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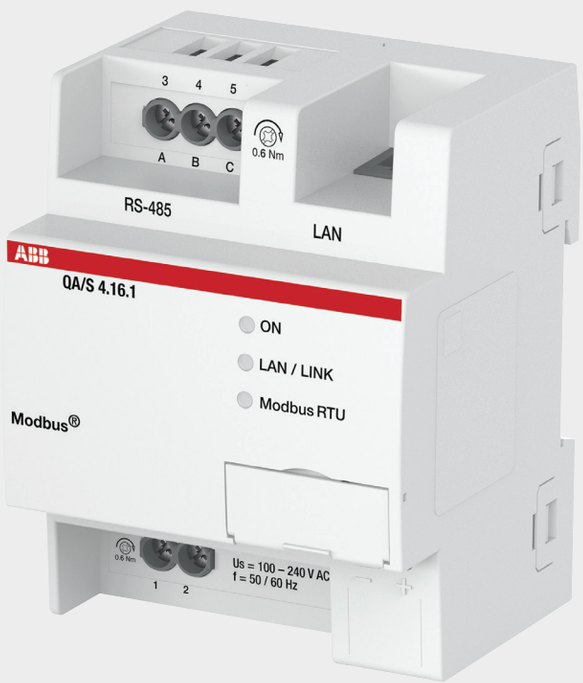
COMMISSIONING GUIDELINE

ABB EQmatic provisioning in ABB Ability™ EDCS

Getting started



In order to carry out the provisioning of ABB EQmatic in ABB Ability™ EDCS, please follow the procedure as described below. The first part of the provisioning is to be performed in the ABB EQmatic web user interface, the second part via EKIP Connect, the free software for ABB Ability™ EDCS provisioning.

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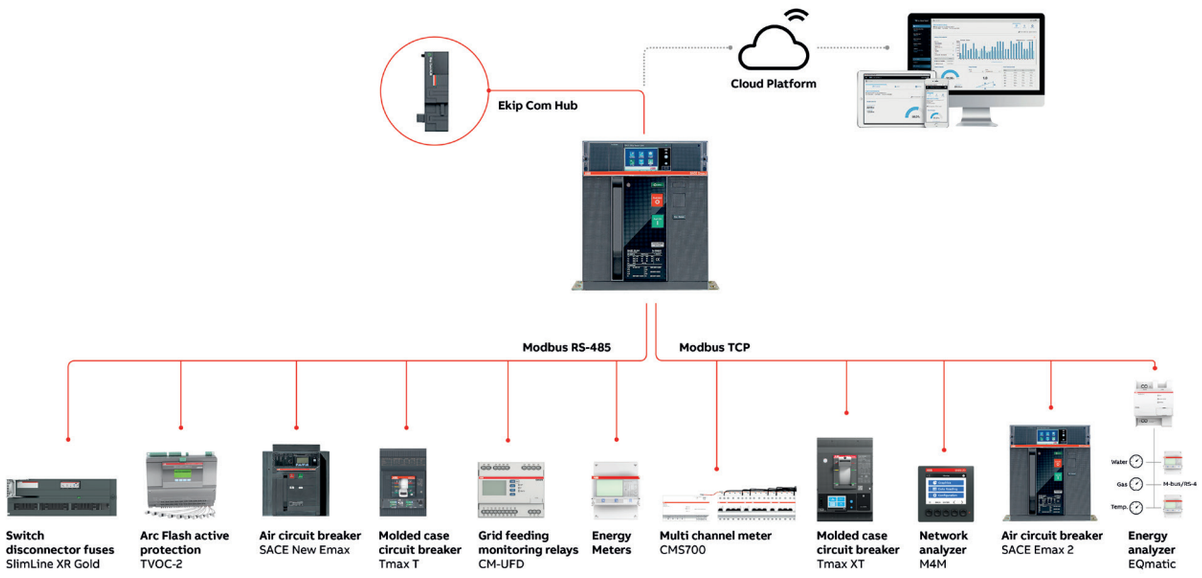
ABB EQmatic provisioning in ABB Ability™ EDCS

Architectures scenario

Before proceeding with the commissioning, please check all the possible architectures you can experience.

Embedded Solution
Emax 2 equipped with the new Ekip Com Hub establishes the cloud connection for the whole switchboard.
This dedicated cartridge-type communication module just needs to be inserted into the terminal box and connected to the internet.



External Solution

E-Hub 2.0 is an independent IoT gateway which can gather data from field devices as well as consumption of water, gas, etc. and connect to the system to ABB Ability™ Electrical Distribution Control System, the cloud platform.As a result, all the downstream field devices can be monitored from the cloud via ethernet cable, wi-fi or cellular connectivity.

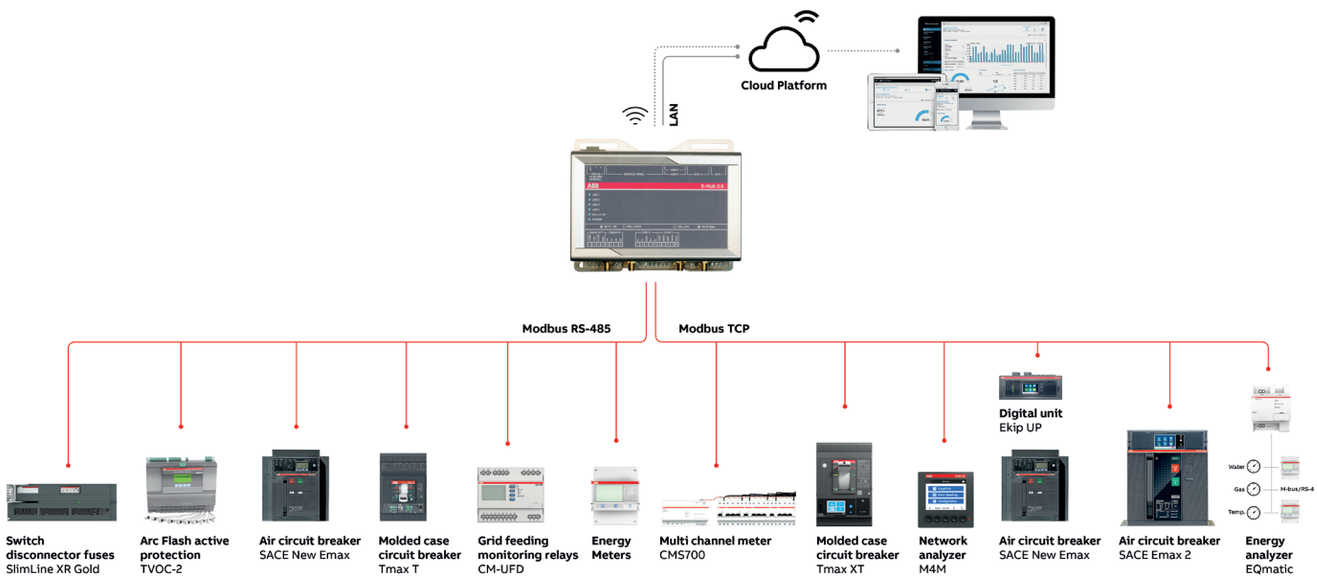
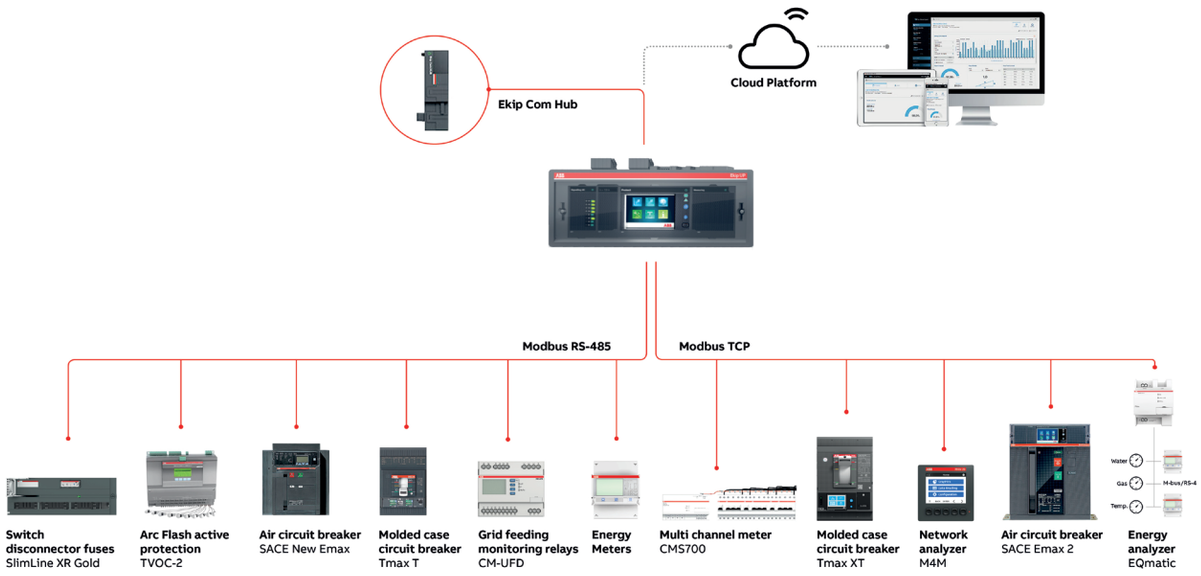


ABB EQmatic provisioning in ABB Ability™ EDCS

Upgrade Solution
Ekip UP equipped with Ekip Com Hub establishes the cloud connection for a specific feeding line, load or even for the whole distribution system. This dedicated cartridge type communication module just needs to be inserted into the terminal box and connected to the internet using an external router.



Material and tools, you might need during the provisioning:

- User manual of ABB EQmatic available at this link (2CDC512090D0202 - 08.2018)
- FW version 2.x.x or higher, available at this link
- EKIP Connect Tool, updated to the latest version. Please download the software tool from the ABB Library (1SDC20011X3000)
- iBus Tool, available at this link
- In case the cloud access point is Ekip Com Hub, “Ekip Com Hub Getting started” document, available at this link (1SDC200063B0204)

Initial commissioning of ABB EQmatic

After EQmatic device is installed, powered and ready for operation the initial commissioning is done via the web user interface of the device.

Note

Make sure that PC (with EKIP Connect and ABB i-bus Tool), EQmatic or EKIP Com Hub are installed in same network.

Only the EQmatic (2CDG110228R0011)QA/S 4.16.1 Energy Analyzer, Modbus RTU can be provisioned to EDCS.

Tip: in case multiple ABB EQmatic are to be provisioned in ABB Ability EDCS, please commission one by one keeping the others switched off. Once commissioning in the web user interface is completed, ABB EQmatic can be maintained in operations and it is possible to switch on and start provisioning the next ABB EQmatic. Consider to connect one ABB EQmatic to one Ekip Com Hub.

Quick-Guide for ABB EQmatic commissioning

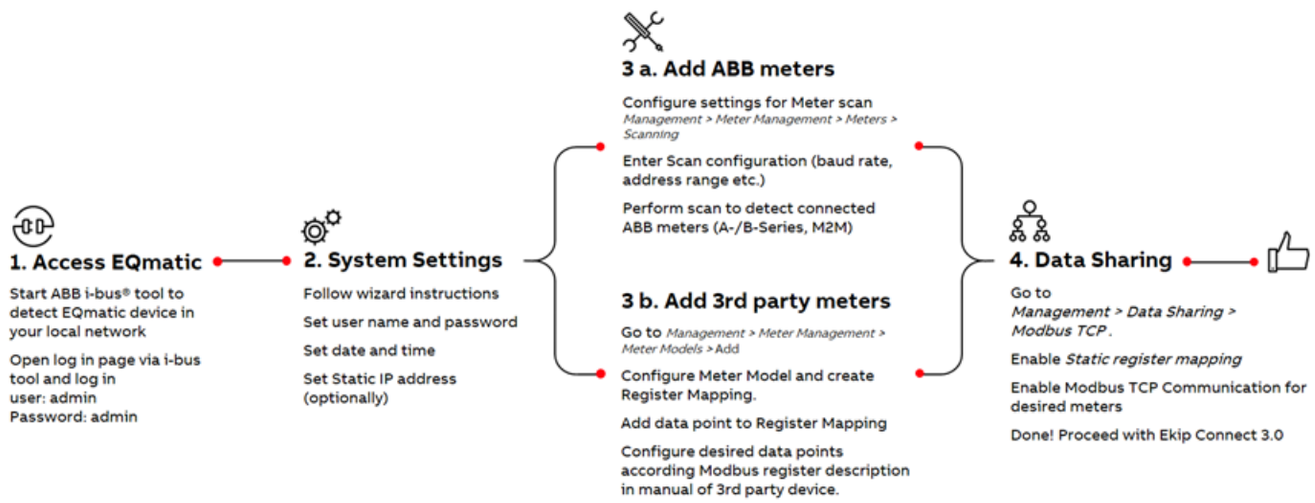
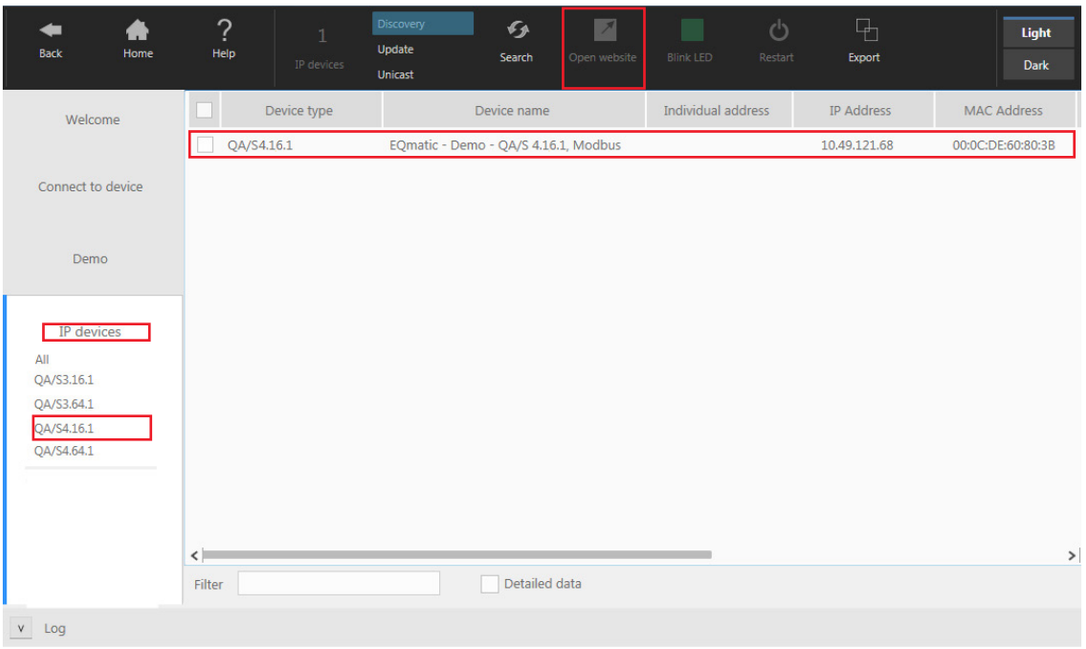


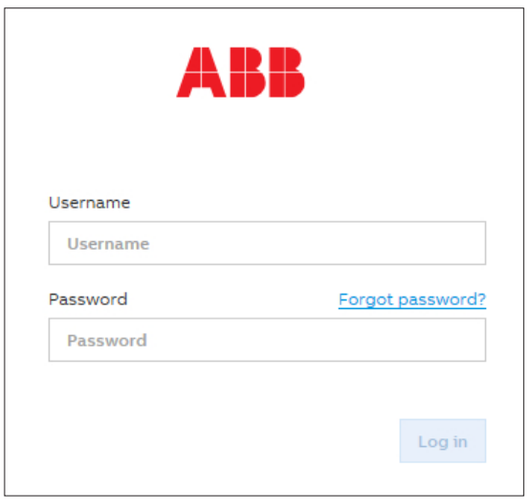
ABB EQmatic provisioning in ABB Ability™ EDCS

1. Access EQmatic
To access the device for initial commissioning, use the ABB i-bus® Tool. The ABB i-bus® Tool is a free of charge software commissioning tool. Follow the instructions to connect to the device.

1. Download ABB i-bus® Tool and install on a Windows PC/laptop. Download link
2. Start ABB i-bus® Tool.
3. Click **Connect** button on the start page and then IP devices and Discovery in the UI of i-bus Tool.
   The ABB i-bus® Tool automatically searches for known IP devices on the local network. Click **Refresh** to restart the process if necessary.
4. Select the relevant QA/S device from the table of devices found.
5. Select "Open Website."



6. The web browser opens and the log in page appears.



7. Enter your username and password; default in supplied state:
   a. User: admin
   b. Password: admin
8. You are now connected with the web server of the device. Follow the instructions in the commissioning wizard to proceed with commissioning.

2. System Settings

The commissioning wizard guides you through the basic steps during commissioning:

1. Read and accept the terms & conditions
2. Change initial password.
3. Change the network settings and set a static IP address for EQmatic. By default DHCP is enabled. Modify IP settings as described in manual.

   Tip: the new static IP address shall be in the range of the sub-network for TCP devices to be provisioned in EDCS. Therefore, it has to be in the same sub-network of:

   - module Ekip Com TCP, in case of Emax 2 / Ekip UP.

   Tip: it is recommended a sub-network with IP range 192.168.0.X, where X ranges from 2 to 254.

   Tip: in the list of settings, “Gateway” IP address shall be IP address of the connection point to the internet, i.e. IP address of the dedicated router if present.

   Tip: do not give same IP address to different devices, otherwise only one of the devices with same IP address can recognized
4. Set date and time
5. Configure tariffs and units for cost calculation.
6. Scan the bus (Modbus) for connected slaves (meters).

Meters detected are listed in a table.

7. Update to latest FW version
   - Go to ABB library and download latest FW-Version here link and store on your local drive.
   - Go to **System > Update > Manual Update > Select Update** and chose FW from your local drive and follow update instructions

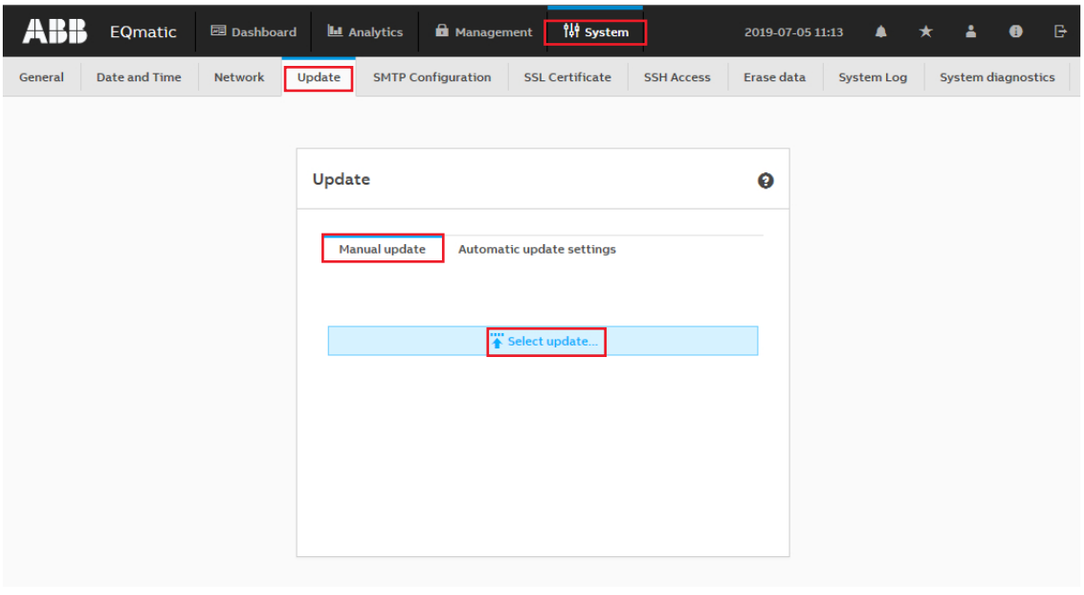
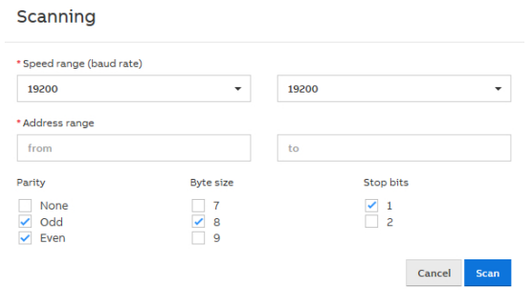


ABB EQmatic provisioning in ABB Ability™ EDCS

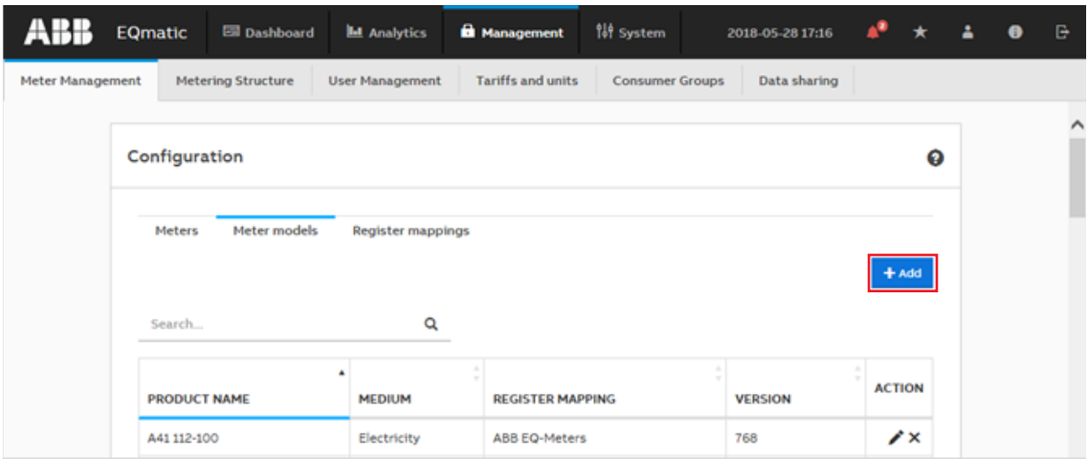
3a. Add ABB Meters
Adding ABB meters (Type A-/B-Series, M2M) is done via plug and play approach. Connected ABB meters will be detected automatically after a scan and will be added to the system.
Note: Meters must be configured (address, baud rate, etc.) before scanning the bus. Scan settings must match the settings in the meter.

Default scanning settings for ABB Meters in Energy Analyzer QA/S 4.16.1, Modbus RTU:

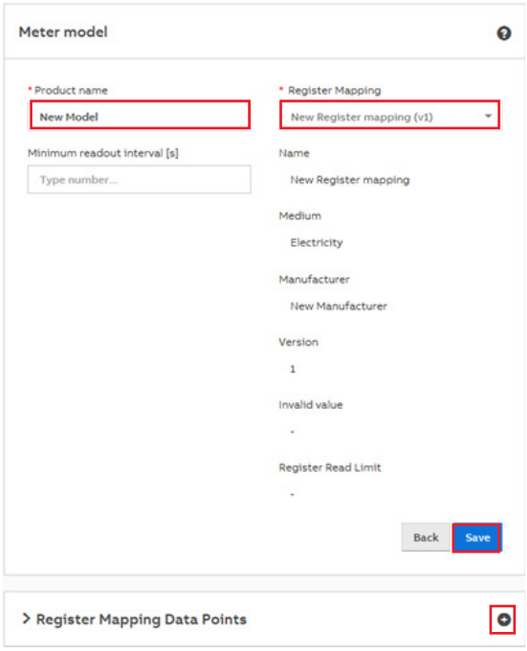


3 b. Add 3rd party Modbus RTU meters
To add a 3rd party device to EQmatic, the corresponding register mapping and the data point configuration must be provided. See also chapter 3.2.2 in EQmatic manual.

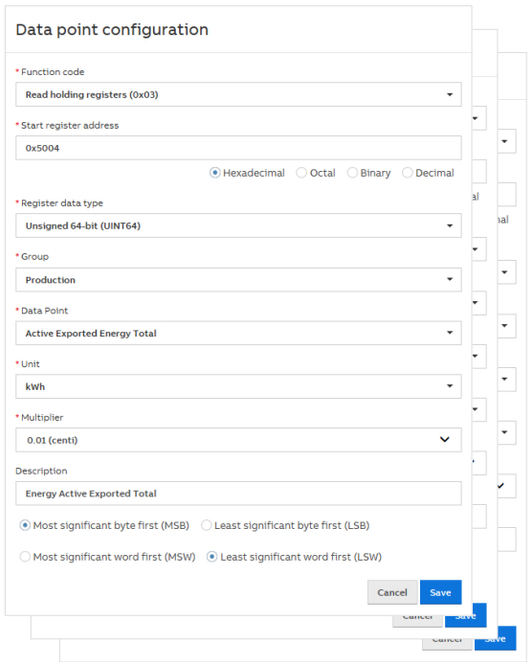
1. Go to **Management > Meter Management > Meter Models** and click **Add**



2. Configure the meter model and create the register mapping (new or from existing mapping). Click **Save**
3. Add data points to Register Mapping by clicking **+**



4. Configure data points according manual of 3rd party device. Click **Save**.
   Note
   - EQmatic supports Modbus function code 3 (read holding registers) and function code 4 (read input registers). Select function code during data point configuration from the drop-down menu Function Code
   - At least one data point for consumption (e.g. Active Energy [kWh]) must be configured for basic operation.
   - If Load Profiles are used, data point for Power [W] must be configured.
   - Configure data point for Product Name/ Type/Model to detect meter model after Bus-Scan.



5. Click **Add** and configure new created 3rd party meter and click **Save**
6. 3rd party meter is now visible in the device table overview

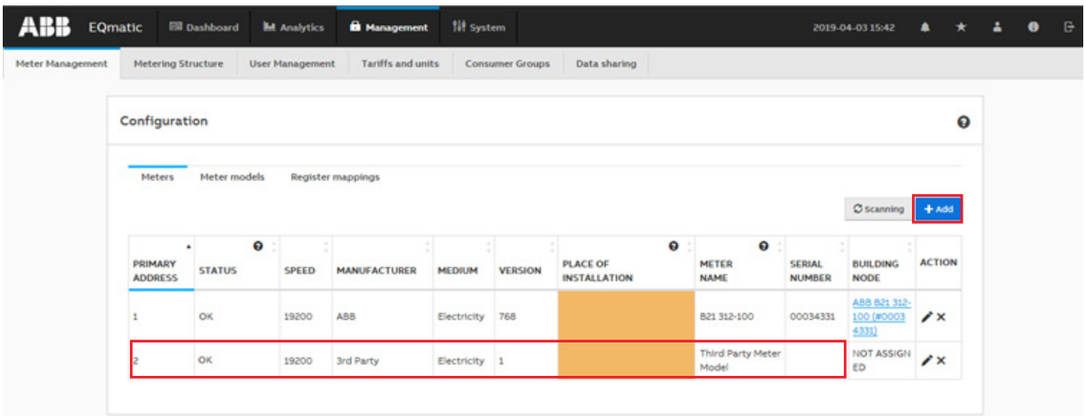


ABB EQmatic provisioning in ABB Ability™ EDCS

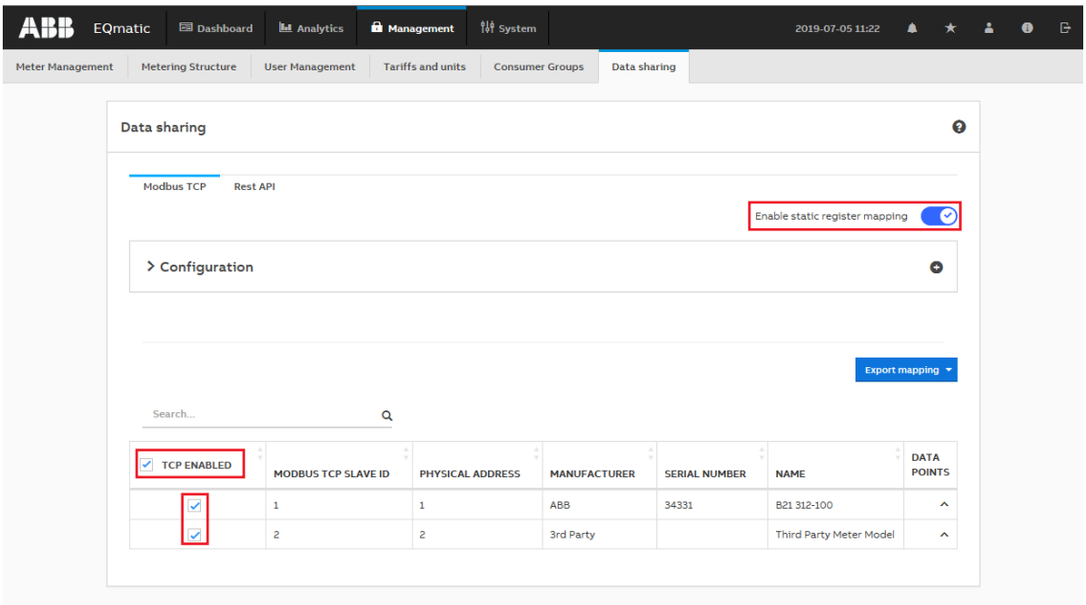
4. Data Sharing

Once the meters are connected and communicating with EQmatic, the data sharing function must be used to provisioning data (received by EQmatic) via Modbus TCP in ABB Ability EDCS.

1. Go to **Management > Data sharing > Modbus TCP** and enable **static register mapping.**
2. Make sure to enable TCP communication for desired meters via the check boxes in the table.

Commissioning within **EQmatic** is now done.

Proceed with latest version of Ekip Connect 3.



Initial commissioning of EDCS

A. Make sure you have a MyABB account. If not, please register on MyABB to activate an account.

B. To commission EDCS access point to the cloud please follow the configuration procedure of the selected access point:
   a. Procedure for Ekip Com Hub is described in "Ekip Com Hub Getting started" document.

   Tip: during first commissioning of the web-server, a static IP address for the laptop has to be set. In order to continue with the provisioning, this IP address has to be changed: at this stage, laptop IP address shall be in the sub-network range. To access IP settings in Windows, access laptop "Control Panel">"Network and Sharing Center">"Change adapter settings">right click on "Local Area Connection (LAN)">"Properties">"Internet Protocol Version" and "Properties".
   Make sure communication is now set as described in the documents (see sections "**Configuring the system**" and "**Laptop configuration**").

C. To start the provisioning of the electrical system in ABB Ability EDCS launch EKIP Connect
   1. Login in Ekip Connect 3 with MyABB credentials
   2. Click on "**Activate**"
   3. Click on "**Start**".

D. Follow the "**Device Provisioning**" procedure of the specific access point installed.

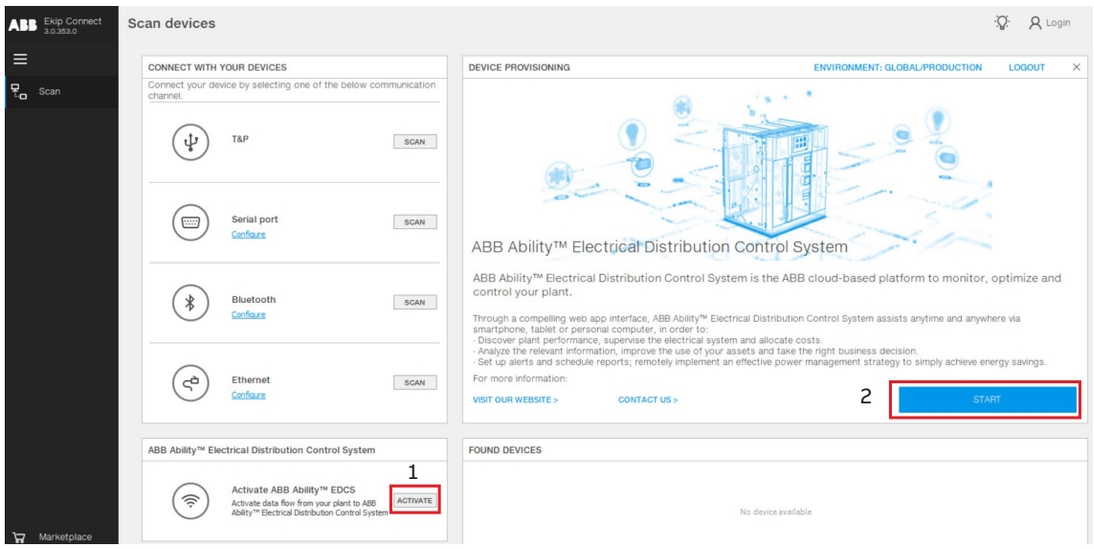
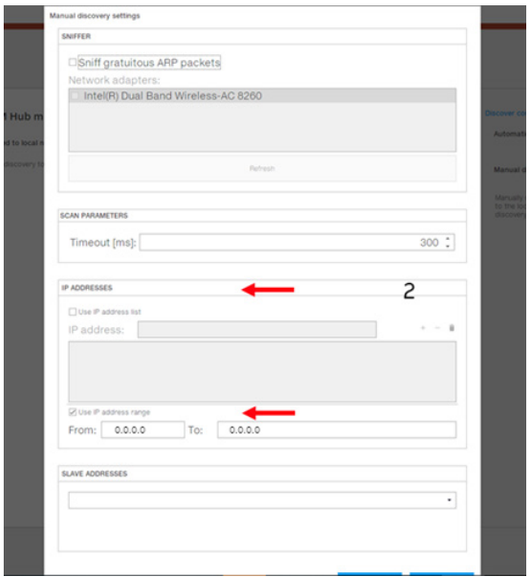


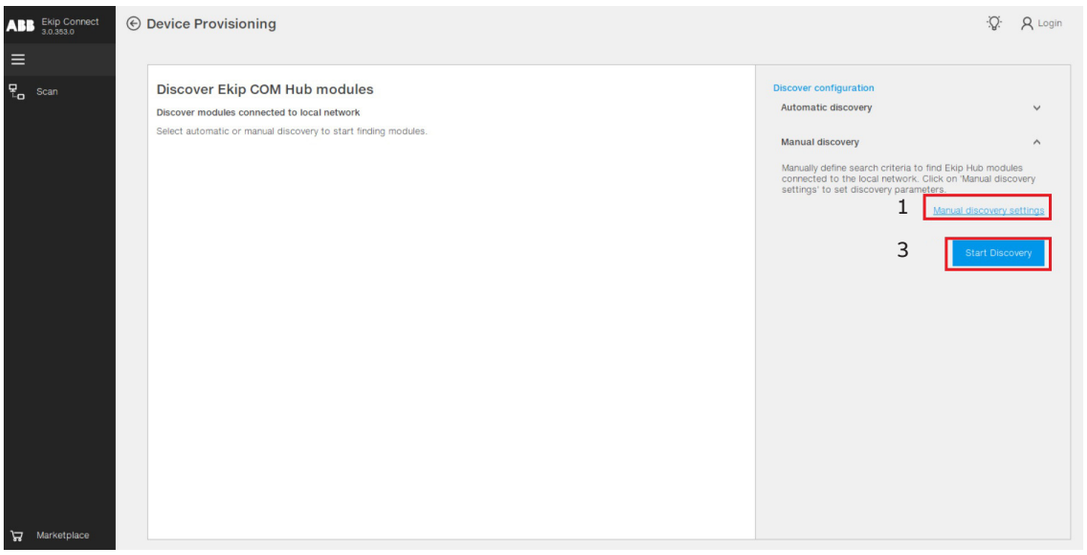
ABB EQmatic provisioning in ABB Ability™ EDCS

E. When the “**Discover configuration**” page is reached, EKIP scans the ethernet network, looking for devices to provision. With “**Manual discovery**”, it is possible to insert specific IP addresses to narrow the addresses range to be scanned. Before proceeding with manual discovery, please make sure all TCP devices to be provisioned have a static IP address in the sub-network range, as described at point System Settings in the first part of initial commissioning for EQmatic.
TIP: Manual discovery is recommended, to make sure the device is recognized by the wizard tool.



Here the steps to follow to scan for devices:

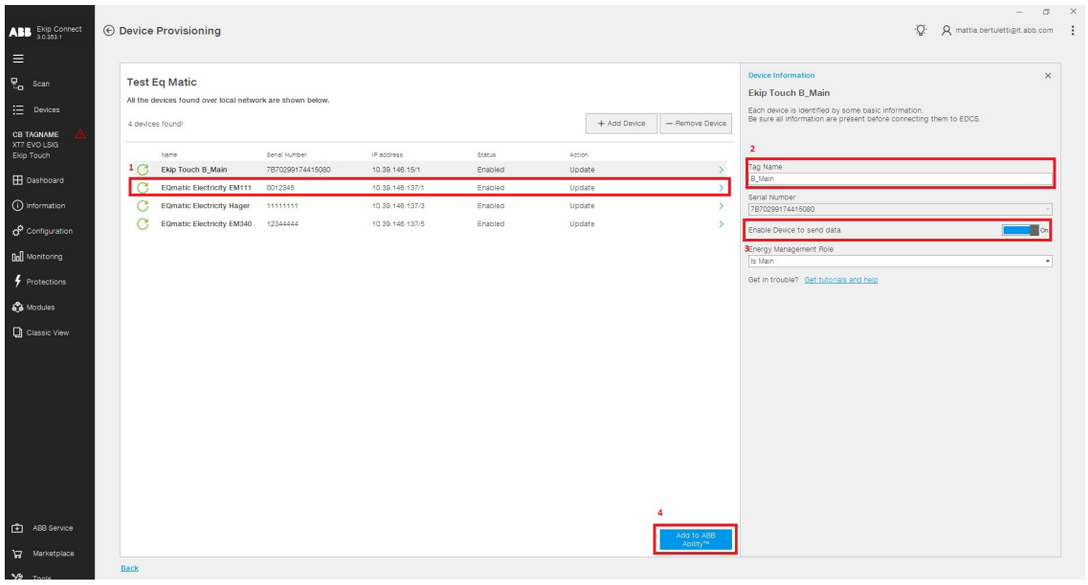
1. Click on “**Manual discovery settings**”
2. In the section “**IP addresses**”, insert the IP address of ABB EQmatic in the list of IP addresses to be scanned, together with IP addresses of selected access point and other TCP devices. It is possible to either add IP addresses one by one (“**Use IP address list**”), or input IP address range (“**Use IP address range**”).
3. Then press “**OK**” and “**Start Discovery**”.



F. Once the device is found and inserted into the list of the connected devices,
   1. click on the blue arrow on the right of the selected device
   2. In the section “**Device information**”, please add a tag name.

   TIP: “**TAG Name**” shall have the following characteristics:
   a) Do not give same TAG Name to different devices
   b) Each TAG Name cannot be more than 10 characters
   c) Special characters are not allowed
   d) Backspace is not allowed (please use underscore)

Please ensure “Enable device to send data” is ON.

G. After completing assignment of tag names to all devices, complete the commissioning by clicking on “**Add to ABB Ability EDCS**”.

H. Follow instructions on “Ekip Com Hub Getting started” document to publish the plant on ABB Ability EDCS.
   Due to security checks between module and platform, you might not be able to see any real time data on the ABB Ability EDCS webapp during the first 15 to 30 minutes after completing the commissioning.
   TIP: In case after 15 minutes you do not see data in the platform, please turn off and then back on the power supply to the Ekip Com Hub module.