

# Clever.SDK

Smart IIoT & social network

*Freedom and monetization  
(the Clever.SDK principle)*

## Introduction

We believe that every creator of a dream Smart Home can decide not only for himself but also for his client, which house with which features they want to get as a result. In response, we are eager to provide developers with a powerful and interesting tool, that is useful for those who actively work on the latest trend, i.e. Smart Homes. This is the Smart Home Developer Kit **Clever.SDK**.

Developer Kit **Clever.SDK** is designed for those who want to create their own

- software products and modules,
- local servers and controllers,
- cloud solutions,
- touch control panels,
- mobile applications.

Clever.SDK is created to help you create Smart Homes that will amaze with their technological infrastructure and comfort. We fully trust your creativity and believe in your inspiration.

### [What is Clever.SDK?](#)

**Clever.SDK** (Software Development Kit) is a ready-made set of tools for the developer of Smart Homes and other smart systems.

The **Clever.SDK** developer kit will make it easier for you to create applications and target systems for Smart Homes, accelerate development, and reduce the cost of programmers' services.

*In addition, we want you to note that if you need ready-made software for Smart Homes, then we also have it, i.e. **Clever Home**.*

**Clever.SDK** is a tool for your programmers to create their software for your Smart Homes.

The **Clever.SDK** developer kit includes

- a set of **Clever** libraries, modules, and configurations,
- **Jooa software development and maintenance environment**,
- the runtime environment of the program code is **A7 Server**.

### [Why do you need Clever.SDK?](#)

**Clever.SDK** helps you create your unique Smart Systems for residential and commercial real estate, and to localize the production of remote controls (panels) that will be installed in Smart Homes.

### [Who needs Clever.SDK?](#)

**Clever.SDK** is created for manufacturers of smart

- Apartments/Separate Houses,
- Apartment Buildings,
- Commercial real estate (hotels and offices),
- Spaces (management companies, social networks)

We interpret the concept of a smart home very broadly. Everything can be a smart home

- from just an apartment to the whole residential quarter.
- from a separate house to a village.
- from a hotel room to a whole hotel building.
- from the office to the business center.

# Description

It was mentioned above that **Clever.SDK** developer kit includes

- a set of configurations, libraries and **Clever** modules,
- the runtime environment of the program code is **A7 Server**.
- **Jooa** software development and maintenance environment

Learn more about the set:

## A7 Server

**A7 Server** code runtime environment is a secure application server integrated with a data server (NoSQL database) to create secure decentralized systems.

## A set of Clever configurations

**Clever** configurations are ready-made software solutions based on modules and packages. The set consists of **A7 Script** packages and internal and external extension modules.

**Clever** configurations contain all the necessary packages for your programmers to start developing full-fledged Smart Homes (apartments, apartment buildings, hotels, business centers) right now.

## Set of A7 Client libraries

A ready-made set of **A7 Client** libraries provides the ability to create applications for the following platforms: iOS, Android, macOS, Linux, and Windows.

**A7 Client** includes

- libraries of online data synchronization with **A7 Server** over the network,
- end-to-end encryption libraries,
- widgets and libraries for interacting with widgets (models and data guides).

**Clever.SDK** extends the **A7 Client** and adds everything necessary for making applications for Smart Home users (video and audio codecs, chats, Wi-Fi management, power control).

## Jooa

Jooa is a cloud service that is based on **A7 Servers**. It was created to conveniently develop and support applications. Moreover, **Jooa** is the environment for the development and maintenance of a program code.

In this dream programmers have

- multi-user code editor,
- a version control system,
- deployment and update management,
- package repository.

## License control

The program code belongs to the person who wrote it.

Accordingly, the software of your Smart Homes will be copyrighted to the code and belong only to you.

How is this possible?

Thanks to the mechanism of license control in the **A7 Server code runtime environment**.

The mechanism automatically creates a license for each (literally!) object that is uploaded to **A7**.

Then comes the next step: **A7 Server** monitors the relevance of programmers' licenses, provides actual statistics on the use of objects, and synchronizes these statistics with **the A7 ecosystem**

License control is built in such a way that if object **B** is made based on object **A** (inheritance), then the licenses of objects **A** and **B** are both taken into account.

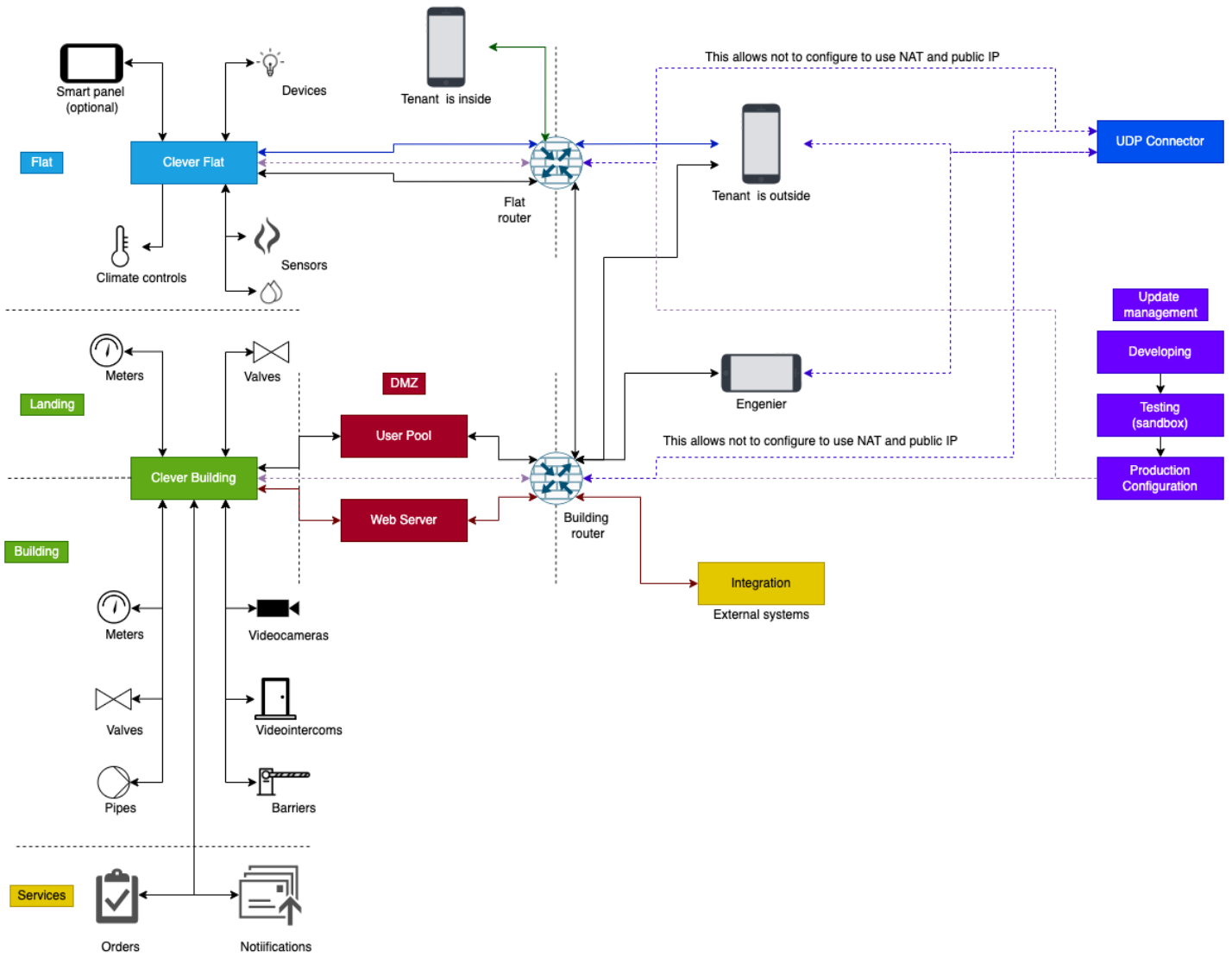
Licensing conditions:

- free,
- one time,
- by subscription.

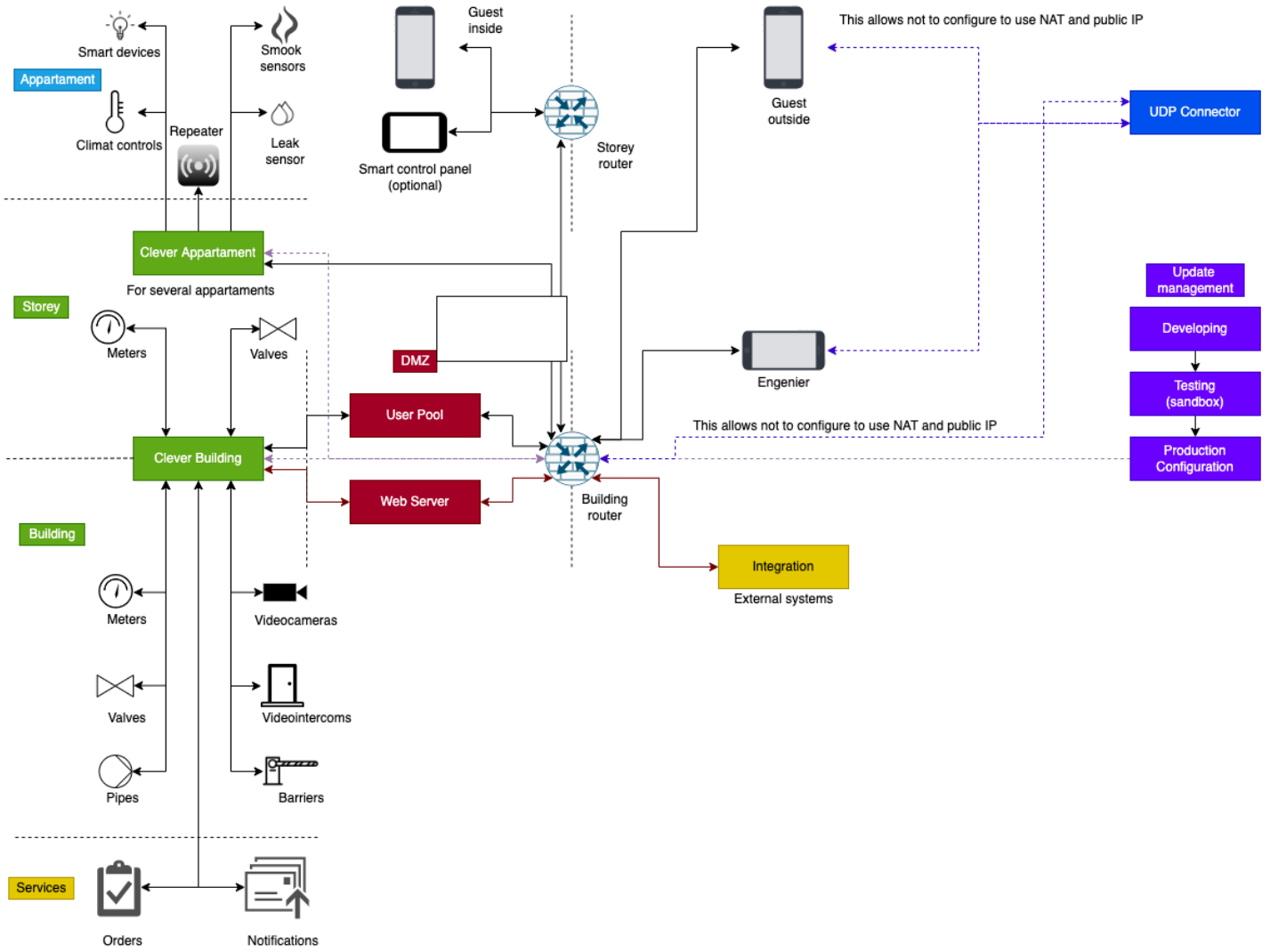
The creator of the object, i.e. the owner of the code, sets the licensing conditions.

## Examples of systems based on Clever.SDK

### Smart Building & Smart Apartment



# Smart Hotel



# Clever.SDK Tools Catalog

Using each of the development kits from the list below, you can create your own “Smart Home” software for different groups and types of real estate.

## Residential real estate

### Clever.Flat.SDK

**Clever.Flat.SDK** is a set of software modules that helps create a modern Smart Apartment.

With this set of developer tools, you can create your software for

- local apartment management controller,
- a touch control panel of the apartment,
- a local apartment management controller connected with a touch panel,
- cloud apartment management controller,

**Clever.Flat.SDK** includes the following components:

- configuration for creating an apartment management controller for **A7 Server** (ARM, Linux),
- client for creating touch panel software based on **A7 Client** (ARM, Linux, Android),
- client to create a tenant's mobile application based on **A7 Client** (iOS, Android).

### Clever.Building.SDK

**Clever.Building.SDK** is a set of software modules that helps create a Smart Apartment Building.

Designed to develop

- local building management controller,
- local residential quarter management controller,
- cloud building management controller,

**Clever.Building.SDK** includes the following components:

- configuration to create a building management center for **A7 Server** (ARM/x86/x64, Linux),
- client for creating an engineer's workplace **A7 Client** (ARM/x86/x64, Linux/Windows/Android/iOS),
- client for creating a dispatcher's workplace based on **A7 Client** (ARM/x86/x64, Linux/Windows/Android/iOS),
- client to create a tenant application based on **A7 Client** (ARM/x86/x64, Linux, iOS, Android).

### Clever.Space.SDK

**Clever.Space.SDK** is a set of software that helps create your own Smart Space so that residents feel comfortable in it.

Designed to develop

- decentralized services for service companies,
- and cloud services for residents.

**Clever.Space.SDK** includes the following components:

- configuration to create an **A7 Server** service center (ARM/x86/x64, Linux),
- client for creating a service organization workplaces based on **A7 Client** (ARM/x86/x64, Linux/Windows/Android/iOS),
- client to create a tenant application based on **A7 Client** (ARM/x86/x64, Linux, iOS, Android).

# Commercial real estate

## Clever.Hotel.SDK

**Clever.Hotel.SDK** is a set of software modules that helps you create your own Smart Hotel.

Designed to develop

- local hotel and a room management controller.

**Clever.Hotel.SDK** includes the following components:

- configuration to create a hotel building and rooms management center for **A7 Server** (ARM/x86/x64, Linux),
- client for creating an engineer's workplace **A7 Client** (ARM/x86/x64, Linux/Windows/Android/iOS),
- client for creating a dispatcher's workplace based on **A7 Client** (ARM/x86/x64, Linux/Windows/Android/iOS),
- client to create a guest touch panel based on **A7 Client** (ARM/x86/x64, Linux, iOS, Android).
- client to create a guest application based on **A7 Client** (ARM/x86/x64, Linux, iOS, Android).

## Clever.Office.SDK

**Clever.Office.SDK** is a set of software modules that helps you create your own Smart Business Center.

Designed to develop

- a local business center management controller.

**Clever.Office.SDK** includes the following components:

- configuration to create an office building and rooms management center for **A7 Server** (ARM/x86/x64, Linux),
- client for creating an engineer's workplace **A7 Client** (ARM/x86/x64, Linux/Windows/Android/iOS),
- client for creating a dispatcher's workplace based on **A7 Client** (ARM/x86/x64, Linux/Windows/Android/iOS),
- client to create a touch control panel based on **A7 Client** (ARM/x86/x64, Linux, iOS, Android).
- client to create a mobile application based on **A7 Client** (iOS, Android).

# Technical specifications of Clever.SDK

Equipment management		
Interfaces		RS485, Ethernet TCP/IP, UDP, ZigBee
Protocols		ModBus ASCII/RTU/TCP, ZigBee Automation, OPC DA, M4, IEC 61107 (C)
Supported hardware types		District heating substation, pumping units, metering devices, ventilation installations
Light control		Zoned management
Dispatching control		
Interfaces		Ethernet
Voice communication		+
Action control		+
ACS (Access control system)		
Interfaces		RS485, Http/Https server/Client, Ethernet TCP/IP, UDP Server/Client
Modes		Offline (autonomous), key confirmation on the server
Supported devices		Readers, locks, parking barriers
Automatic fire alarm		
Integration		Http/Https, OPC
Alarm systems		Public address, mass notification
Video intercom phones		
Protocol		SIP
Streams		Voice, video
Video cameras		
Protocol		RTSP



Codecs		264, 265
Interfaces		RS485, MBus, Ethernet TCP/IP, UDP, Radio (IoT Pulsar)
<b>AMI System</b>		
Resources		Cold, hot water, heating, electricity
<b>Artificial intelligence</b>		
Video		Face recognition (Face ID), car license plates, people recognition
Voice		Voice command recognition
<b>Apartment Controller</b>		
Interfaces		Wi-Fi, ZigBee, Bluetooth BLE, KNX (optional), RS485 (optional)
Management		Touch screen
Mobile Application		iOS, Android
Encryption		End-to-end
Types of devices		Light switches, colored LED strips and light bulbs, power sockets, electric relays, locks, curtain moving units, power electric machines, water opening/closing valves, thermostatic control heads, underfloor heating control
Types of sensors/detectors		Temperature, humidity, opening, movement, water leak, smoke
Pre-installed scripts		Light control, water leak control, security mode, night, day
Customized scripts		+
Time-table support		Time, days of the week, solar time