# User Manual

## TeamAFK - Project Predire in Grafana

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**Informations about the document**

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|---|---|
| **Version** | 3.0.0 |
| **Approval** | |
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| **Check** | |
| **Use** | External |
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**Description**

User manual made by *TeamAFK* for the project *Predire in Grafana*.

# Changelog

| Version | Date | Description | Name | Role |
|---|---|---|---|---|

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# 1 Introduction

## 1.1 Document's purpose

Il manuale dello sviluppatore permette ad ogni sviluppatore che si approcci al prodotto software *"Predire in Grafana"* di assimilare le informazioni principali per poter manutenere e estendere tale prodotto. All'interno del documento verrà descritto il prodotto in modo dettagliato, consentendo allo sviluppatore di ottenere una spiegazione esaustiva necessaria per l'attività che andrà a svolgere.

The developer's manual allows each developer reader to absorb *"Predire in Grafana"*'s product key information to maintain and extend the product itself. This document describes the product in its totality, giving the developer an exaustive explanation required for his tasks.

## 1.2 Predire in Grafana's Purpose

*"Predire in Grafana"* è un plugin realizzato per la piattaforma open source$_G$ Grafana che permette di calcolare delle previsioni su un flusso dati. Viene utilizzato un algoritmo addestrato dall'utente, la cui definizione è contenuta in un file in formato JSON$_G$ , per poter effettuare le previsioni. Viene fornito un applicativo esterno per l'addestramento degli algoritmi di previsione, attualmente sono implementati gli algoritmi di Support Vector Machine$_G$ e Regressione Lineare$_G$ . Nello specifico il plugin monitora i dati in ingresso da un certo flusso, come per esempio percentuali di utilizzo della memoria o temperatura del processore, e produce delle previsioni che vengono successivamente mostrate attraverso l'interfaccia graficaG di Grafana. Il plugin rimane in esecuzione e riceve continuamente informazioni in ingresso da un flusso di dati. In questo modo gli operatori potranno monitorare eventuali cambiamenti sul flusso dati grazie alla previsione in real time$_G$ ed intervenire, se necessario, sull'origine del problema.

*"Predire in Grafana"* is a plugin made for Grafana which is an open source$_G$ platform commonly used to analyze data series. The plugin allows users to predict datas on a stream data. *"Predire in Grafana"* plugin uses a JSON file which contains a trained algorithm definition to get predictions. Users can use an external training tool, which use Machine Learning$_G$ , to get these JSON' files. At the moment only Support Vector Machine and Linear Regression algorithm are implemented. In more detail input datas, like cpu's usage and cpu's temperature, are constantly monitored to get predictions on the aspect you want to examine. Predictions are shown throght Grafana GUI and continue to be updated after being calculated from datas coming from a database. Thanks to this operators can monitor each process and intervene at the root of the problem whenever neccessary.

## 1.3 Glossary

At the end of the document is available an appendix where explanations for new or ambiguous terms can be found. These are marked with a subscript G.

## 1.4 References

### 1.4.1 Installation

- https://nodejs.org/en/ (https://nodejs.org/it/);
- https://git-scm.com/;
- https://www.gitkraken.com/;
- https://grafana.com/get;
- https://www.jetbrains.com/idea/.

### 1.4.2 Technologies

- https://reactjs.org/docs/getting-started.html;
- https://grafana.com/docs/grafana/latest/developers/plugins/.

### 1.4.3 Legal

- https://www.apache.org/licenses/LICENSE-2.0.

### 1.4.4 Informative

- https://en.wikipedia.org/wiki/Linear_regression;
- https://en.wikipedia.org/wiki/Support_vector_machine.

# 2 System Requirements

Here the requirements for use of the product are listed.

## 2.1 Minimum Hardware Requirements

Here the requirements for use of the product are listed.

- 2GB of RAM;
- 5GB of space on a drive;
- Dual core processor.

## 2.2 Compatible Operating Systems

The software was developed and tested on the following:

- Windows 10;
- MacOS 10.15;
- Ubuntu 18, 20.

## 2.3 Compatible Browsers

Predire in Grafana can be accessed through the following browsers:

- Google Chrome version 58 or newer;
- Mozilla Firefox version 54 or newer;
- Apple Safari version 10 or newer;
- Microsoft Edge version 14 or newer;
- Opera version 55 or newer.

# 3 The Training Tool

Here the appropriate way of using the training tool is explained in detail.

## 3.1 Access

The tool is hosted by a web page and can thus be accessed via browser.

## 3.2 Uploading a CSV File in the Tool

The user will need to feed the tool a CSV file containing properly marked values for the algorithm the user has intention of training.

This can be done by selecting the "selezionare il file" button, which will open a window from which the user will be able to select the CSV file he has intention of uploading.

## 3.3 Selection of the Algorithm

The user will then have to choose between training a support vector machine or a linear regression algorithm with the CSV file he has given to the tool.

To do this, the user can open a drop-down menu called "seleziona l'algoritmo" which displays the two algorithms that can be chosen, the preferred algorithm can at this point be selected.

Should the user have uploaded training data incompatible with the selected algorithm, an error message will be displayed.

## 3.4 Training Operation

The tool will now be able to perform the training operation by simply having the user select the "Conferma" button.

The tool will now have produced a JSON file containing the values needed for use in the plug-in.

## 3.5 Obtaining the JSON File

The user can now select the "download" button, which will only appear once the training operation has ended succesfully, and receive the JSON file.