

ENG

DCloud and DConnect

IoT solution by DTI

DPCL 1.0



www.dtiindustry.com

IoT solution by DTI

DTI provides hardware and software solutions for the Internet of Things through DCloud and DConnect products.

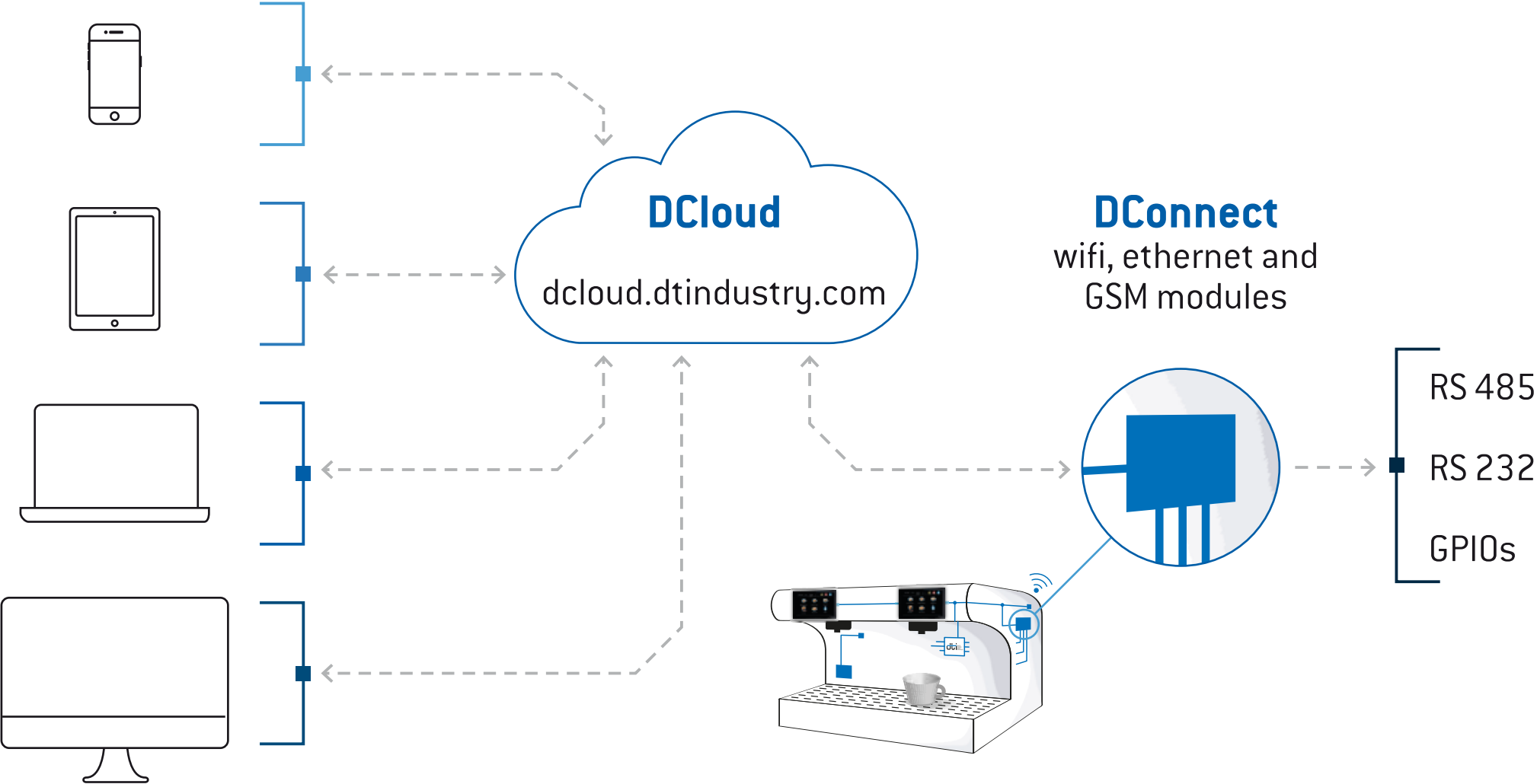
This system guarantees an integrated, flexible and safe structure.

DCloud is a web platform designed to acquire and process information from devices connected to the network, making it available to users.

DConnect is the range of IoT Gateway modules developed by DTI, designed to communicate with electronics inside professional appliances. These gateways are built to collect, process and publish data on the cloud, in order to create an advanced IoT infrastructure.



DConnect and DCloud DESCRIPTION





DConnect-WiFi

DConnect Wi-Fi is the DTI gateway designed to connect any electronic equipment to the Cloud via Wi-Fi or Ethernet.

The device is equipped with RS485, RS232 and GPIO ports to communicate with the power units.

Communication with PCs, tablets and smartphones takes place via the integrated Bluetooth connection module or via a local Wi-Fi web server.

D-connect WiFi/BLE

Technical features

- Communication to the machine: RS485 / TTL 5V / RS232
- Wi-Fi frequency range: 2,4 Ghz – 2,5 GHz
- Bluetooth version: v4.2 BR/EDR and BLE





DConnect-NB and DConnect-LTE

DConnect-NB and DConnect-LTE are the modules developed by DTI to connect the electronics to the mobile network.

This solution is very flexible, the power supply can be managed through external source and battery. Several GPIOs are available for a possible standalone usage.

D-connect NB

Narrowband IoT module

D-connect LTE

LTE mobile network module

Technical features

- Battery power supply 3,6V or external 5÷ 12Vcc
- Machine access via RS485, TTL
- Configuration via jumper
- Micro SIM for NB IoT or LTE-M





DCloud

DCloud is a web platform designed for the remote management of devices connected to internet. It is easily customizable and based on a micro-service structure.

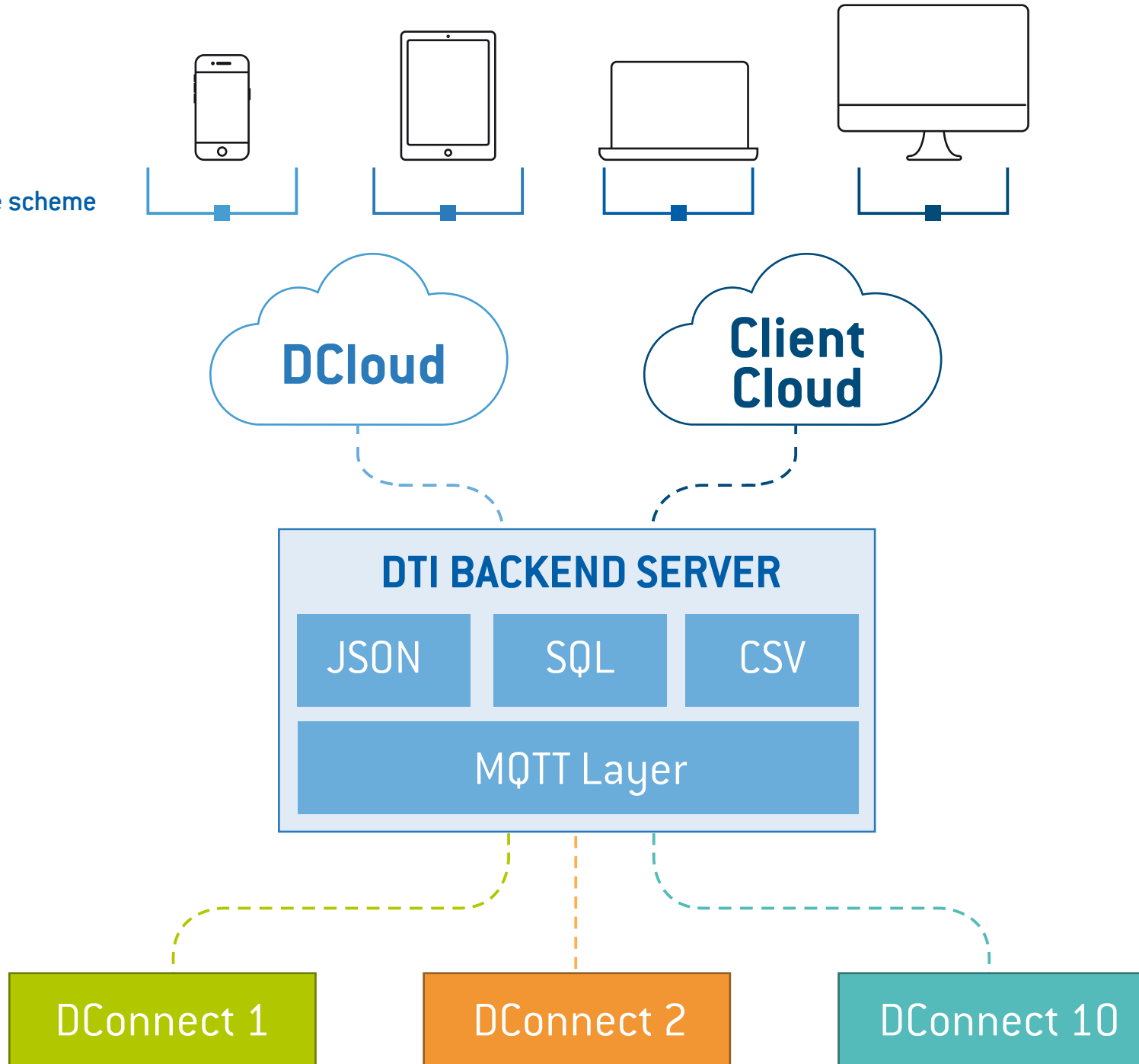
DConnect modules and DTI embedded products allow an easy and safe connection to the DCloud platform.

The integration of the system ensure the management, maintenance, and diagnostics of the machine park.

Platform strengths

- Reduced Time to Market
- MQTT architecture
- Real-time machine status monitoring
- Communications security
- System access from PC and mobile
- Customizable platform based on customer needs
- Remote machine software update
- Alarm management

Cloud architecture scheme





Back-end DESCRIPTION

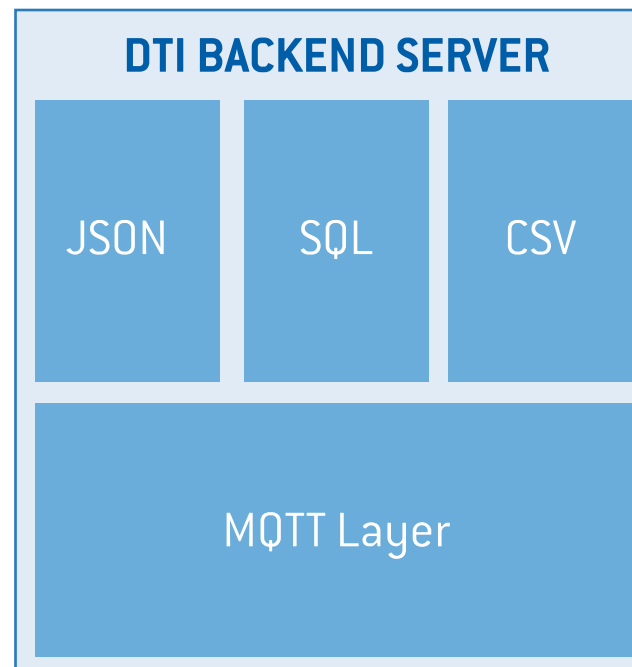
Communication between DConnect and Cloud devices takes place through the MQTT protocol.

Messages sent and received by machines have an optimized format to reduce their size and allow their management even by electronic devices with limited resources.

The MQTT layer is responsible for translating messages to and from machines, adding labels and information at a higher level.

The storage layer processes all information received from the MQTT layer then classifies and storage them on different data structures.

These data are provided to the front-end in flexible formats, such as JSON, SQL and CSV.





Front-end DESCRIPTION

DCloud features a modular architecture, where each module offers a specific functionality to the user.

Authentication credentials (username and password) are required to get access to the platform.

It is possible to view and set:

- Users
- Groups
- Maintenance
- Media
- Access to the system from PC and Mobile
- Machine
- DConnect





Users and Groups MODULE

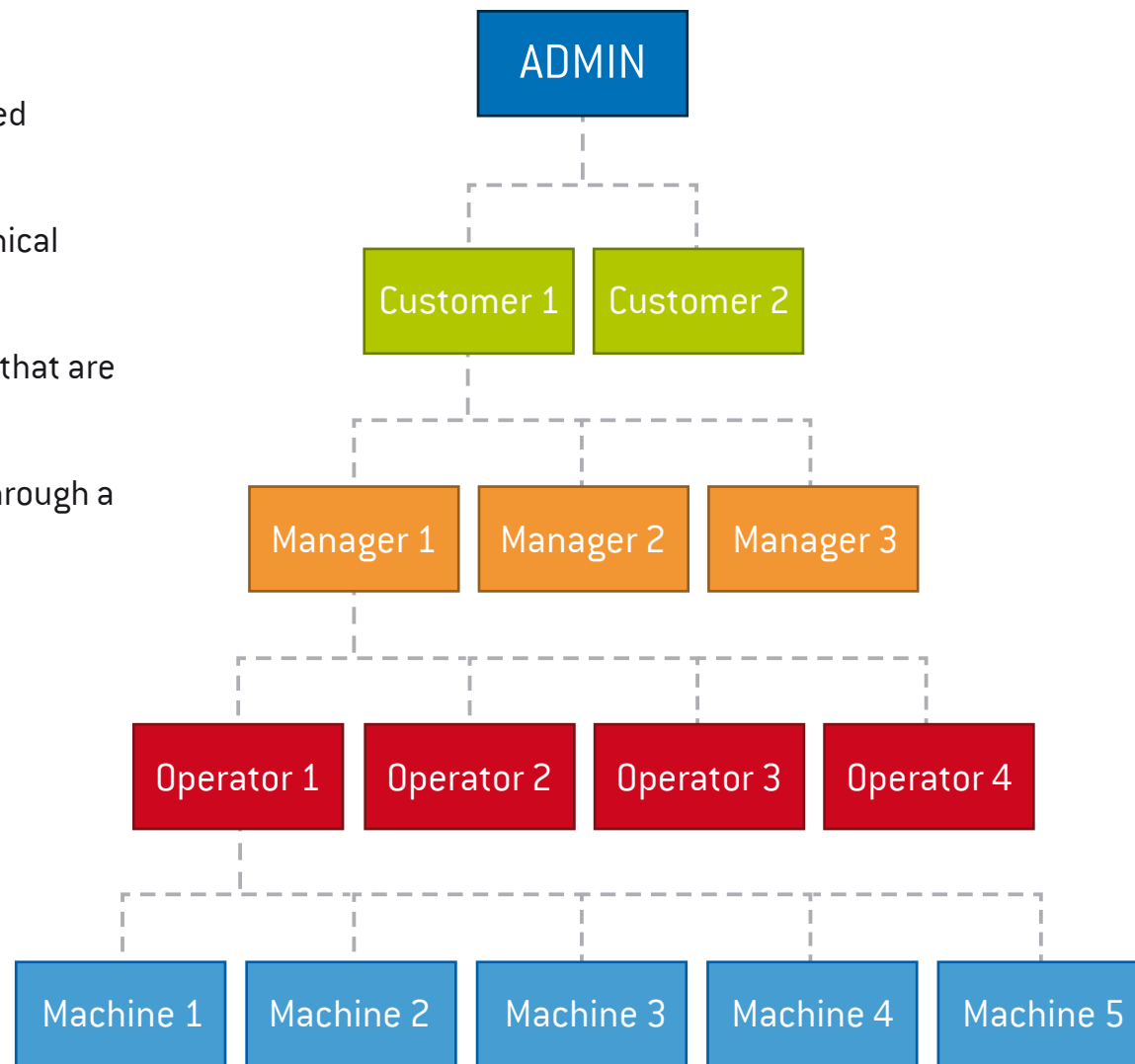
Users can be divided into groups that represent the companies involved.

Machines are associated with each group to ensure filtered access to their data.

Each group can have one or more subgroups, in a hierarchical structure.

Users can be assigned administrator or maintainer roles, that are allowed to access differentiated data.

It is easy and intuitive to create and register new users through a simple process by e-mail.



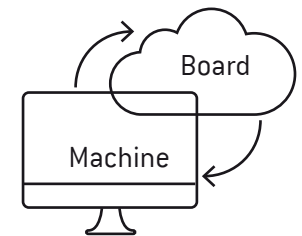
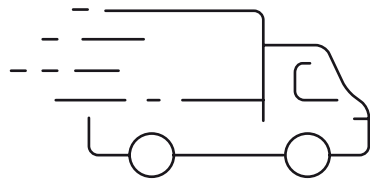
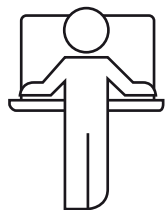


DConnect MODULE

The DTI operator enters the unique code of the gateway or embedded products in the DConnect module of DCloud.

As the customer receives the electronics, he can find the Dconnect that has to be configured on DCloud. For each device, he can view the connection status, installed firmware version, and a field to enter the internal code.

During the machine assembly phase, each DConnect can be associated with a machine quickly and safely.



DTI enters the unique codes of the DConnect modules into the system

Boards are delivered

Machines are registered on DCloud

A DConnect module is associated with each machine

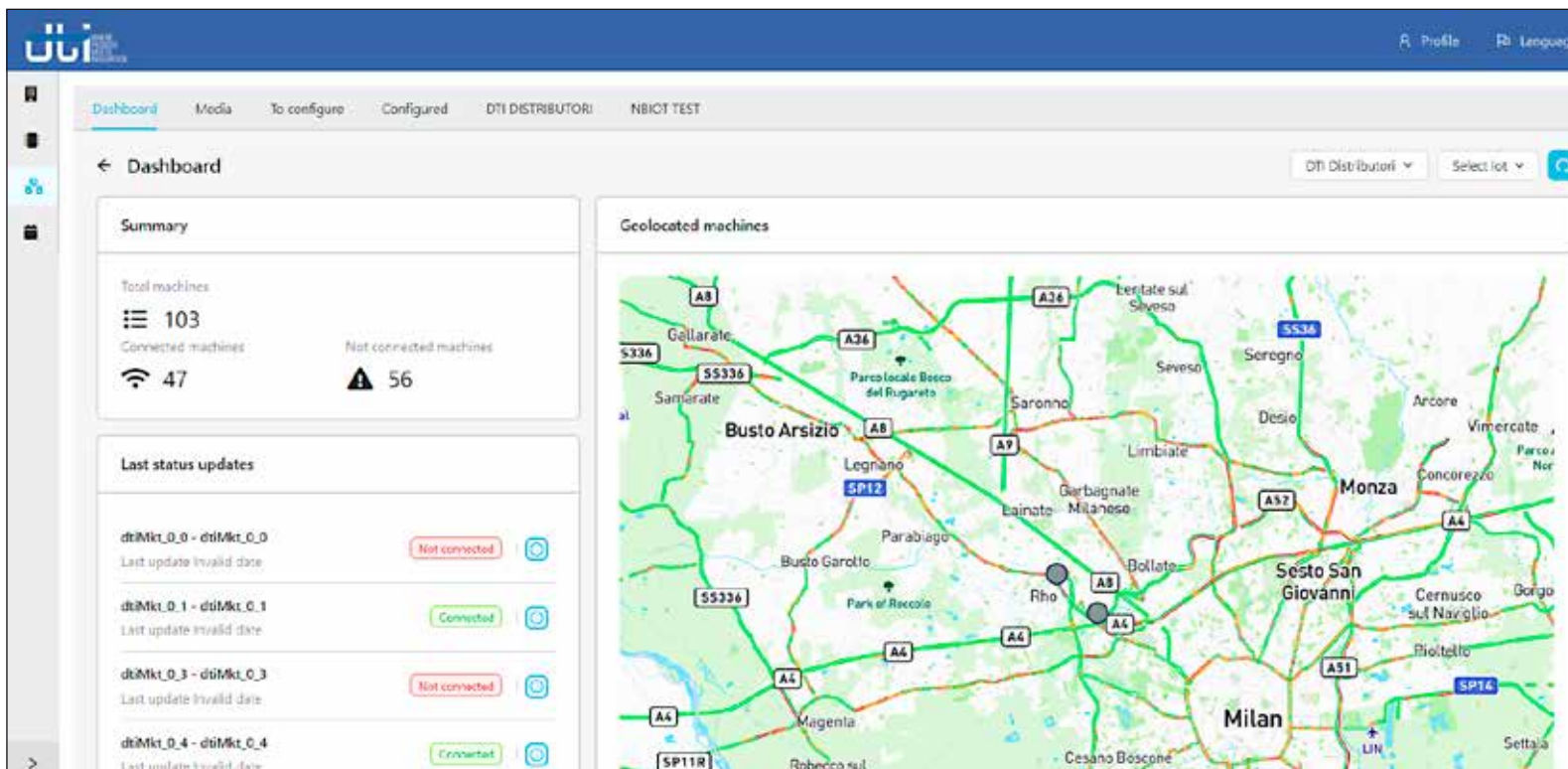


Machines MODULE

An intuitive dashboard allows users to filter incoming data and immediately access each machine.

Users can link unique codes – e.g., serial number – to each machine and check alarm log and maintenance.

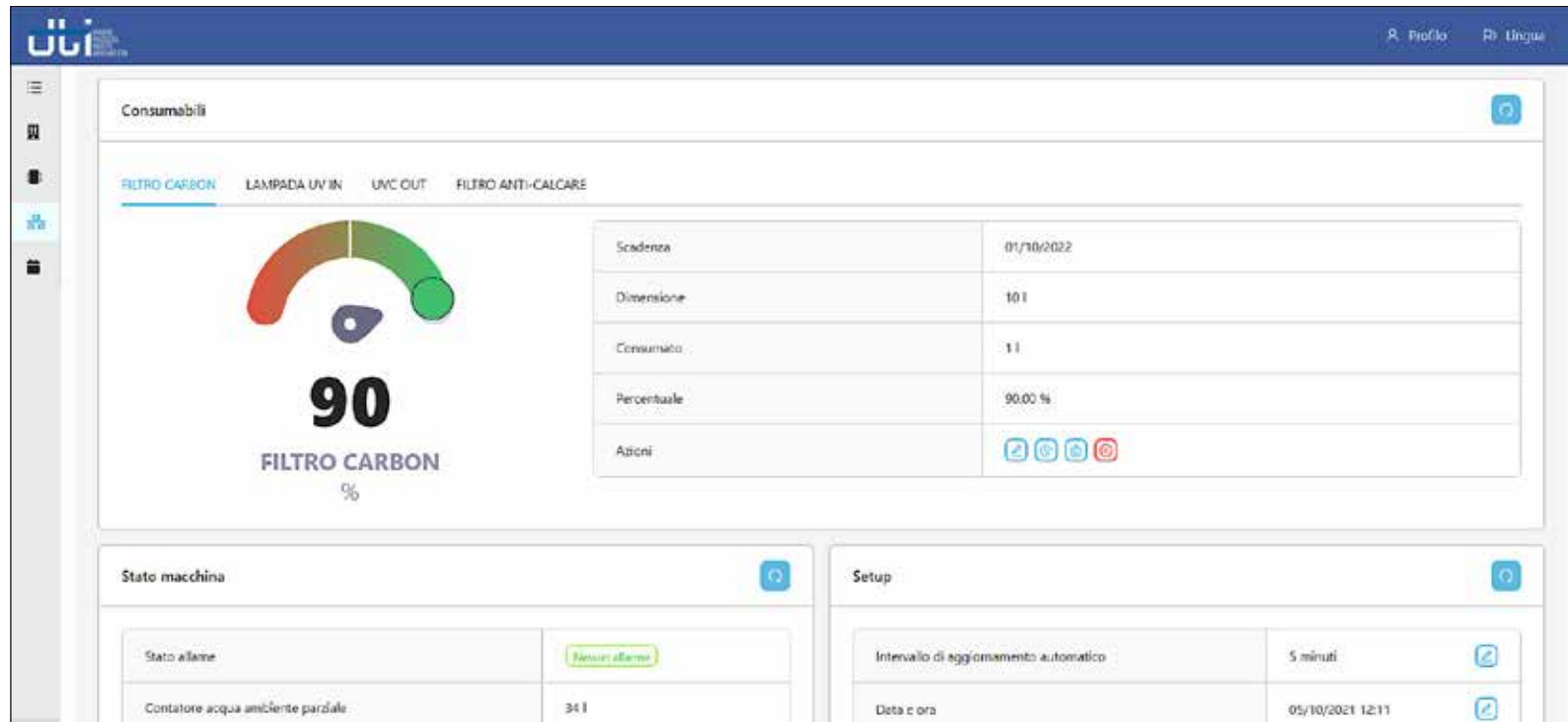
Through this module, users can create new machines and associate them with DConnect products.



In the machine's detail information, users can check its status, network connection, and potential malfunctions.

It is also possible to set and view:

- Real time data and counters
- Alarms and maintenance
- Consumable status
- Configuration settings



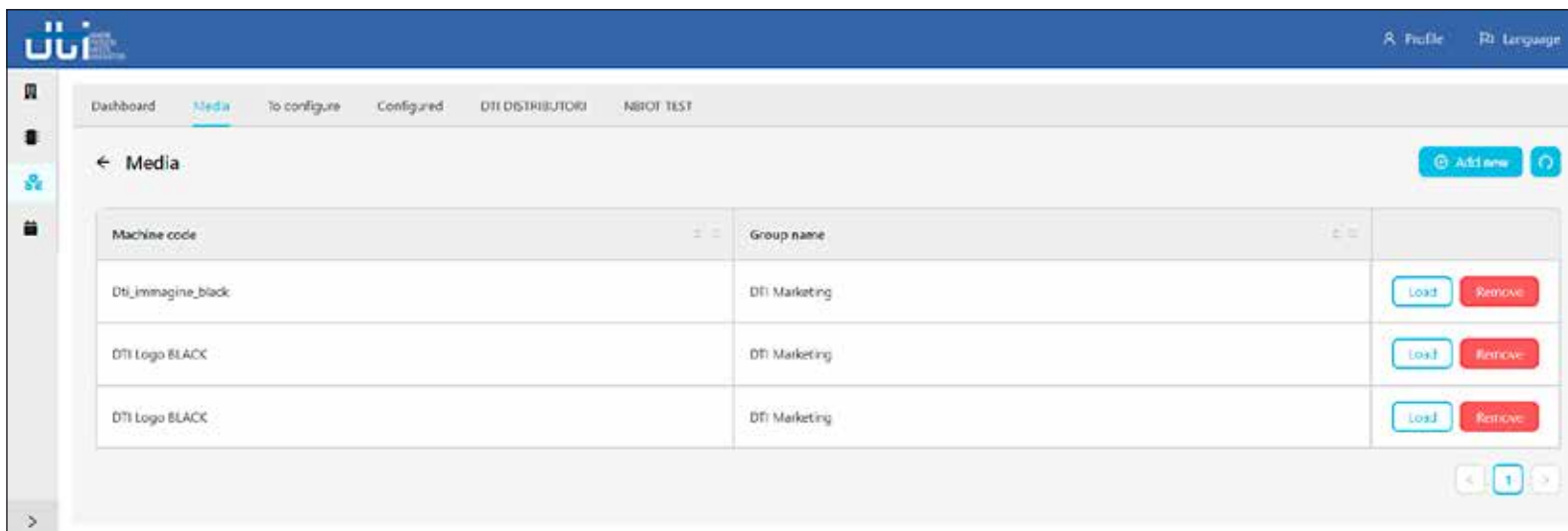
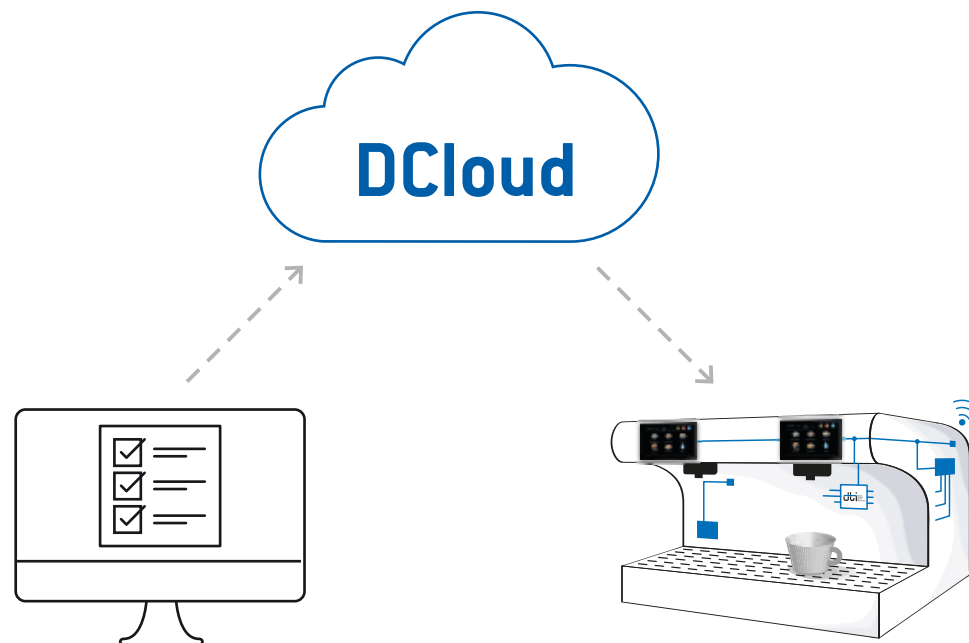


Media MODULE

Media files can be managed by a single machine or a group.

Moreover, it is possible to upload into this section the software of the power controls, to update the associated devices.

DCloud synchronizes the files in the connected machines.





Maintenance MODULE

This module allows users to view, manage and schedule the maintenance of the machines associated to the Cloud.

Operators can extract all maintenance data for each machine with a report.

Users can view and set:

- Maintenance expiration
- Maintenance status
(to schedule, to validate, expired, etc.)
- Maintenance type
- Maintenance description

The screenshot shows a web interface titled "Le mie Manutenzioni" with a filter section and a table of maintenance tasks. The filter section includes fields for "Inizio data di scadenza", "Fine data di scadenza", "Stato", and a search box "Cerca tra i valori della tabella". The table has columns for "Scadenza", "Stato", "Tipologia", "Categoria", "Macchine", and "Descrizione".

Scadenza	Stato	Tipologia	Categoria	Macchine	Descrizione
12/08/2021 OGNI 3 GIORNI	DA VALIDARE	Manutenzione ordinaria	00. Pulizie		
21/08/2021 OGNI 2 MESI	SCADUTO	Manutenzione ordinaria	00. Pulizie		Manutenzione ordinaria muletto
02/09/2021 OGNI 1 MESE	SCADUTO	Manutenzione ordinaria	01. Guasti		La bombola è da sostituire
04/11/2021 OGNI 3 MESI	DA PIANIFICARE	Manutenzione ordinaria	00. Pulizie		Revisione di tutte le bombole

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