

T-Studio software manual

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T-Studio: purpose, general description, the hardware requirements

T-Studio is an application for creating interfaces for THRONE building automation, based on the three-dimensional layout of the automated facility. Creating the interface for each project can be divided into 3 parts.

1. Creating of the model of the building

Three-dimensional architectural model of the building is the foundation for the newly created THRONE interface at each facility. The model can be created in the program T-Studio or in a free and easy-to-learn visual editor Google Sketchup. Detailed instructions for preparing the layout area are set out in the relevant [chapter](#).

2. The layout of the THRONE interface

In the interface of T-Studio has six tabs, each of them is used to perform a specific set of actions.

- "Projects". Creating a new project or load an existing one.
- "Locations." A breakdown of the object on the area of automation.
- "Hardware". Creating a list of equipment used in the project of building automation. Binding equipment to control systems (central controllers or servers) and locations.
- "Models". Creating and import three-dimensional models for the interface THRONE.
- "Layout". Layout options for the location of models in the interface THRONE.
- "Firmware". Generation, downloading firmware, error logs and more.

3. Preparation and use of the THRONE firmware file

After the completion of the creation of the interface the firmware file must be attached to the panel(s). To obtain the firmware, go to your account on the website www.throne-bms.com You will see the price of the firmware for this project in the appropriate line. After the payment order, you can download the firmware in the "firmware" application T-Studio. To do this, switch to the tab "Drivers" and click "Download firmware". The firmware file should be stored on a flash card. Flash card with firmware file must be inserted to the USB-slot of central server, and firmware will be automatically written to all the THRONE panels, connected to the server.

Installation instructions

System requirements

The program operates on Windows XP / Vista / 7. The computer must have a permanent connection to the Internet. The computer must have the [.Net Framework 4.0](#) installed.

To run the application in the browser **Mozilla Firefox**, please install Microsoft .NET [Framework Assistant plugin](#).

To run the application in the browser **Google Chrome**, please install [ClickOne plugin](#) for Chrome.

To run the application in the browser **Opera**, please configure Opera according to the following [configuration instructions](#).

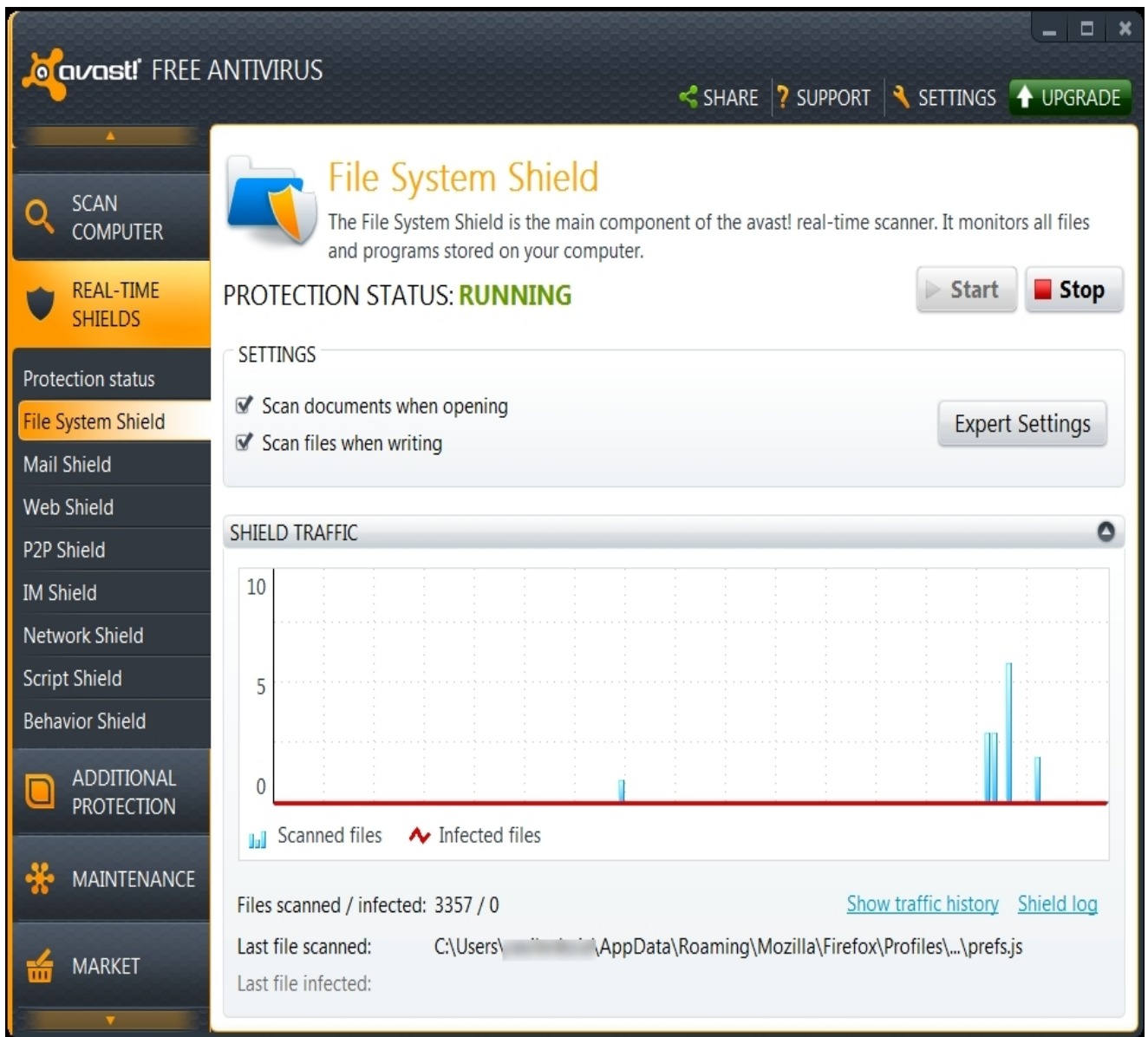
Antivirus interaction

Due to the fact that the T-Studio application has a unique code, some antivirus programs can respond to its launch, warning the user about the probable danger or even block the program. Therefore, we recommend disabling the antivirus program while working with T-Studio.

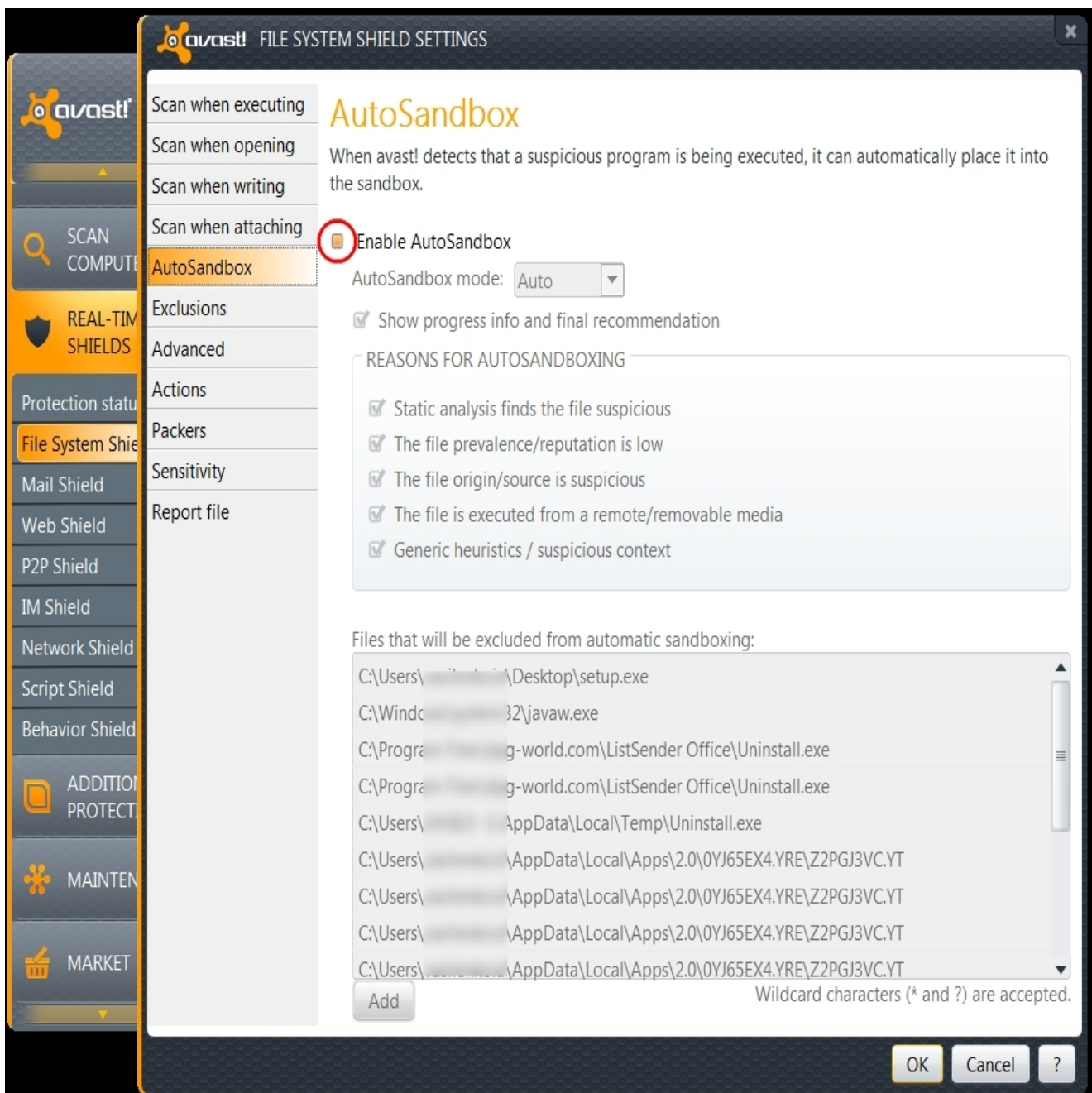
If the anti-virus program must be working, make an adjustment, removing restrictions on functionality of other programs made by Antivirus. The following example describes the sequence of user actions in antivirus software Avast!.

Avast!

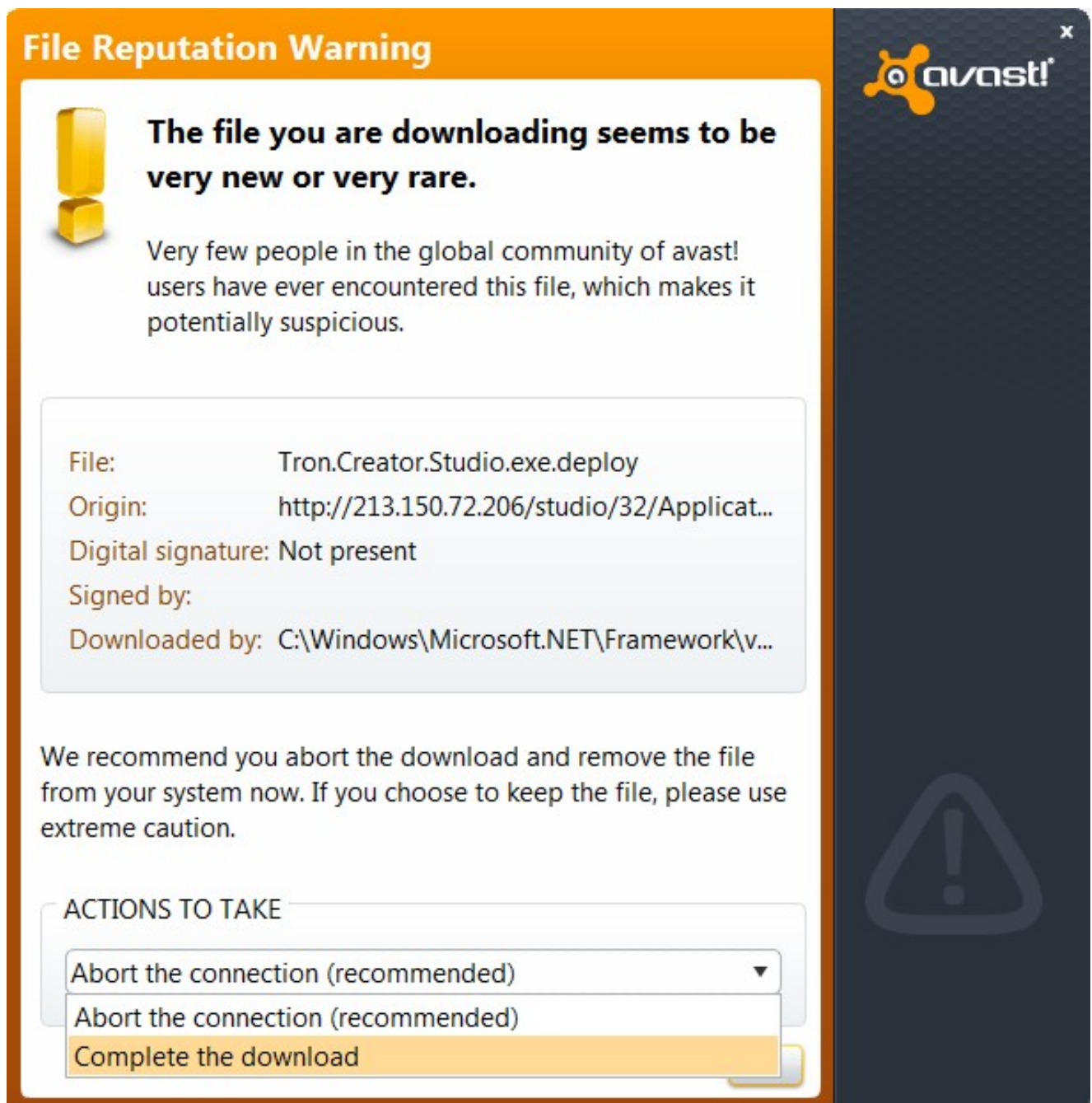
To start the T-Studio on a computer running Avast! antivirus user needs to disable automatic placement of suspicious programs in Sandbox (function AutoSandbox) in the Avast settings. To do this, open the Avast! interface and go to the Expert Settings in the Real-time Shields.



Then turn off the checkbox Enable AutoSandbox in the AutoSandbox tab.



Then run the T-Studio application. Depending on the user settings, the program can issue a warning dialog.



In the drop-down list ACTIONS TO TAKE, select Complete the download and click "OK." Then the T-Studio application will start.

Getting started. Registration

Register and log in the website www.throne-bms.com/pro. To do this, click on the link "The partnership with THRONE", which is located on the home page. Each user of the site and system users declare their affiliation to an integrator or a distributor/dealer company, so the two phases must be completed: the registration of the company and user registration.

To register a company on the site you should fill in the appropriate forms. After checking the data, administrator mails a special code to the contact person listed on the form. This code must be entered by all employees of the company during the registration, otherwise their affiliation with the company will not be approved. When logging on to the website and in the program in the future the code or name of the company will not be necessary.



When a company is already registered in the system, the user registers in. The user must fill in all required fields, including the field of Company code that needs to be obtained from the Contact person.


Run T-Studio on your computer using the link on the site www.throne-bms.com/pro. Authorize in the starting window of the program. Login and password to be entered in program are identical to login and password to access the site www.throne-bms.com/pro.

Main interface: basic elements and their purpose


Working application T-Studio is divided into six functional tabs. Work in each of them is described below. Any tab can be shown or hidden by clicking on the appropriate icon in the upper right corner.




For convenience, each of the tabs can be expanded to full size of the window by clicking the window icon () or closed by clicking the () sign. The data on it is not deleted on closing tab.

Tabs can be adjusted to the width. To do this, drag the left mouse button over the side of the tab, which is indicated by three dots. User can change the height of the blocks inside the tabs is same manner. The () button expands all tabs to the same width.


While the user works on the tab the other tabs are disabled. To close the tab you want to save changes, or click "Save", or discard them click "Cancel" button.

Buttons with the signs "+" and "-" are used to add and remove items. Key bindings button () is used for binding the equipment to locations (see "Equipment" button in the section).

Buttons Copy () and Paste () allow user to copy and paste items using the clipboard.

Button with a "tick" () saves the settings tab. Cross () cancels the changes.

Projects tab

In the "Projects" user selects a project to work on from a previously created or creates a new project. To download the current draft, highlight the necessary project from the project list and click the "Open" () button at the bottom of the tab.

Creating a project

To create new project click "+" button at the bottom of the list.

Changing the project

To change the project, open it by double clicking on its name in the list of projects. Now the changes can be made on any tab, and then save them by clicking the "check" at the bottom of the tab.

Deleting the project

To delete the project press “-” button in the bottom of the project list. Warning! The deleted project cannot be restored!

Locations tab

Location is the designer-assigned area of automation of a real object. Locations can be seen as a room, part of the room (e.g., multimedia zone) as well as individual objects in the area (for example, country-house automation - a bath, garage, pool, patio). The designer binds all equipment of the project to locations.

Creating a location

To create a location, click in the "+" in "Locations" tab. At the bottom of the tab fields labeled "Name" and "Name of panel interface" will appear.

In the "Name" field, type a name for the first location, it will be automatically assigned the number 1. Location number 1 - it's the entire facility, all other locations will be placed inside it.

In the "Title for the panel interface" tab, the title of the location visible to user can be entered. This field is optional. If it is not filled in, the panel will display the name from the field "Name".

In each location, you can create internal location. To do this, select a location from the list and click the "+" button. The further procedure is basically the same. The list of internal locations can be hidden and opened in the main list by double-clicking on the name of the upper location or by single-clicking on the symbol of disclosure (gray or black triangle to the left of the name of location).

Changing the location name

The designer can change the name of the location, the name of the interface, as well as unbinding all attached equipment from the location. The binding of equipment is described in the "Equipment" tab [chapter](#). To change the location, select a location from the list. After entering data, click "Save."

Equipment tab

"Equipment" tab is used to generate a list of the devices involved in the project, and then bind devices to each other and to the locations.

The entire list of devices compatible with THRONE is listed in a drop-down list at the top of the tab "Equipment". This list adds each individual equipment unit to the list of equipment for the project, and also shows units which are already added to the project.

Creating a list of equipment

To add a device, select the device from the drop-down list. It is recommended to add to the list control systems from the relevant section firstly. The actuators will then be attached to the control systems.

Adding control systems

On selection of a device from the drop-down list, click the "+" sign. At the bottom of the tab several fields will appear: "Number", "Name", "type", "IP-Address", "Port", "Serial Number". Please, fill in only the "Name" field (the only one obligatory), the other parameters of the equipment will be detected by

the system automatically. However, the designer can specify their own IP-address and serial number of a control system.

Adding devices (units)

After control systems are included in the list of, go to the devices (units). They are added using the same algorithm as the control system, with the sole difference that after entering of the name of each device it must be bound to the control system. The control system for each device is selected in the drop down menu "Gateway", which is automatically generated from the control systems that are added to the project.

After binding the devices to the control system, several fields for customizing the interaction of devices and control systems will be shown at the bottom of the tab. Further actions are different depending on the system.


Binding equipment to the control system HDL

Binding equipment to the control system KNX / EIB

Binding equipment to the control system TELETASK

Binding equipment to a location and removing from a location

To bind the equipment to a location:

- select the device from the list of marked products in the "Equipment",
- select the location in the "Locations" tab,
- click the bind button ().

To remove a device from the location, select an item in the device list in the "Locations" tab and click the "-" button below the tab fields.

Control systems are not linked to locations, because the user does not control them via the user's interface.

Changing the equipment list

To change the Equipment settings, select desired parameter; change it and then click "Save."

Equipment removal

To remove the equipment, select it in the equipment list, click the "-" button and then confirm the deletion in the dialog box. Warning! Cancelling of the equipment removal is impossible!

Models tab

"Models" tab is designed for creating three-dimensional models of objects or importing readymade models created in external 3D-editors (for example, Google Sketchup) in the project the project. To

import a model:

- press the "+",
- set the model name,
- select "From File" and click "Choose File"
- select the model file on your computer.

For further work you should load all the models.

Detailed instructions for preparing the layout area are set out in the relevant [chapter](#).

Arrangements tab

The Arrangements tab is designed for creating variants of models in the interface THRONE.

The Arrangements tab has three fields on the top.

1. The first field is used to select locations. For each location there can be one or many arrangements.
2. The second field is a list of arrangements in selected location.
3. The third field is used to customize the display of elements.

There are two modes of preparing the layout.

1) Mode "Editing of the model" is designed to position the models relatively to each other in the interface.

Controls:



- If the screen is pressed with left or right mouse button it is moved in a horizontal plane model;
- Mouse wheel moves the model vertically up / down.

2) Mode "Editing of the camera" is used to configure the model view.

Controls:

- Right-clicking on the screen moves the viewpoint;
- Left-clicking button changes the direction of the view;
- Mouse Wheel zooms the scene in / out;
- Shift – accelerates the movement started by left mouse button;
- Alt - slows the movement started by left mouse button.

The arrangement can be copied from one location to another. To do this, select a location from the list

of locations and click Copy (). Then select the location where the layout should be copied, and then click Paste ().

Firmware tab

Firmware tab is needed to generate, download firmware, view error logs and perform other operations. This tab is currently being finalized, when it will be ready to use users will receive a corresponding

email from a developer.

Creating three-dimensional models for THRONE building management systems

To create the building automation interface in T-Studio application it is necessary to upload three-dimensional model of the object. It is made in file format of COLLADA (with the extension .dae), containing constructions, as well as engineering devices and navigation areas named in certain way.

For creating the necessary 3D-models we recommend the Google SketchUp editor which is a simple, intuitive and easy to learn.

Google SketchUp

Graphic editor SketchUp is offered by Google in the free (SketchUp) and paid (SketchUp Pro) versions. Free version is sufficient for use with the T-Studio. Download the latest version of SketchUp 8 <http://www.sketchup.com/intl/ru/product/newin8.html>.

The materials for training to work in SketchUp can be viewed here:

- Video lessons in English <http://www.sketchup.com/intl/ru/training/videos.html>
- Course on render.ru. http://www.render.ru/books/show_book.php?book_id=808&start=0.

Rules, tips, tricks, and special techniques on preparing files for T-Studio in Google SketchUp

A set of files with 3D-models for a specific project

Depending on the type of the automated object a different number of 3D-models is required. Examples of the most common types of projects:

1. Level apartment. One model with a layout of the entire apartment.
2. Maisonette. Two models with the layout of each floor.
3. Building without the appearance and without a location nearby (only internal automation engineering is considered). Model on each floor of the building.
4. The building and the land on which it is located (there are devices outside the building). Site model with the building on it, and the model for each floor of the building.
5. Site with several buildings. A model of the area shown with all buildings, models of all floors on all buildings.

Composition of 3D-file

1. Building elements - walls, floors, roofs, fences, stairs and other architectural elements of the object.
2. Navigation area - objects not visible to the user of the touch panel THRONE. These areas appear when they are pressed by user on floor of the certain area in the building; areas corresponding to the floor of a room or floor as a whole (going into the room situated on the floor) and the invisible volume area around the building (when user goes inside the building).
3. Engineering equipment - objects, visually representing the equipment which is controlled by the THRONE system on the touch screen of the device..

Navigation facilities and areas of engineering equipment (paragraphs 2 and 3) must be properly named. Building elements (part 1) are not named.

The rules for naming specific items described below, noting that:

1. The object needs to be included in a group before naming : Select the object, right-click -> New Group.
2. To work with the group structure used in SketchUp the structurer is used (Window -> Structurer).
3. Naming the group performed in the Object Data (Window -> Object Data).

Building structures

Walls, roofs, stairs, etc. are sketched by a designer in SketchUp with a sufficient degree of details, but without exceeding details. The slight change can be made in the height and thickness of the walls, the size of window and door openings, etc. It can be made to harmonize and simplify future integration into the engineering equipment.

Constructions are displayed to the user in the colors and with a degree of transparency with which they portrayed in SketchUp designer, while the navigation areas that are invisible on the touch panel and engineering equipment where colors are adjusted with the THRONE touch panel.

Recommendations

Building constructions are better portrayed in shades of gray in order to avoid distracting the user's attention from the engineering equipment.

Appearance

The model with the look of the automated facility, if required (if the subject is not an apartment) usually contains one or more buildings, fences and some elements of the territory of the site (for example, lawns and gazebos).

Recommendations

From an aesthetic point of view it makes sense to make the structure from a number of elements with different colors (shades of gray). For example make the building's base, walls, roof and windows of different colors.

Floor models

Floor models consist of walls with windows and door openings to ease the main and lesser (stairs for example) object navigation. These structures should be grayed out and be translucent.

Recommendations

In most cases it makes sense to set the height of the walls of the layout less than their real height in order to avoid turning small space areas in the 'wells'.

The easiest way to begin work on a floor model is as follows:

1. To import image with a plan of the building SketchUp (File -> Import ...) in one of these formats - jpg, png, tif, bmp.
2. Scale the drawing of this picture in such way that scales in original file corresponds to the size scale of SketchUp.
3. Lock in the picture scale, creating a group from image (Edit -> Block), outlining the walls of the

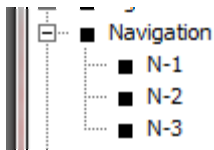
plane, and sizing the walls to the desired height.

Navigation areas

3D-objects in navigation areas are of two types.

1. *Flat objects*. They lead to the floor in a group of rooms, to the premises. They are drawn on the floors of a storey, group of rooms, facilities, respectively, in the form of flat areas.
2. *Objects with volume*. They lead into the buildings. Portrayed around the buildings repeating their form.

The navigation areas are named in SketchUp like N-XXX mask, where XXX - number of location (taken from the T-Studio), where the user is taken by pressing on this area. For example: N-2.



For the ease of use, it makes sense to combine all the navigation areas within a single model into one group, naming it according to the purpose, for example Navigation. When user uploads a file to the T-Studio, this structuring is discarded, and the program of the touch panel THRONE will only include the navigation area labeled as N-XXX. After importing the model in T-Studio you can rename them.

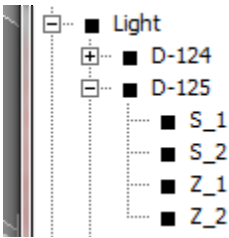
Utilities

3D-objects of utilities installed in the building usually have a more complex structure than the navigation area. Often they are as complex as group that has nested subgroups. For example, the group of undimmed lighting units are shown on the model as a zone on the floor, which includes two subgroups: the contour and shading.

Engineer devices are described as being on the basis of D-XXX, where: XXX - device number, under which it is listed in the T-Studio. For example, D-125. After importing the model in T-Studio you can rename them.

If 3D object of a device or a group of devices has a subgroup, they are called the alphabet in capital letters: S, Z, L, etc.

Sometimes the following situation is possible: lights in two corners of the room are operated simultaneously, i.e. in terms of THRONE it is one device. In that case these lamps are shown in the model in two sectors, each of them has its own contour and its own fill. In that case, the digits are added to the name of the group corresponding to each contour and fill: _1 (first light) and _2 (for second light).



It is possible to solve similar conflicts of devices in such a way.

It makes sense to group devices having same utility in appropriate groups to their functional purpose. For example: Light, Alarm, Intercom, Climatics. When the file is uploaded to the T-Studio, this structure is discarded and the program for the touch panel THRONE will only include names like D-XXX. After importing the model in T-Studio you can rename them.

Types of engineering devices, corresponding 3D-objects and their naming rules

Undimmable and dimmable lighting group

This group is depicted as an outline and shading. Naming subgroups: Z - circuit, S - fill.

Group of RGB-lamps

Portrayed as an outline, fill, and RGB-field, which will show the current color. Naming subgroups: Z - circuit, S - fill, R - RGB-fill area.

Fire alarm sensor

Depicted as a region and cube where the symbol of flame will be displayed on touch panel. Naming subgroups: Z - domain, L - cube.

Please note: in the origin of 3D-model coordinates there the object representing the flame named DS-FireSensor must be placed.

Security sensor alarm

Depicted as a contour and cube on the site where the symbol of man will be displayed on touch panel. Naming subgroups: Z - domain, L - cube.

Please note: the origin 3D-models must be the object represents a man named DS-IntruderSensor.

Temperature probe

Depicted in the form of a cube (the screen touch panel it will be not displayed). If the T-Studio lists particular temperature sensor for particular room, and 3D-model of this room shows a painted a cube (appropriately named), then the touch panel will show the panel of the appropriate sensor. Naming subgroups: Q - cube.

Leak detector

Depicted as a contour and cube where the drop icon will be shown on sensor panel. Naming subgroups: Z - domain, L - cube.

Please note: the origin 3D-models must be the object in the form of a drop, with the name DS-LeakageSensor.

Fan without speed regulation

Depicted in the form of a cube. This is not displayed on the screen of touch panel. If the T-Studio has a particular fan for a particular room and 3D-model is showing that, then the sensor panel will show the

panel of fan on the side of the screen. Naming subgroups: Q - cube.

Unregulated floor heating

Depicted in the form of a cube. This cube is not displayed on the screen of the touch panel. If the T-Studio has separate Floor heating for a particular room and the 3D-model in this room has this cube appropriately named and depicted, then on the touch panel will show this regulator data when navigated to the room. Naming subgroups: Q - cube.

Thermostat

Depicted in the form of a cube. This cube is not displayed on the screen of the touch panel. If the T-Studio has separate thermo regulator for a particular room and the 3D-model in this room has this cube appropriately named and depicted, then the touch panel screen will show data from this regulator when navigated to the room. Naming subgroups: Q - cube

CCTV camera

Depicted as the camera body and the beam, indicating the direction of the camera. Naming subgroups: F - housing, Z - beam, L - cube (is not displayed on-screen of touch panel, is intended for use in-product).



After importing the model in T-Studio you can change all the names in the way you want the user to see them. This order of naming is needed only for correct import of the model from SketchUP to T-Studio.

Template

The simplest way to create new models, both in terms of the geometry of objects, and in the sense of naming is to use as examples of finished projects. You can use as an example these [SketchUP files](#).

Export to COLLADA file

Before loading the model in T-Studio it is necessary to export it from the SketchUp format to COLLADA: File -> Export -> 3D-model ...

In the export settings have to be checked 'Break all the faces into triangles'.