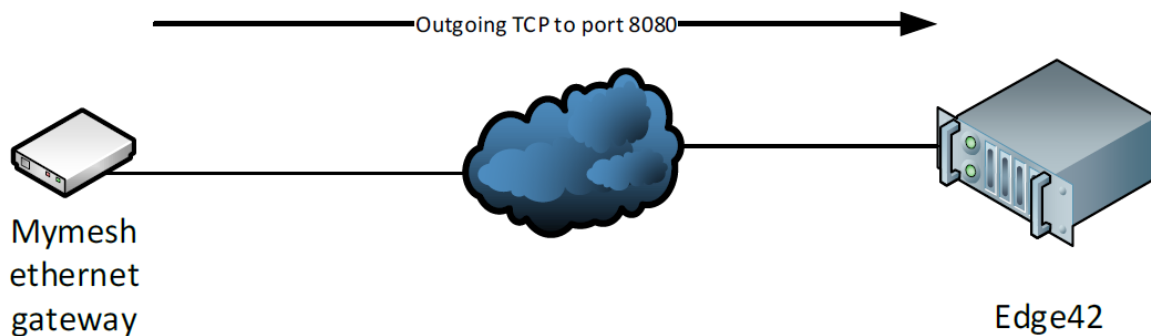


Installation instruction

Ethernet gateway



The Mymesh Ethernet gateway is a product in the Chess Wise program for building light control. The Ethernet gateway automatically forms a wireless-sensor-and-control network with the surrounding Mymesh products and connects this network with a server (Edge42) in the cloud.



For this data connection the Ethernet gateway must be able to make an outgoing TCP connection to port 8080 on an Edge42 server instance. The gateway is **always** the initiator for this data connection. After power-up the gateway will also attempt to connect (shortly) to a Chess firmware update server on port 80.

Safety



- Installation and service should be performed by qualified personnel only.
- The electrical installation must be in conformance with the national legislation and relevant standards.
- Do not use the Ethernet gateway if it is damaged.
- The Ethernet gateway is suitable for use at indoor locations (IP20 protection class). Mount the Ethernet gateway in an IP66 housing for use at outdoor locations.

Application

Refer to the Ethernet gateway product sheet (see chess.nl) for the environmental conditions.

Location

- Select a location for the Ethernet gateway in the direct neighborhood of other Mymesh products.
- The Ethernet gateway contains an (internal) antenna for wireless communication with other Mymesh products. Operation of the antenna should not be disrupted.
 - Do not mount the Ethernet gateway inside a metal housing or directly next to a large metal object.
 - Some glass and plastic materials influence the operation of an antenna.
 - Mount the Ethernet gateway outside the housing if necessary.
 - Contact Chess in case of doubt.

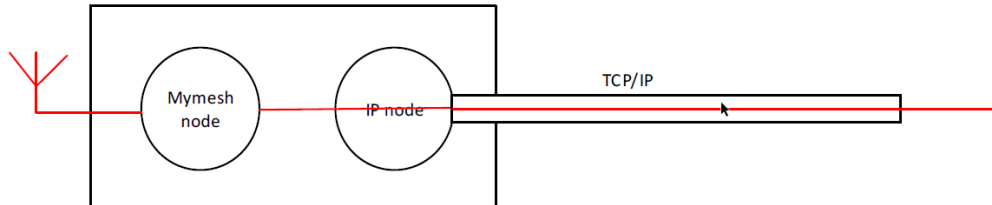
Connection requirements

Following conditions are required to allow a gateway to connect to an Edge42 server:

1. The gateway must be able to join a local Ethernet network. It does not support any port based access control like for example IEEE 802.1x.
2. The gateway should be able to obtain an IP address using DHCP (factory setting) or must be correctly configured with a static IP address and netmask for the local network segment.
3. The gateway should be able to obtain a gateway address using DHCP (factory setting) to reach the Edge42 server. In case of a static network configuration the gateway address must be configured in the Ethernet gateway.
4. The gateway should be able to query a DNS resolver in order to find the IP address of the assigned Edge42. The IP address of this resolver must be provided by the DHCP server or, in case of a static network configuration, entered during configuration. The DNS queries will target UDP/TCP port 53.
5. Internet access should not be restricted by a (non-transparent) proxy-server. The gateway does **not** support this.
6. The Ethernet gateway should be able to connect to the Edge42 server on TCP port 8080 and a Chess firmware update server on TCP port 80.
7. On a firewall, do **not** enable Deep Packet Inspection (DPI) for the connection to the Edge42 (TCP port 8080). This connection does **not** make use of the HTTP protocol. The gateway and the Edge42 use a proprietary secure link protocol to communicate (see below).

Security

The Ethernet gateway consists of two internal functional units: a Mymesh node that communicates with the Mymesh wireless network and an IP node that transparently connects the Mymesh node with an Edge42 server over TCP.



There is no need to route the gateway connection over VPN or VLAN. The data traffic between the Mymesh node and the Edge42 server is end-to-end encrypted and authenticated using 128 bit AES-CCM encryption.

Directly after power-up the Ethernet gateway will try to setup an outgoing TCP connection on port 80 to a Chess firmware update server. The (possible) software update **only** concerns the IP node.

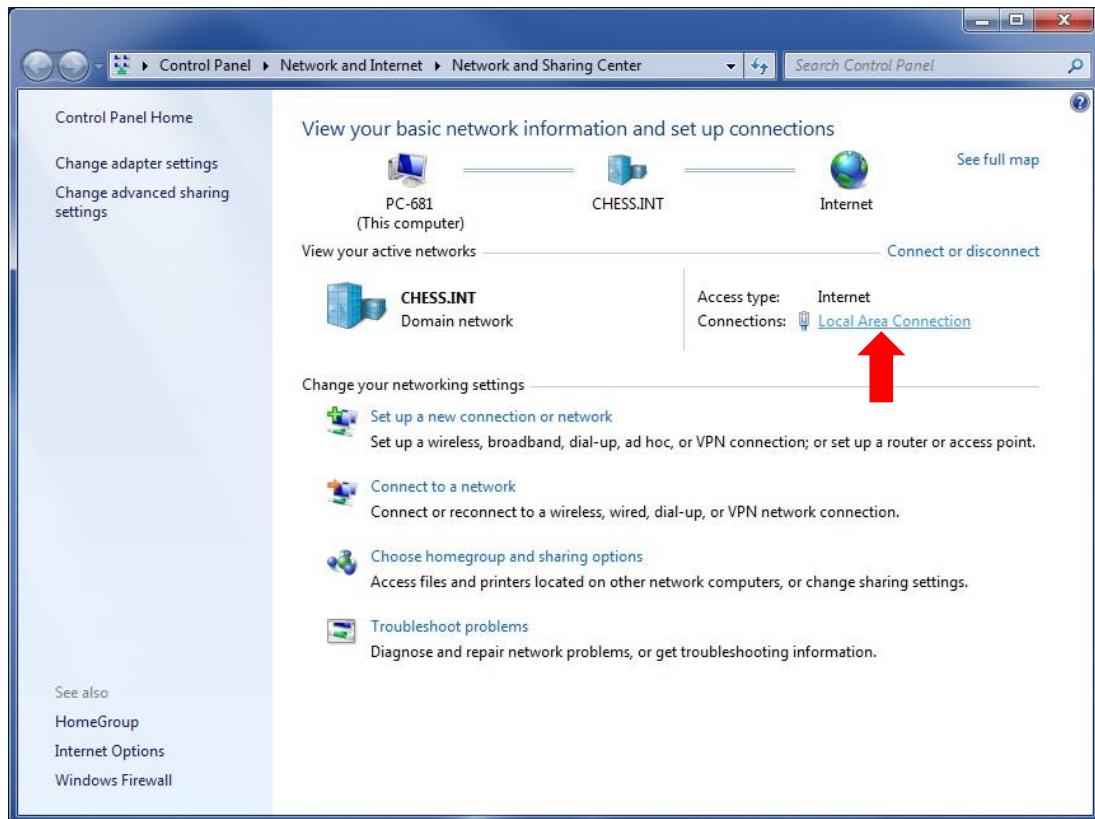
Configuration

Factory default settings of the Ethernet gateway are shown below. In most cases these settings are suitable and no configuration is needed. At the host side a proxy server will route the connection to the required Edge server.

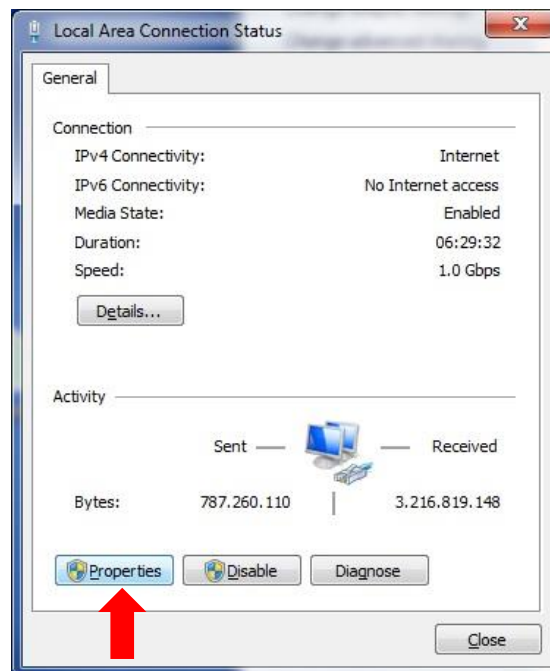
IP addressing	: DHCP
Firmware update url	: u1.edge.chess-wise.eu
Firmware update port number	: 80
Host url	: gw.edge.chess-wise.eu
Host port number	: 8080

Follow the instructions below only in case the default settings need to be changed. An MS Windows computer is used for the description, but a similar approach can be used for other operating systems. Contact Chess for further support if needed.

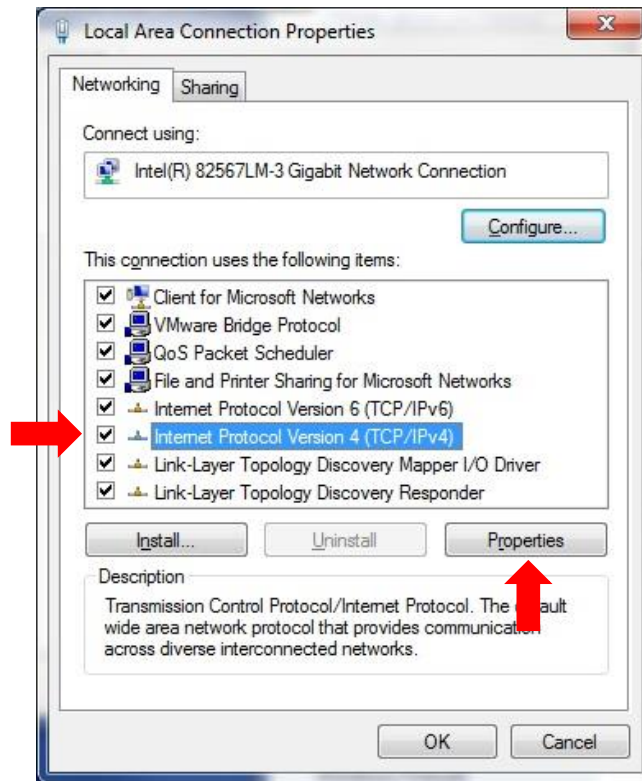
1. Disconnect all network connections of the computer (remove UTP cables and disable WiFi connections).
2. Connect the computer and the Ethernet gateway by means of an UTP cable (use a cross cable if needed).
3. Connect the mains power to the Ethernet gateway. The (right) power LED will blink.
4. Open in **Control panel** the **Network and Sharing Center**.



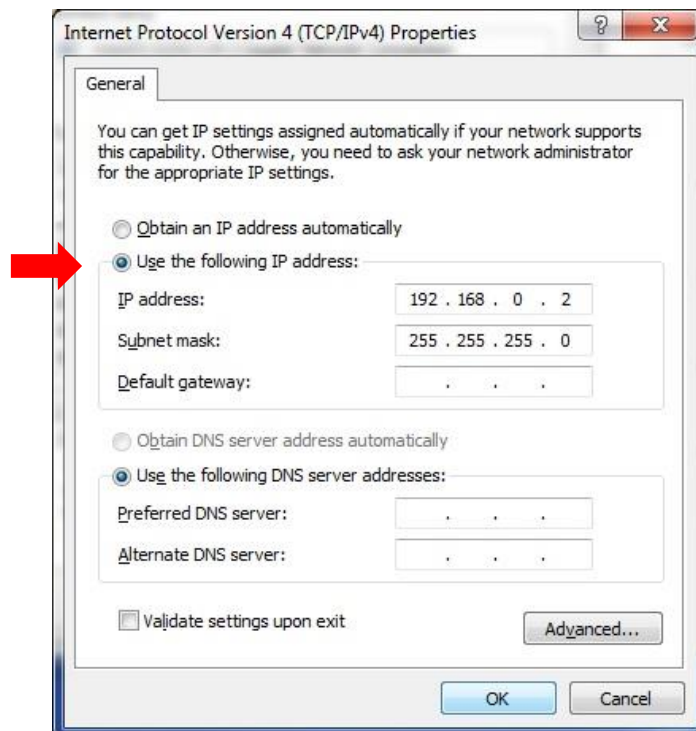
5. Open the **Local Area Connection** of the Ethernet gateway connection



6. Open **Properties**



7. Select **Internet Protocol Version 4 (TCP/IPv4)** and **Properties**



8. Remember the current network settings for restoring lateron!!
9. Select the option for a fixed IP address and add the following:
 - IP address: 192.168.0.2
 - Subnet mask: 255.255.255.0
10. Confirm the changes and close all configuration screens.

11. Open a web browser with url 192.168.0.1 (while the (left) network LED is off and the (right) power/status LED is on).
12. Restart the gateway if needed (the gateway will only wait for a connection with a web browser for 30 sec).
13. Following page will appear:

MyriaMesh Ethernet Gateway

Info

Firmware version: v1.0.028
Build at: Apr 18 2019 10:06:23
Device id.: F855F9A082AACE15
MAC-address.: 00:20:92:FF:25:1C

Configurations

Mode:

Firmware:
 port

Back office:
 port

keep alive

14. Select the IP connection mode: **DHPC** or **static**. In most cases **DCHP** is used. Only when no dynamic IP addressing is used **static** should be configured. For static refer to step 19.
15. Check the **Firmware hostname** (u1.edge.chess-wise.eu) and **port** number (80). Only change these settings after consultation with Chess.
16. Check the **Back office hostname** to (gw.edge.chess-wise.eu) and **port** number (8080). Only change these settings after consultation with Chess.
17. Leave **keep alive** active.
18. Store the changes with **Save**. Proceed at step 27.
19. Following page will appear after selection of **static**.

MyriaMesh Ethernet Gateway

Info

Firmware version: v1.0.028
Build at: Apr 18 2019 10:06:23
Device id.: F855F9A082AACE15
MAC-address.: 00:20:92:FF:25:1C

Configurations

Mode:

Static ▾

Local IP:

0.0.0.0

Sub net mask:

0.0.0.0

Gateway:

0.0.0.0

DNS:

0.0.0.0

Firmware:

u1.edge.chess-wise.eu port 80

Back office:

gw.edge.chess-wise.eu port 8080

keep alive

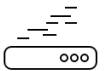
Save

Reload current configuration

20. Enter the **local IP address** and **subnet mask** of the Ethernet gateway.
21. Enter the router IP address at **Gateway**.
22. Enter the address of a DNS server at **DNS**. This can be a local DNS server, an ISP's DNS server or a public DNS server (e.g. 8.8.8.8, Google public DNS server).
23. Check the **Firmware hostname** (u1.edge.chess-wise.eu) and port number (80). Only change these settings after consultation with Chess.
24. Check the **Back office hostname** to (gw.edge.chess-wise.eu) and **port** number (8080). Only change these settings after consultation with Chess.
25. Leave **keep alive** active.
26. Store the changes with **Save**.
27. Remove the UTP cable between the Ethernet gateway and computer.
28. Restore the original network settings of the computer. See step 4 to 8.

Installation

1. Mount the Ethernet gateway at the selected location and connect the UTP and power cable.
2. Fixate the Ethernet gateway (if needed) with double sided tape to a flat surface.
3. Open the iPad commission app and search for the Ethernet gateway in the device list.
4. Commission the Ethernet gateway in a room of the building. Reset the Ethernet gateway in the commission app to restart connection setup if needed.
5. After restart, the (left) host connection LED should be off and the (right) power/status LED should be on for 30 seconds. During this interval the gateway is accessible for configuration with a local computer.
6. Next the gateway will check for new IP firmware at the Chess firmware server. When this is the case, the gateway will automatically download and install it. This will take a number of seconds. During software update the (left) host connection LED will be on and the (right) power LED will blink quickly.
7. Afterwards the gateway will try to setup a connection with the host computer. The (left) host connection LED will be on and the (right) power/status LED will blink slowly. As soon as the host connection is established the power/status LED will be on.
8. The (center) Mymesh LED will be on when a surrounding Mymesh network is detected.
9. Refer to the section status LEDs for detailed connection status indications.



Problems

Suggestions for trouble shooting:

Host connection not established	Check the UTP cable Check the Ethernet gateway configuration settings Check accessibility of host computer Check firewall settings
Host connection broken	Check firewall timeout settings. Should be more than 5 min.
Mymesh connection not established	Check (using the iPad commission app) that the Ethernet gateway has been commissioned in a room of the building.

Status LEDs

Three green LEDs at the front indicate the Ethernet gateway status:



Power / status (see table below)





Mymesh network detection



Host connection (see table below)

The table below details the LED indications during connection setup.

		Gateway status
Off	Off	Power off. Check the power cable.
Off	Quick blink (5 Hz)	No Ethernet detected. Check the UTP cable
Off	On	Awaiting configuration update (30 sec). During this time the configuration page can be opened with a browser.
Off	Slow blink (1 Hz)	No DHCP or no DNS query result. On site network or gateway static IP configuration issue.
Quick blink (5 Hz)	Quick blink (5 Hz)	DHCP conflict. Remove and insert network cable or power cycle Ethernet gateway.
On	Quick blink (5 Hz)	Awaiting firmware update connection or installing new IP firmware.
On	Slow blink (1 Hz)	Awaiting Edge server connection.
On	On	Connected to Edge server.

Usage

The Ethernet gateway will connect the Mymesh network to the related Edge server.

Compliance



This product complies with the European directives and relevant standards for RED, REACH and RoHS. The Ethernet gateway contains a 2.4 Ghz radio. The applied frequency of the radio is within the band 2.401 – 2.482 GHz and the maximum transmit power is +4 dBm.

Hereby, Chess Wise B.V. declares that the radio equipment type Ethernet gateway is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at chess.nl.

Repair

Do not open this product. In case of failure the Ethernet gateway must be replaced.



Recycling

Do not dispose this product as household waste, but bring it to an appropriate collection point for recycling.