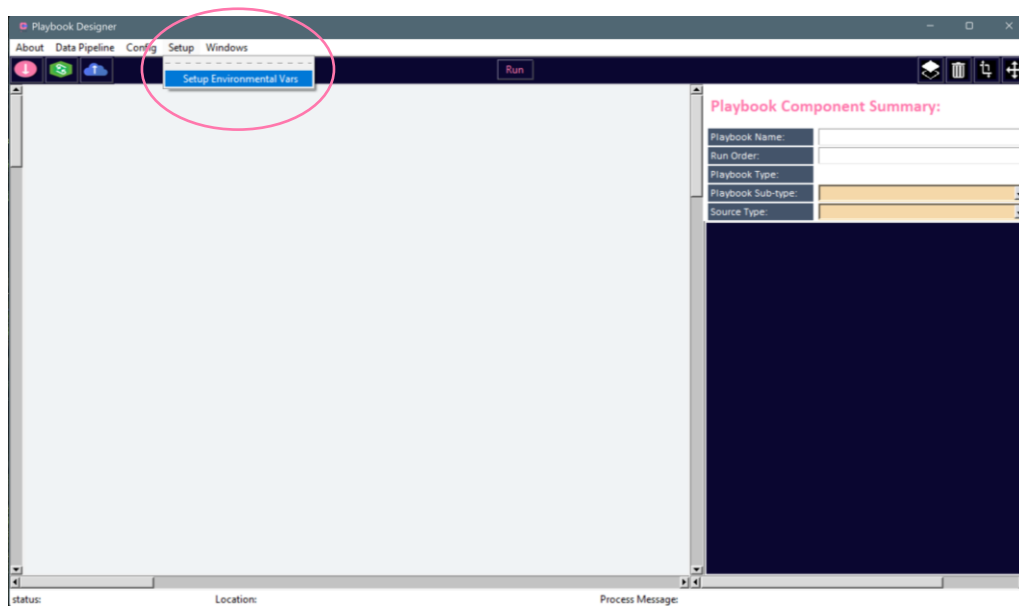




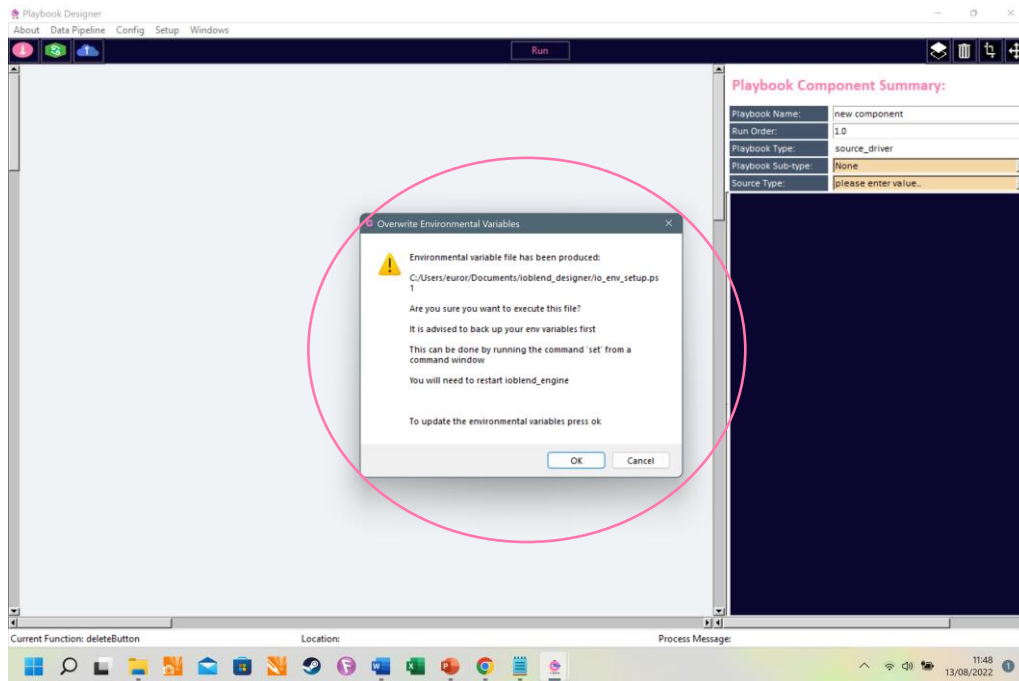
- **Setup Environmental Variables**

Go to the Setup menu and click on Setup Environmental Vars.

- Next, we will need to let IOblend set up its environmental parameters. There is a one-time environmental setup that needs to be run for IOblend to work on your local machine. This step will setup local environmental variables that tell IOblend where to find the core components it needs.



- Click "Setup --> Setup Environmental Vars".
  - A pop-up box will appear and recommend that you back up the existing OS environmental variables.
-



This will generate a file in the *ioblend\_designer* folder called *io\_env\_setup.sh*.

Copy the export statements to your local profile file to add the required environmental variables and to add the required IOblend folders to your path.

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- **Restart IOblend Designer**

Close the *ioblend\_designer* application and its terminal window.

Restart the *ioblend\_designer* executable (we recommend you create a shortcut for the executable for easier access).

**Please restart the IOblend application by exiting and launching it again.**

**Note:**

Occasionally, Mac users may encounter an error message stating an app *"cannot be opened because it is from an unidentified developer"* when trying to launch certain applications.

This is due to Mac's **Gatekeeper** security feature, which restricts the apps that can be installed or opened to those from the App Store or identified developers.

However, there's a workaround to temporarily disable this feature, allowing the execution of apps from unidentified developers. **You only have to do it the first time you install IOblend.**

**Instructions:**

**Step 1: Access the Terminal**

Navigate to Applications > Utilities and open Terminal. Alternatively, you can use Spotlight search (*Cmd + Space*) and type "Terminal".

**Step 2: Disable Gatekeeper**

In the Terminal, type the following command and press **Enter**:

```
bash Copy code  
  
sudo spctl --master-disable
```

You'll be prompted to enter your administrator password. Do so and press **Enter**.

### Step 3: Adjust Security Preferences

Go to System Preferences > Security & Privacy.

Under the General tab, you'll find a section labelled "*Allow apps downloaded from*".

Select "**Anywhere**".

### Step 4: Run the Desired Application

Locate and run the *ioblend\_designer* unix executable that previously triggered the error.

### Step 5: Re-enable Gatekeeper (Recommended)

Once you've launched the app successfully, re-enable *Gatekeeper* to maintain your system's security.

Return to the Terminal and type the following command, then press **Enter**:

A screenshot of a macOS Terminal window. The title bar shows "bash" on the left and a "Copy code" button on the right. The main area of the terminal is black with white text. The command "sudo spctl --master-enable" is entered on a single line.

```
bash                                                                    Copy code
sudo spctl --master-enable
```

By following these steps, you will be able to run IOblend on your Mac, though be sure to *re-enable Gatekeeper* afterwards to keep your system protected from potentially harmful software.

#### Disclaimer:

Disabling Gatekeeper and allowing apps from unidentified developers can expose your Mac to potential security risks. It's recommended to ensure the app you are trying to install is from a trusted source and to re-enable Gatekeeper as soon as possible.

**Congratulations, you are now ready to build your first production-grade data pipeline with IOblend!**

**Important: If you are having issues with Spak not initialising or JDBC error stipulating a "failure to connect to Java server", please check your antivirus settings to make sure its "trust" IOblend and its associated components (such as Spark, Python, etc). McAfee Real Time Scans can be especially sensitive to JDBC connections and anything to do with Java.**