# IEEE 802.1X Network Authentication

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## Overview

IEEE 802.1X is a network access control framework operating at OSI layers 1 and 2, designed to secure Ethernet networks by allowing access only to authenticated devices.

Until a device is authorized, the Ethernet switch port remains blocked for normal data traffic. Network access is granted only after successful authentication via an external authentication server.

## System Components

- Supplicant: The device requesting network access. In this system, the device itself acts as the supplicant and manages the authentication process.
- Authenticator: The Ethernet switch controlling the physical port and forwarding authentication messages.
- Authentication Server: A RADIUS server responsible for validating device credentials, typically using X.509 certificates.

## Authentication Flow

1. The device is connected to the Ethernet network
2. The switch initiates the 802.1X authentication procedure
3. The device sends its credentials to the authentication server
4. The RADIUS server validates the credentials
5. Upon successful authentication, the switch authorizes the port and network access is granted

## Configuration and prerequisites

Before enabling IEEE 802.1X, the following files must be available:

- CA certificate of the RADIUS server
- Device client certificate
- Device private key

## Uploading Certificates

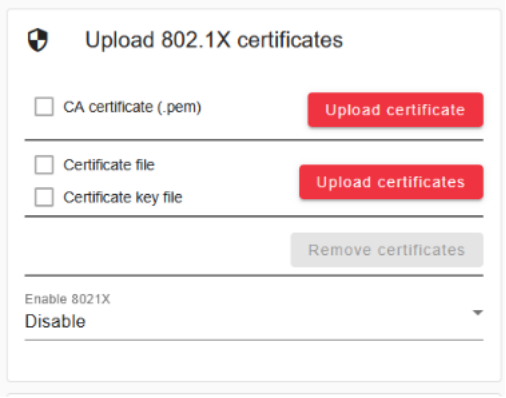
Certificates are uploaded via the device web application.

The system performs the following checks:

- Uploaded files must be valid certificates
- The private key must be protected by filesystem permissions and accessible only to the root user
- The private key must not be protected by a password

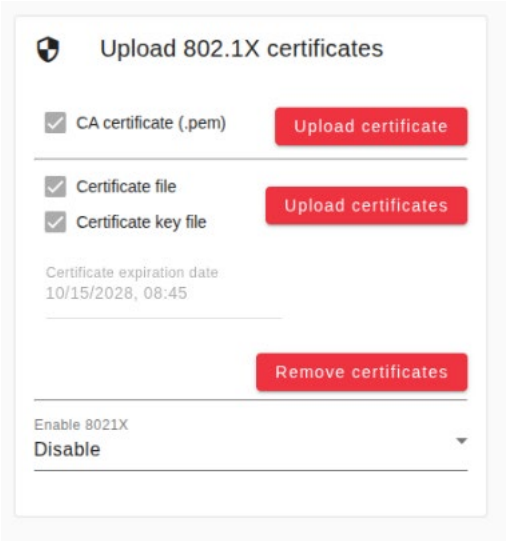
How to upload the certificates by following these steps:

- Log in to the webapp
- Select the side menu  > system settings
- Here, you can upload the certificates




Once the certificates are uploaded:

- All the checkboxes will be checked
- The remove certificates button will be available




Once the certificates have been added correctly, you can enable the service. At the end of the procedure, you must save using the button at the bottom right.

## Removing Certificates

Previously uploaded certificates can be removed via the web application.

After removal:

- IEEE 802.1X authentication is disabled
- Network access is no longer permitted