QUICK INSTALLATION GUIDE

- XPLC110 and XPLC211

PLCSeries

01 / 2023

Agatel_PLC_QUICK_INSTALLATION_GUIDE

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Preface

Agatel XPLC110 and XPLC211 PLC series are programmable control devices used in a wide range of areas from process automation to building automation, from machine automation to telemetry applications.

The Function Block Diagram – FBD language defined in the IEC 61131-3 standard is used for programming PLC devices. Thanks to programming with the FBD language, you can develop the application you need easily and quickly with drag and drop logic.

In this document, Agatel XPLC110 and XPLC211 PLC's fast usage is explained.

About Mikrodev

Since 2006, MIKRODEV has been developing and manufacturing industrial control and communication products. MIKRODEV serves the system integrators in the public and private sector, OEM and end users.

Our products are manufactured complying with the quality standards required by the industrial automation industry and the quality of our products are proved on the field for many years

MIKRODEV is one of the few companies in the world that has its own designed IEC 61131-3 compliant library for its programmable logic control devices. In addition, the open, flexible, programmable SCADA solution developed by MIKRODEV is also available to customers.

MIKRODEV products' performance and wide range of applications make them possible for customers to achieve faster, simplified and cost-effective results.

WARNING!

- ✓ Use the programming editor only for Agatel Certified devices
- ✓ When you change your physical hardware configuration, update your development to the appropriate version.
- ✓ The developed program should be tested separately before taking to field service and should be shipped to the field after the tests are successfully completed.
- ✓ Take all accident prevention measures and safety measures identified by local law

Failure to comply with these rules may result in death, serious injury or property damage

1 INTRODUCTION

1.1 ABOUT THE AgatelDIAGRAM

Agateldiagram; It is an editor software developed by Agatel and used for programming Agatel PLC family devices. With Agatel PLC programming editor Agateldiagram, very complex projects can be realized quickly thanks to its visual and easy-to-understand interface.

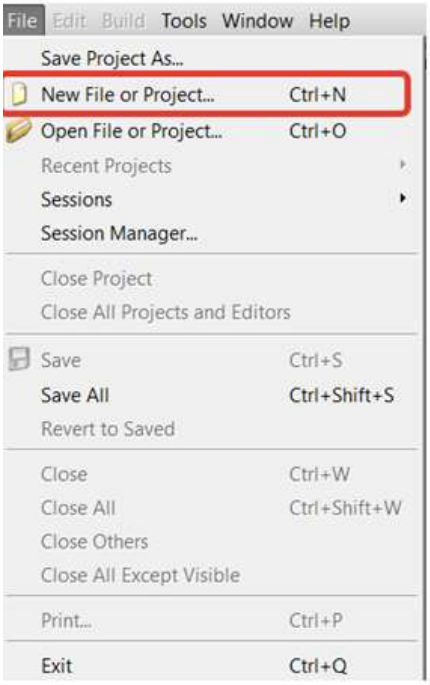
In addition to basic logic blocks such as "AND, OR, XOR" in the Agateldiagram library, there are also advanced blocks that will facilitate complex applications such as "PID, astronomical timer".

By connecting to devices via different interfaces (USB/TCP), tools such as program upload/update, online monitoring and firmware update are also offered with Agateldiagram.

2 CREATING A PROJECT

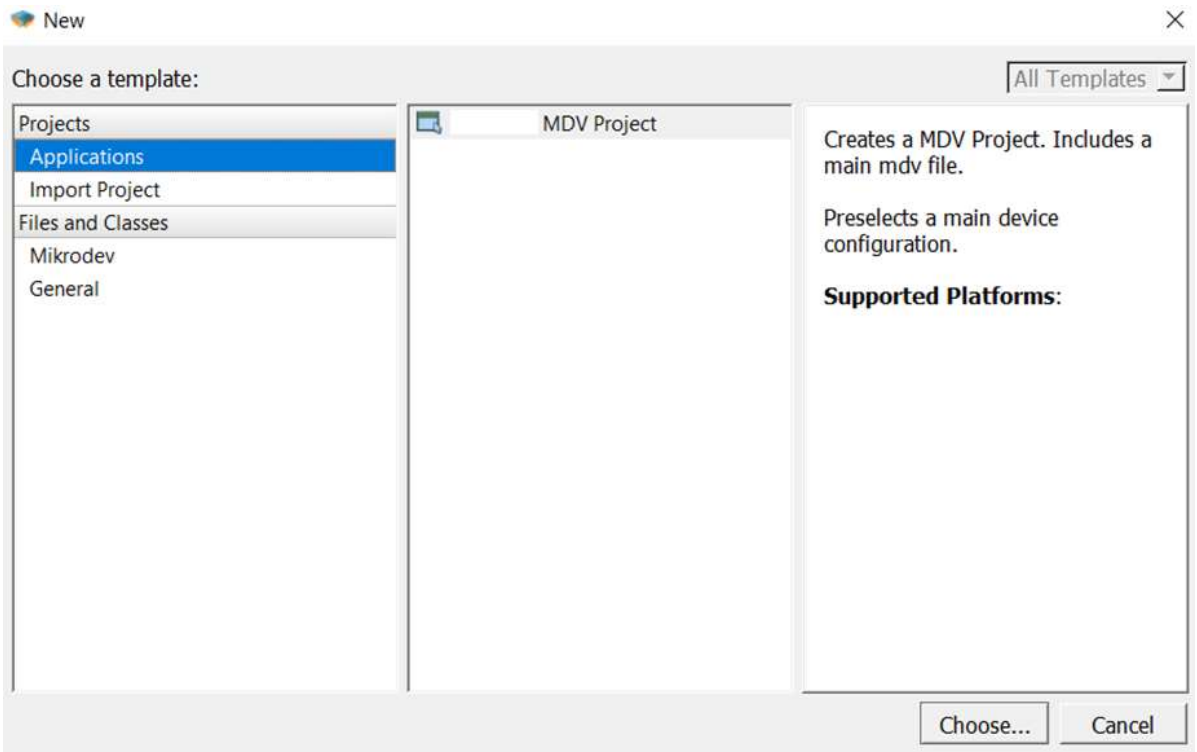
The following steps are followed to create a new project in Agateldiagram.

2.1 CREATING A NEW PROJECT

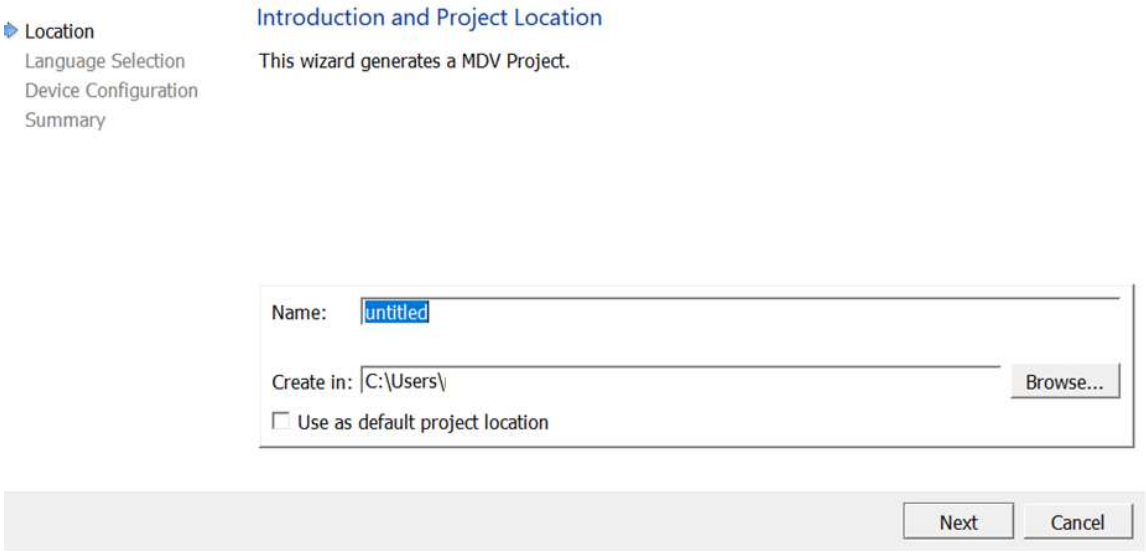


To create a new project in Agateldiagram, choose "new file or project" from the "File Menu".

2.1.1 Step 1



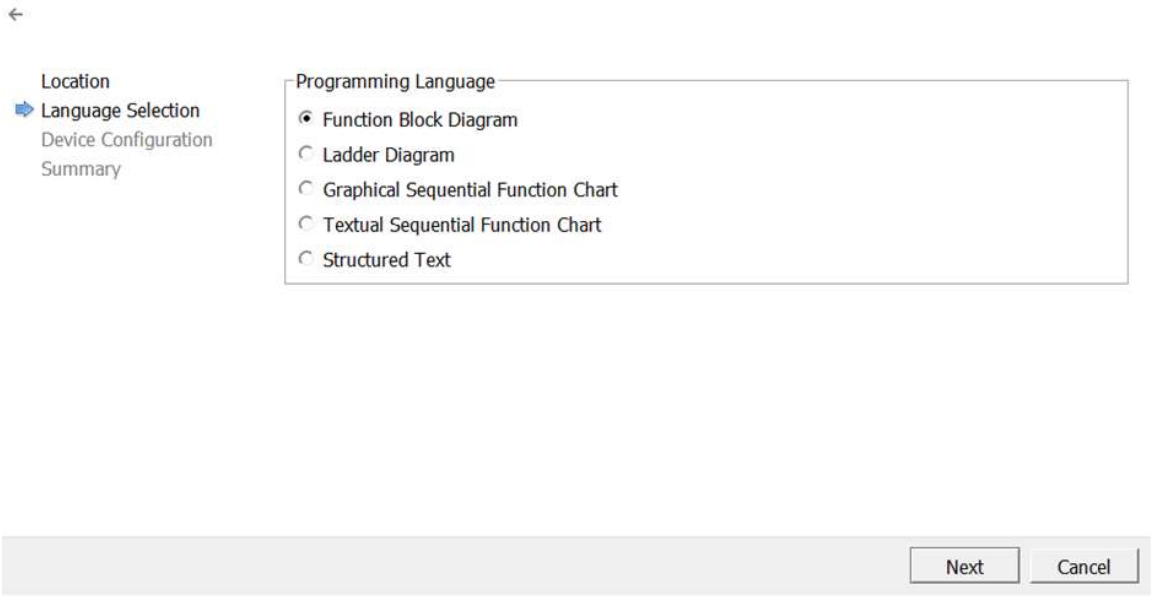
2.1.2 Step 2



The newly created project name and project creation location are selected.

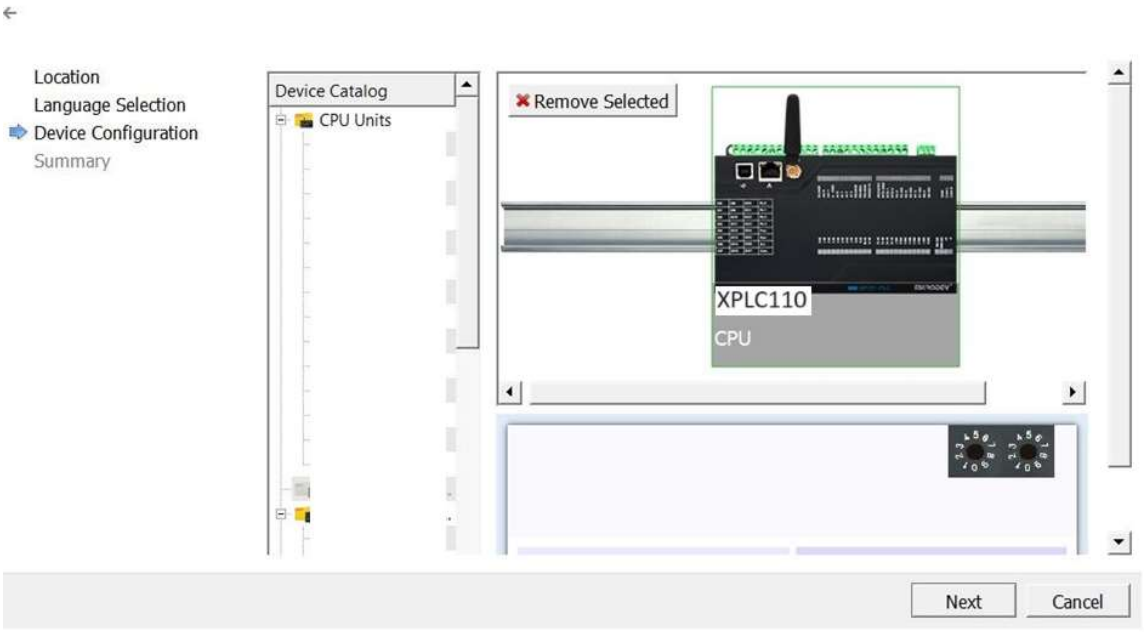
When "Use as default project location" is selected, the project creation location is fixed for projects that will be created later.

2.1.3 Step 3



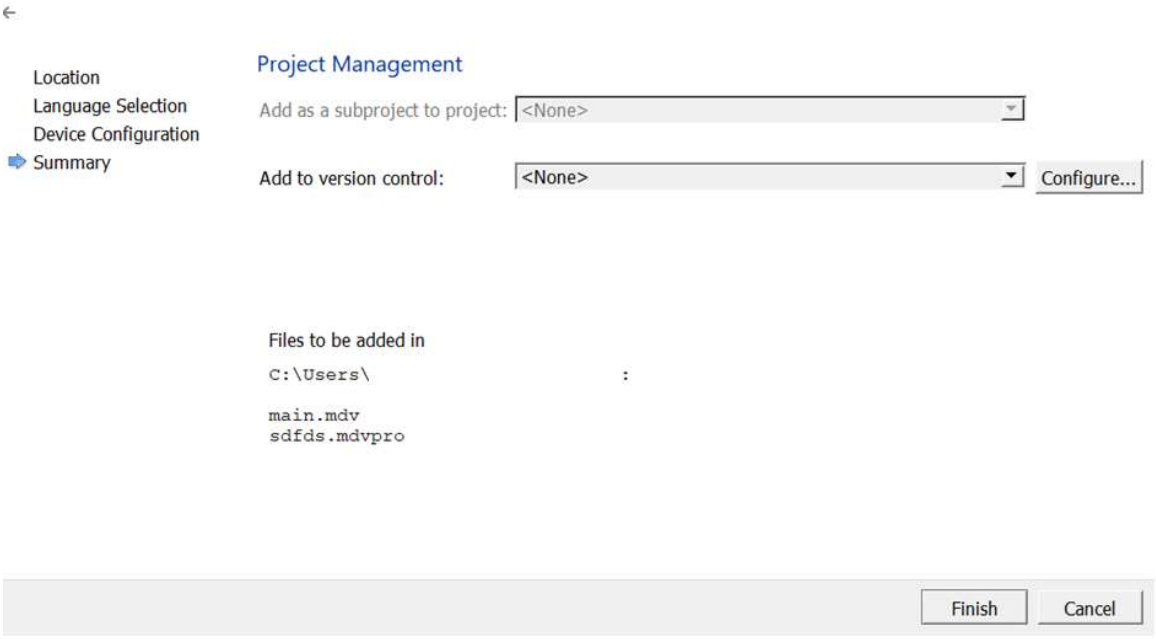
The programming method is selected.

2.1.4 Step 4



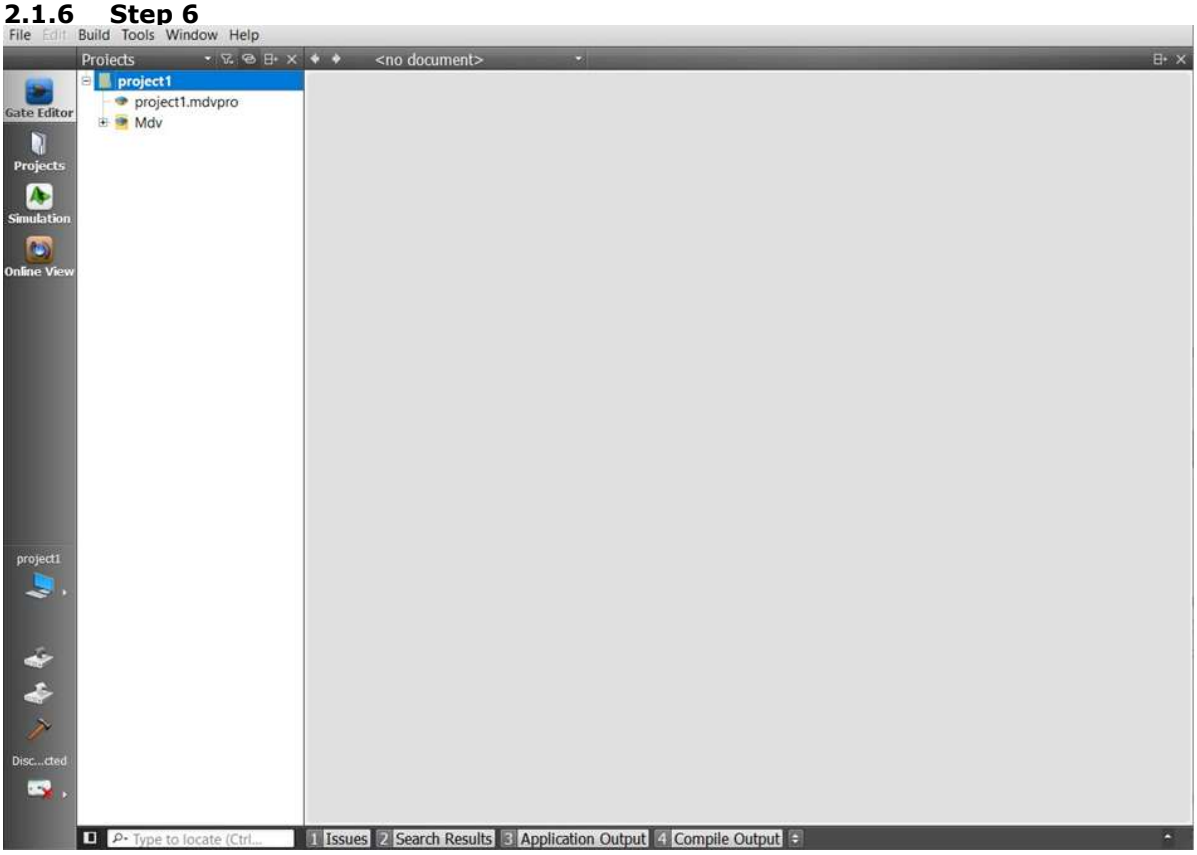
The device to be programmed and the expansion unit (if it needs to be added) are selected.

2.1.5 Step 5



Project configuration settings can be changed.

2.1.6 Step 6



A new project has been created.

In the projects section on the left side tab, double-click the Mdv text or click the plus icon next to the Mdv text. In the bottom tab that opens, there is the file “main.mdv”. Double-clicking on this file opens the page and the project design can be started on this page.

3 CONNECTING TO THE DEVICE

The projects prepared in the Agateldiagram must be sent to the device and a connection mustbe established to the device for online monitoring.

The device can be connected to the device via USB or TCP port in Agateldiagram.

In Agateldiagram, connection cannot be established from USB and TCP port at the sametime.

3.1 SETTING UP A USB CONNECTION

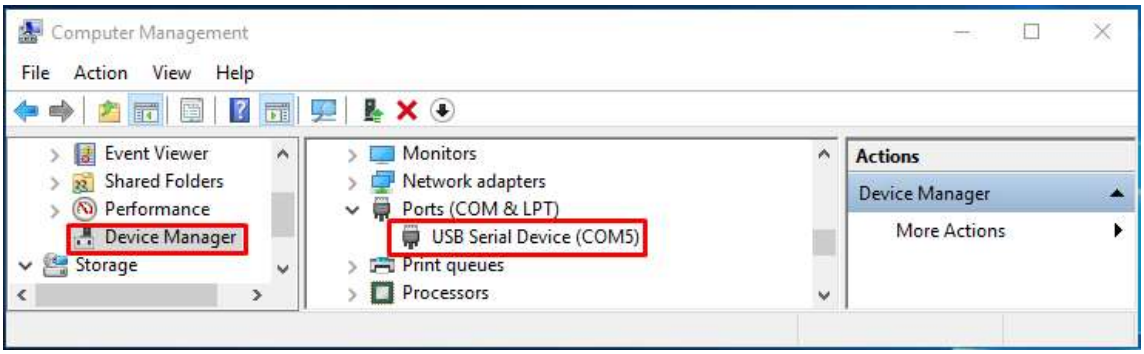
In order for the USB connection to be established, the USB driver installation must be completed on the computer with the Agateldiagram installed.

There is no need for USB driver installation on computers with Windows 10 and above operating systems.

After the USB Driver installation is completed, a USB cable connection is made between the computer and the device.

“USB A and USB B” (printer cable) should be preferred for USB cable selection. The USB B side is connected to the device and the USB A side is connected to the computer.

The COM port where the USB cable connected from the device manager is defined is determined.



The connection 

interface is accessed by clicking the tab from the Build Mod options.

“Connect using SERIAL USB” is selected, COM port is selected. With the “OK” button, the connection establishment process is started.

When the message “USB connection has been established between the device and the computer via serial port” is received and the connection button is turned to the “connected”

position, the connection via USB is completed.

3.2 SETTING A TCP CONNECTION

In order to establish a TCP connection between the computer and the device;

At least one of the “ethernet, Wi-Fi or GSM” ports must be present on the device to which a TCP connection will be established.

3.2.1 Establishing a TCP Connection with Ethernet

In order to establish an Ethernet connection;

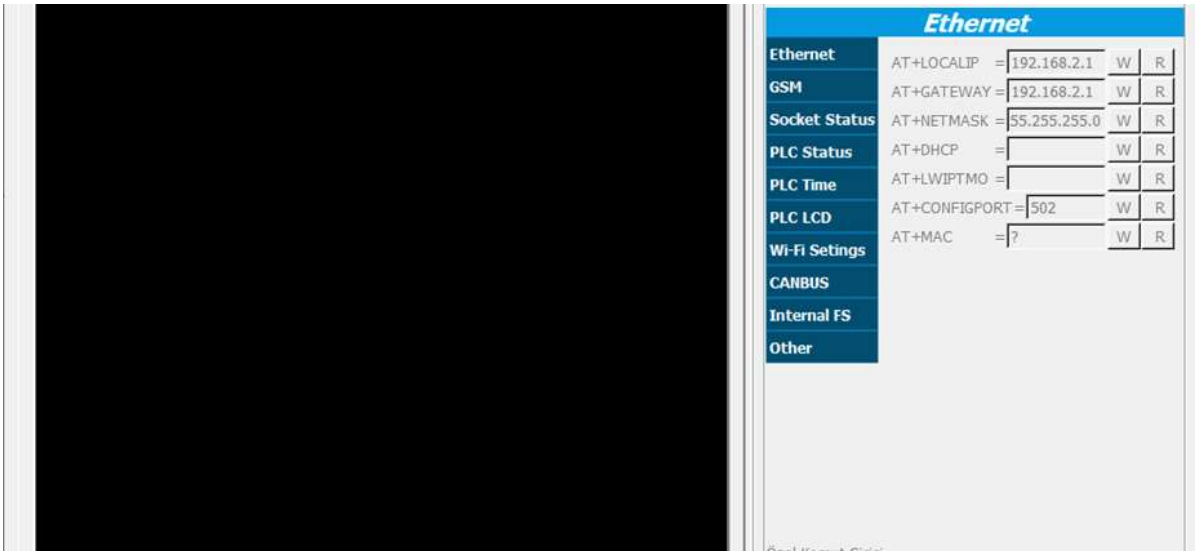
• The device must have an ethernet port.

• Ethernet cable (CAT5, CAT6) connection must be established between the device and the computer.

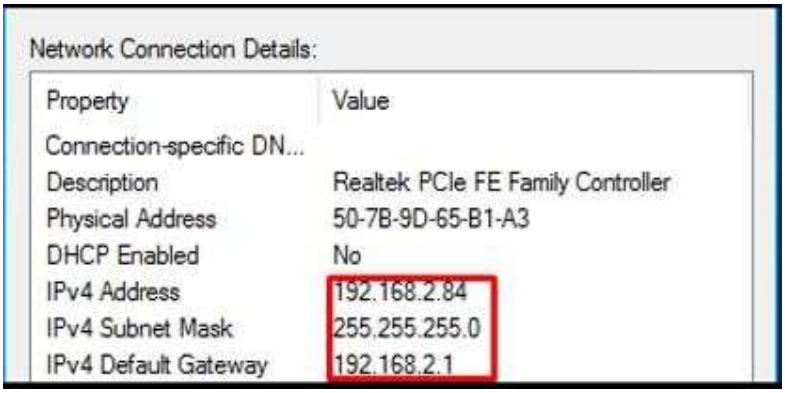
• If the device and the computer are in the same local network, the defined IPs should be selected accordingly.

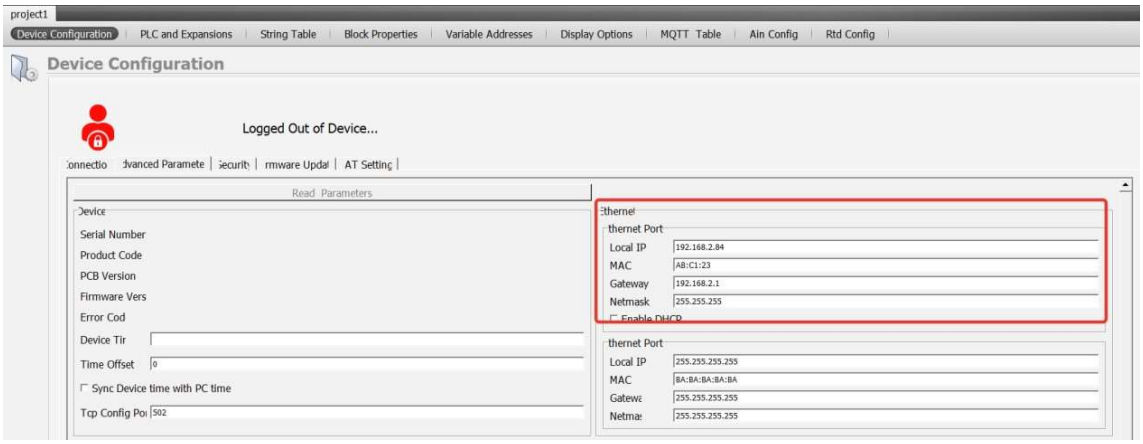
3.2.2 Identifying IP to Device

“Agateltерminal” program should be used to make device IP settings via USB connection.(See “Using the Agateltерminal” section.)

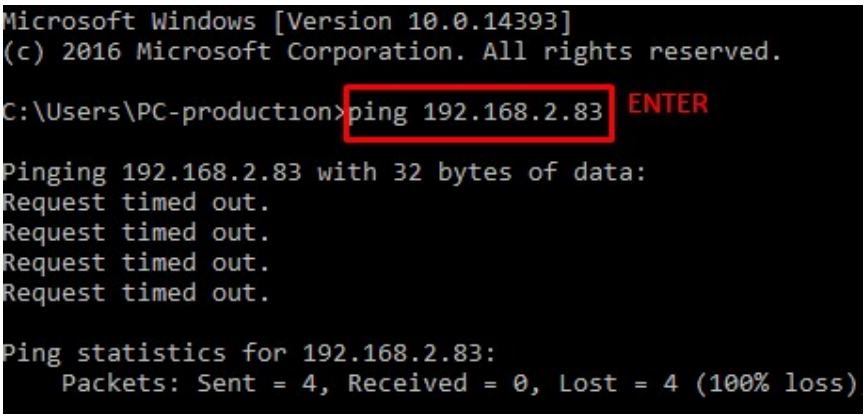


The Mikroterminal program can be accessed from the Agateldiagram "Tools" menu.





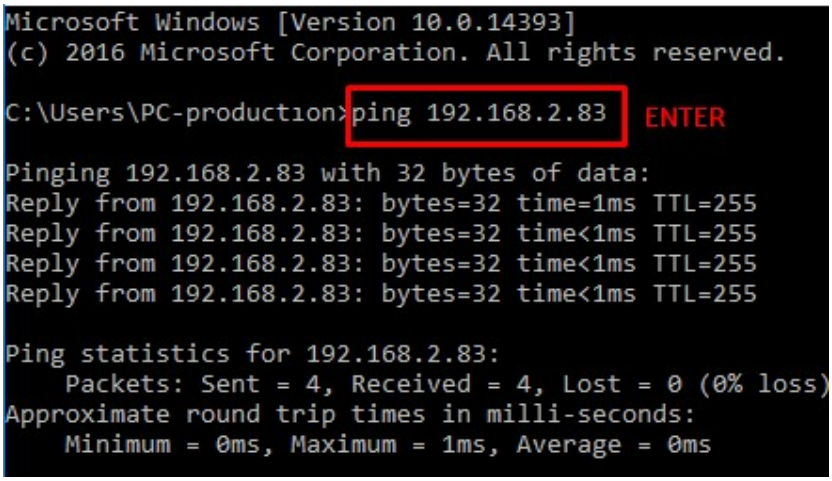
After the device and computer IP settings are complete, "ping" must be done from the computer to the device for the "ethernet cable connection test" between the device and the computer.



For the "ping" operation, the device IP is typed into the computer "command window" as in the picture and "ENTER" is clicked.

If the result output in the upper picture occurs, it means that the ping operation "failed". IP settings and ethernet cable connections should be checked again.

If the result is output as in the picture below, the pinging process is “successful”.



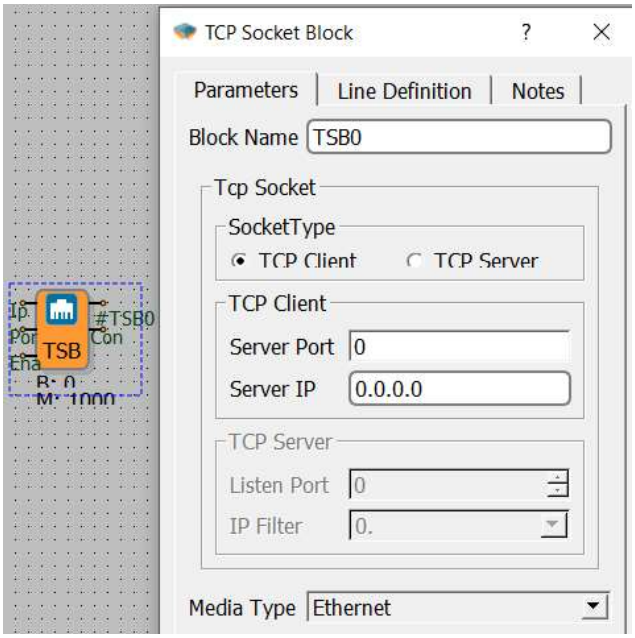
It means that an ethernet TCP connection can be established from the Agateldiagram to thedevice.

3.2.3 Defining a Listening Port to the Device

In Agatel products, the standard listening port is defined as 502.To

change the listening port, which is the standard 502;

TCP socket block should be added to the project prepared in Agateldiagram.



Socket type “TCP server” is selected.

The listening port is defined.

As the "Media type", one of the Ethernet, GSM or Wi-Fi options is selected.

Note: In the Agateldiagram project, listening ports can be defined as many as the number ofTCP socket blocks added as a server.

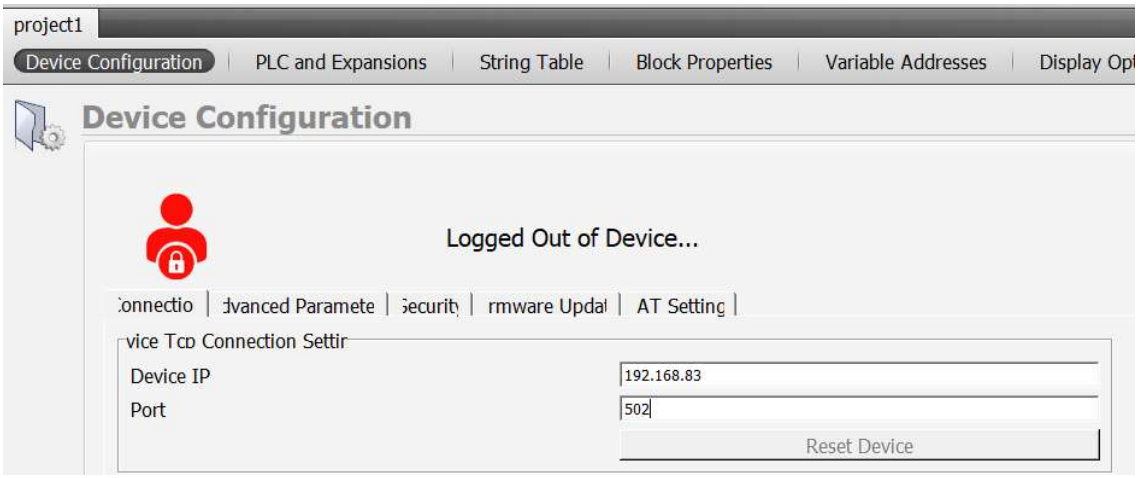
3.2.4 Ethernet Connection Test

After making the necessary settings for the Ethernet connection, for the TCP connection;

Click the link 

tab in the Build mod options.

Click "Settings" in the window that opens.



In the window that opens, the device IP is written in the "Device IP" section and the device listening port is written in the "port" section.

Select "Connect using TCP" and click "OK" to wait for the TCP connection to be established.

When TCP connection is established, "TCP connection established between device and computer" warning is displayed on the screen.

The connection icon 

is also displayed as “Connected”.

3.2.5 Establishing TCP Connection with GSM

In order to establish a GSM and TCP connection to the device in Agateldiagram;

• The device must be GSM-enabled.

• The GSM antenna of the device must be installed.

• Device signal quality (CSQ) should be between 1-31.

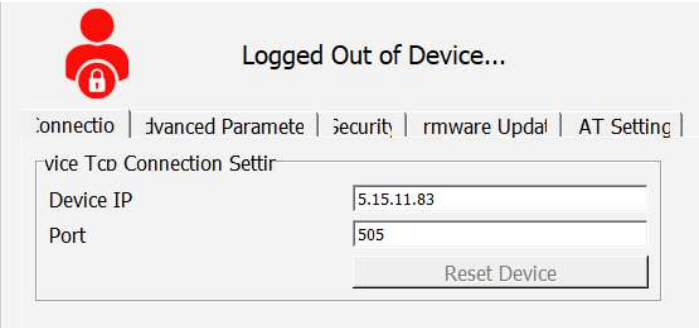
• A SIM card with data package (internet package) must be inserted into the device. (SIM card must have fixed IP.)

• APN definition of the inserted SIM card must be made to the device.

• The computer with the Mikrodiagram must be connected to the “wide area network” (WAN) (internet network).

3.2.6 Identifying IP to Device

In order to establish a TCP connection from the Agateldiagram to the GSM-enabled device,the GSM IP is written in the "device IP" section.



Other than GSM IP identification, other operations are the same as Ethernet TCP connection.

4 LOADING A MIKRODIAGRAM PROJECT TO THE DEVICE

There are 2 methods to load the project prepared in Agateldiagram to the

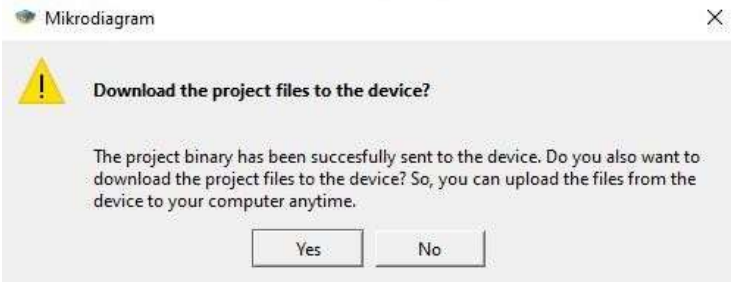
device.The project can be sent to the device via USB or TCP connection.

4.1 UPLOAD A PROJECT VIA USB CONNECTION

After the USB connection 

is established between the device and the computer, the "send to device"  button is clicked. The project file is compiled and the bin file is loaded on the device.

The confirmation screen opens for the project file backup to be uploaded to the device. If "Yes" is clicked, then the project file will be extracted from the device.



The device must be restarted in order for the changes to be applied. A confirmation screen appears for device restart. Click on “Yes”.

If the following output occurs in the "incoming messages" section of the Agateldiagram, itmeans that the Agateldiagram project has been successfully loaded to the device.

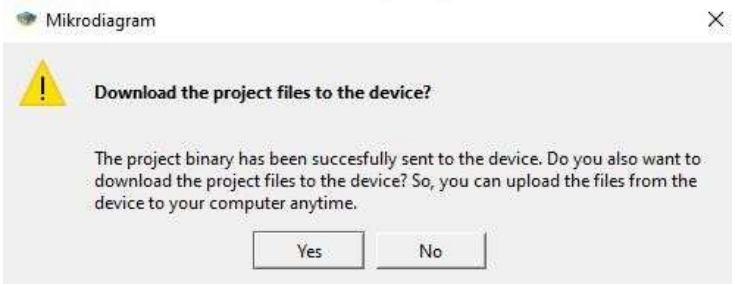
It should be noted that the file upload process is 100% complete. The device restarts automatically when the project upload process is 100% completed with the USB connection. (it is reset.)

4.2 UPLOAD PROJECT WITH TCP CONNECTION

After the USB connection 

is established between the device and the computer, the "send to device"  button is clicked. The project file is compiled and the bin file is loaded on the device.

The confirmation screen opens for the project file backup to be uploaded to the device. If "Yes" is clicked, then the project file will be extracted from the device.



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If the following output occurs in the "incoming messages" section of the Agateldiagram, itmeans that the Agateldiagram project has been successfully loaded to the device.

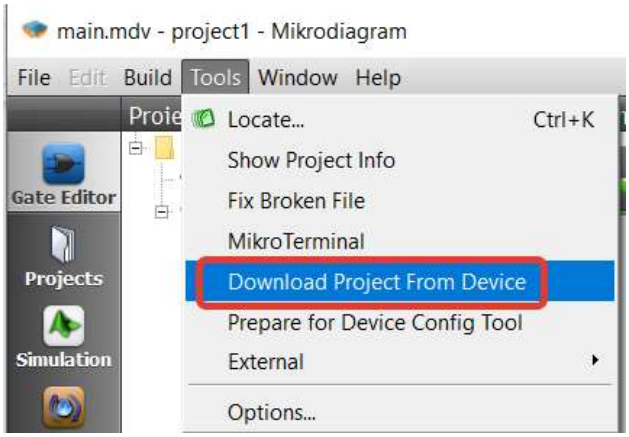
It should be noted that the file upload process is 100% complete. The device restarts automatically when the project upload process is 100% completed with the TCP connection. (it is reset.)

5 DRAWING A PROJECT FILE FROM THE DEVICE

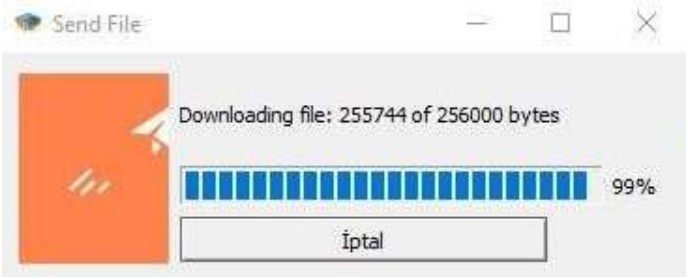
The existing project in the device can be downloaded to the computer via the Agateldiagramprogram. For this, the following steps should be followed.

When the device is powered and connected to the computer via TCP or USB;

Click on the "dowload project from device" option in the tools section of the Agateldiagram.



When the download status monitoring is at 99%, the file location where the project is to be saved is selected.



From here, the location where the file should be saved is selected. Thus, the bin file in the device is downloaded to the computer.