MEW-01 ENERGY METER
GATEWAY TO ZABBIX SERVER
(TARIFFS G11 and G12w)

WHAT THE ZABBIX IS FOR:

Zabbix is an open (open source) Enterprise class solution for monitoring computer systems, electronic devices and any network devices whose parameters can be measured electrically. It allows you to create any charts and reports from aggregated data, as well as define any action triggers. For selected, defined conditions, it is possible to send e-mails, text messages, push messages, as well as execute any scripts. The web application allows you to view live data using freely defined screens.

GATEWAY MEW-01 to ZABBIX SERVER

Gateway's task is to transfer data from the SUPLA server to the ZABBIX system by polling the SUPLA server every minute and saving the data on the ZABBIX server.
Gateway supports tariffs:
G11 - the cost 1kWh of energy is constant around the clock
G12w - the cost of 1kWh of energy is cheaper in the following periods:

- daily from 1 p.m. to 3 p.m. and from 10 p.m. to 6.00 a.m.
- on weekends
- on public holidays

GATEWAY - INSTALLATION:

Gateway can run on any Linux computer. It can be the same computer on which your own SUPLA server instance is running, the cheapest VPS or any version of the Raspberry microcomputer (even nanoPi). The tests were carried out on a VPS with the Debian 9 system, running SUPLA, ZABBIX, GRAFANA servers and on the NanoPi microcomputer.

1. To check if the "bc" module is installed, follow the instructions below:
   sudo apt-get update
   sudo apt-get install bc
2. Download **mew01gateway.zip** from address:
   https://djack.com.pl/modules.php?name=Downloads&d_op=getit&lid=347
3. After unpacking, copy the **mew01.sh** and **zabbix_sender** files to the **/usr/bin** directory
4. We give them the appropriate attributes:
   sudo chmod a + rwx /usr/bin/mew01.sh
   sudo chmod a + rx /usr/bin/zabbix_sender

GATEWAY CONFIGURATION:

1. On the SUPLA server, for the MEW01 energy meter, you must create a direct ("read") link. This link should be entered in the mew01.sh script, as described in point 2
2. We open the mew01.sh script in the usual editor (vi, nano).
   At the beginning of the script, there are lines for entering the described parameters:

   # == Zabbix server IP address ============================
   ZABBIX_SERVER="xxx.xxx.xxx.xxx"
   # == Host name on Zabbix server ========================
   HOST="mew01"
   # == Direct link from SUPLA server (json) ==============
   SUPLA_LINK = https: // …… / read? Format = json
   # == Tariff type: G11 enter 11, G12w enter 12 ==========
   TARIFF=12
   # == Cost 1kWh for the zone 1 and 2, tariff G12w ========
   # == Zone 1: 1.8.1, zone 2: 1.8.2 ======================
   COST1=0.6
   COST2=0.3
   # == Moveable feast (for tariff G12w) ==================
   BOZECIALO=1606
   PONWIELKANOC=1804
   # ==

   - The hostname can be anything (matching the name specified on the Zabbix server). In the example above, it is "mew01".
   - TARIFF stands for the type of tariff we use with our energy operator. For the G11 tariff enter the value 11, for the G12w value 12.
   - COST1 means the cost of 1kWh for the more expensive zone (1.8.1), and COST2 the cost of 1kWh for the cheaper zone (1.8.2). These parameters refer to the G12w tariff. The total energy costs are calculated for the G12w tariff according to the rates specified in the script (COST1 and COST2), and for the G11 tariff according to the rate declared in the MEW01 configuration on the SUPLA server
   - Moveable feast fields should be modified once a year in the day + month format
     In the example above, these are June 16 (**Corpus Christi** in 2022) and April 18 (Poniedziałek Wielkanocny in 2022).

3. Run the command:
   crontab -e
   and enter the line:
   ***/ 1 * * * * mew01.sh>/dev/null2>&1**

   The script is executed every one minute.

DATA FILES:

The script saves the current energy values in files:

Tariff G11:
/var/local/fullenergy.txt

Tariff G12w:
/var/local/fullenergy1.txt
/var/local/fullenergy2.txt

ZABBIX SERVER CONFIGURATION

After unpacking the downloaded file (**mew01gateway.zip**) we have the template file to be imported to Zabbix server. Two new templates (English and Polish version) are imported from the menu level: **Configuration / Templates / Import**.

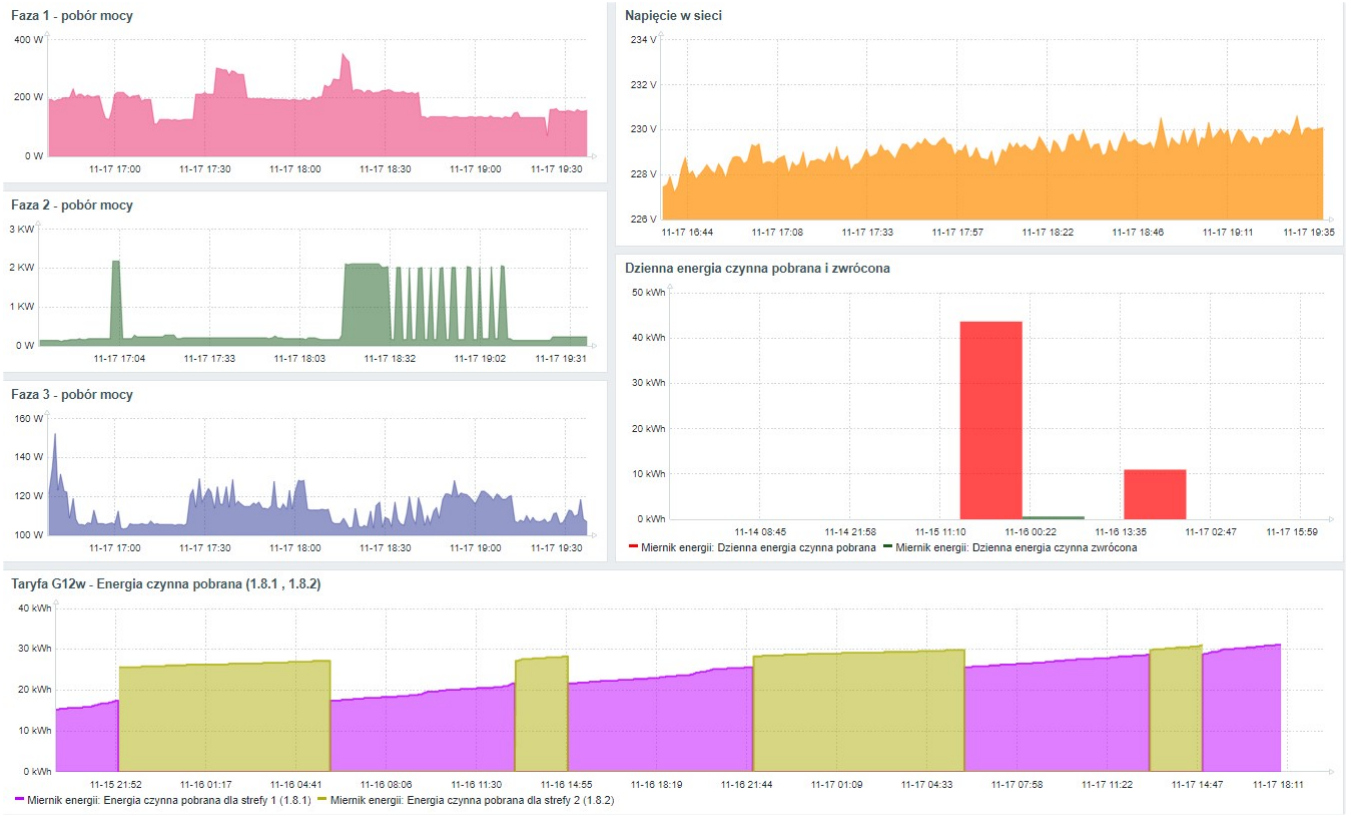
Templates after import:

Complete Zabbix server installation (as instructed on page https://djack.com.pl) and gateway is simple and takes approx. 15 minutes.

DATA REGISTERED ON THE ZABBIX SERVER

Dzienna energia czynna pobrana	2021-11-16 23:55:13	11.0581 kWh	
Dzienna energia czynna zwrócona	2021-11-16 23:55:13	0 kWh	
Energia czynna pobrana (1.8.0)	2021-11-17 09:10:08	57.0072 kWh	+0.0089 kWh
Energia czynna pobrana dla strefy 1 (1.8.1)	2021-11-17 09:10:11	27.0117 kWh	+0.0089 kWh
Energia czynna pobrana dla strefy 2 (1.8.2)	2021-11-17 06:00:10	29.9955 kWh	+0.004 kWh
FAZA 1 Częstotliwość	2021-11-17 09:10:04	49.96 Hz	-0.02 Hz
FAZA 1 Energia bierna pobrana	2021-11-17 09:10:04	26.222 kvarh	+0.0031 kvarh
FAZA 1 Energia bierna zwrócona	2021-11-17 09:10:04	0 kvarh	
FAZA 1 Energia czynna pobrana	2021-11-17 09:10:04	23.9223 kWh	+0.003 kWh
FAZA 1 Energia czynna zwrócona	2021-11-17 09:10:04	0 kWh	
FAZA 1 Kąt fazowy	2021-11-17 09:10:04	44.8 °	-0.1 °
FAZA 1 Moc bierna	2021-11-17 09:10:04	180.0398 var	+0.0665 var
FAZA 1 Moc czynna	2021-11-17 09:10:04	179.8959 W	+0.1897 W
FAZA 1 Napięcie	2021-11-17 09:10:04	229.15 V	+0.06 V
FAZA 1 Natężenie prądu	2021-11-17 09:10:04	1.137 A	-0.003 A
FAZA 1 Współczynnik mocy	2021-11-17 09:10:04	0.709	+0.003
FAZA 2 Częstotliwość	2021-11-17 09:10:06	49.96 Hz	-0.02 Hz
FAZA 2 Energia bierna pobrana	2021-11-17 09:10:06	0.16 kvarh	+0.0004 kvarh
FAZA 2 Energia bierna zwrócona	2021-11-17 09:10:06	3.014 kvarh	
FAZA 2 Energia czynna pobrana	2021-11-17 09:10:06	24.193 kWh	+0.0041 kWh
FAZA 2 Energia czynna zwrócona	2021-11-17 09:10:06	0 kWh	
FAZA 2 Kąt fazowy	2021-11-17 09:10:06	5.4 °	+0.5 °
FAZA 2 Moc bierna	2021-11-17 09:10:06	20.462 var	+0.514 var
FAZA 2 Moc czynna	2021-11-17 09:10:06	235.9574 W	+1.0538 W
FAZA 2 Napięcie	2021-11-17 09:10:06	228.38 V	+0.24 V
FAZA 2 Natężenie prądu	2021-11-17 09:10:06	1.108 A	-0.025 A
FAZA 2 Współczynnik mocy	2021-11-17 09:10:06	0.937	+0.004
FAZA 3 Częstotliwość	2021-11-17 09:10:08	49.96 Hz	-0.02 Hz
FAZA 3 Energia bierna pobrana	2021-11-17 09:10:08	0 kvarh	
FAZA 3 Energia bierna zwrócona	2021-11-17 09:10:08	4.8247 kvarh	+0.0008 kvarh
FAZA 3 Energia czynna pobrana	2021-11-17 09:10:08	10.2195 kWh	+0.0018 kWh
FAZA 3 Energia czynna zwrócona	2021-11-17 09:10:08	0 kWh	
FAZA 3 Kąt fazowy	2021-11-17 09:10:08	-24.6 °	+0.8 °
FAZA 3 Moc bierna	2021-11-17 09:10:08	-52.0879 var	-1.7573 var
FAZA 3 Moc czynna	2021-11-17 09:10:08	113.9807 W	+7.2544 W
FAZA 3 Napięcie	2021-11-17 09:10:08	229.05 V	+0.27 V
FAZA 3 Natężenie prądu	2021-11-17 09:10:08	0.644 A	+0.025 A
FAZA 3 Współczynnik mocy	2021-11-17 09:10:08	0.791	+0.013
Koszt całkowity (taryfa G11)			
Koszt całkowity (taryfa G12w 1.8.0)	2021-11-17 09:10:17	25.2056	+0.0052
Koszt dla strefy 1 (taryfa G12w 1.8.1)	2021-11-17 09:10:11	16.207	+0.0053
Koszt dla strefy 2 (taryfa G12w 1.8.2)	2021-11-17 06:00:10	8.9986	+0.0011
Moc czynna	2021-11-17 09:10:08	529.834 W	+8.4979 W
Waluta	2021-11-17 09:10:04	PLN	

EXAMPLE SCREEN FROM ZABBIX SERVER



USEFUL LINKS

1. Information about Zabbix system:
https://www.zabbix.com/
2. Simple and quick installation of Zabbix 5 server in the docker environment:
https://djack.com.pl
3. Integration of Zabbix server with Pushover:
https://www.zabbix.com/integrations/pushover