



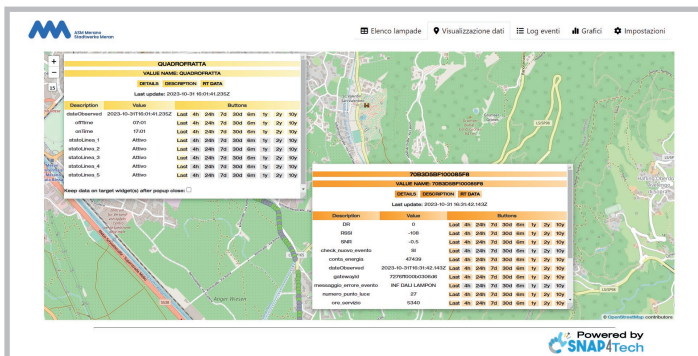
Smart Light Control and Light Adaptive with Traffic Density

Municipalities need sustainable solutions to reduce energy consumption. Thus, public lighting is a key issue to reach the goal and become more sustainable according to SDG. **Snap4City** open-source solution for smart light management is innovative, economically sustainable and technologically reliable. Public administrations may exploit the solution in easy manner, adopting open technology to avoid vendor lock-in and proprietary technologies

To this end, the **Merano Municipal Services Company (ASM Merano)** with the support of **SNAP4**, exploited the Snap4City platform to implement a smart light management system for monitoring and control public lighting, addressing thousands of controlled luminaries. The solution has been deployed on a public cloud, exploiting the existing LoRaWAN network of Merano, and connecting DALI 2 nodes of FlashNet and not limited to them, that communicate through Lorawan gateways connected to the open-source network server Chirpstack (<https://www.chirpstack.io/>). Snap4City is used for the: dimering profile programming and management of smart light system (unicast and multicast), monitoring status and error management, also including the monitoring of cabinets powering luminaries. Moreover, the smart light management also implemented the adaptive lighting system standard based on traffic conditions (TAI, Traffic Adaptive Installation).

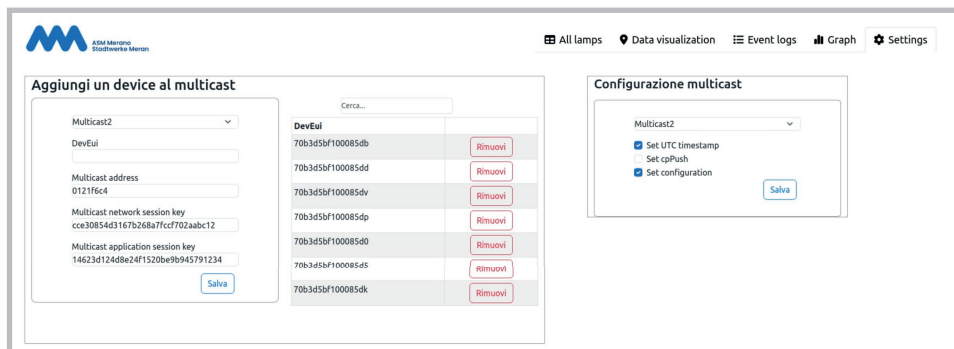
TAI is one of the latest innovations in public smart light management for sustainability. It allows to automatically adjust the illumination on the street on the basis of traffic conditions. Snap4City, based on traffic monitoring data from some measurement points, allows the management of TAI remotely in a simple and flexible way based on the standard defined in UNI11248:2016 by sending the relevant commands for lighting regulation to the affected luminaries in multicast modality. This integrated technology offers numerous advantages for administrations and citizens, including energy savings, reduction of and emissions, and improved road safety.

Thanks to Snap4City dashboards and panels, the operator can monitor and manage all the luminaries and network areas and the quality of services. Snap4City dashboards simplifies the service management modalities including profiles and TAI modalities for the different zones in the areas, and simplify the process in which the city present a mix of LED dimerable and old technology luminaries connected at the same cabinets.



CONNECTED
STRETLIGHTS
SOLUTION
EXPLOITING
SNAP4CITY
PLATFORM

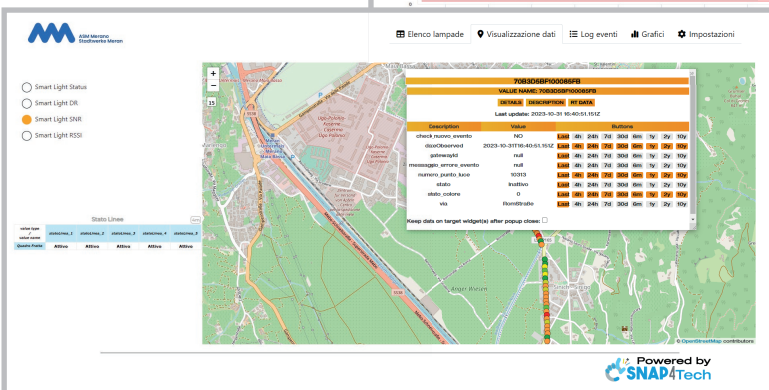
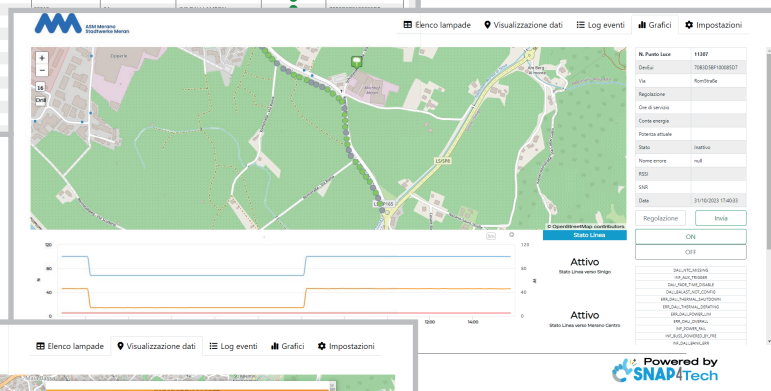
SMART
APPLICATION
TO MONITOR
AND CONTROL
STREETLIGHT
NETWORKS



In particular, the dashboards are providing:

- The map of the whole city area involved with custom dynamic pins geographically positioned in the map and representing luminaries. Groups, cabinets, changing their status in real time according to the data received. This allows to get an immediate overview of the city status;
- Real time trend of the ingested data allows to monitor the streetlights and cabinets data over time, and send notifications in case of early warning.
- The user interface to manage nodes in the multicast groups, set the configurations, dimming profiles, on/off all nodes connected, etc. by managing in transparent manner the logic to decode/code the protocol messages and commands.
- Programme and manage the TAI (Traffic Adaptive Installation) enabling an integrated and sustainable smart adaptive lighting solution. The dashboard provides an interface for programming the time-controlled variations of luminance level in relation to hourly traffic flow, weather conditions or other parameters.

Via	Numero punto luce	Regolazione	Ore servizio	Costo energia	Potenza attuale	Messaggi d'errore	Stato	Devital Ledwatts
RomGrada	21	100	2307	48979	68	INF DALL LAMPIONI	●	70810DF1000090C
RomGrada	24	100	2348	49495	68	INF DALL LAMPIONI	●	70810DF1000090F
RomGrada	27	100	2349	47439	67.8	INF DALL LAMPIONI	●	70810DF1000090E
RomGrada	29	100	2349	48203	67.8	INF DALL LAMPIONI	●	70810DF1000090A
RomGrada	30	100	2352	49909	68.2	INF DALL LAMPIONI	●	70810DF1000090A
RomGrada	31	100	2351	49595	67.8	INF DALL LAMPIONI	●	70810DF1000090F
RomGrada	32	100	2352	46246	67.5	INF DALL LAMPIONI	●	70810DF1000090E
RomGrada	10212	100	2343	47620	67.8	INF DALL LAMPIONI	●	70810DF1000090A
RomGrada	10967	100	2168	5388	75.4	INF DALL LAMPIONI	●	70810DF1000090E
RomGrada	10985	100	2169	2977	75.8	INF DALL LAMPIONI	●	70810DF1000090E
RomGrada	10966	100	2165	4624	76	INF DALL LAMPIONI	●	70810DF1000090E
RomGrada	10967	100	2169	4209	76	INF DALL LAMPIONI	●	70810DF10000909
RomGrada	10972	100	2165	3341	75.7	INF DALL LAMPIONI	●	70810DF1000090D
RomGrada	10975	100	2169	4670	75.7	INF DALL LAMPIONI	●	70810DF100009011
RomGrada	11251	100	2358					
RomGrada	11254	100	2360					
RomGrada	11256	100	2360					
RomGrada	11262	100	2367					
RomGrada	11269	100	2367					
RomGrada	11270	100	2365					
RomGrada	11353	100	2379					
RomGrada	11370	100	2360					
RomGrada	11371	100	2362					
RomGrada	12622	100	2352					
RomGrada	13104	100	2345					



The implemented solution based on Snap4City, demonstrated the potentiality for an integrated solution that can manage smart city operations in a more flexible manner, helping the municipality and stakeholder to take better decisions. Merano and SNAP4 offered a practical solution to help the city speed up its smart city development and address future challenges.

Extended version accessible from: <https://www.snap4city.org/968>
Contact: <https://www.snap4.eu>
Partners: SNAP4, ASM Merano