

HORIZONE SERVER

IN00B02WEB

KNX CONFIGURATION MANUAL



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Any information in this manual may be changed without notice.

This manual can be downloaded free of charge from the website: www.eelectron.com

Exclusion of responsibility:

Although the contents of this manual have been checked to ensure that they correspond to the hardware and software indicated in the title, changes may, however, be made. Consequently, Eelectron assumes no responsibility therein.

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INTRODUCTION

Safety Information

This manual contains the information necessary to safely operate the device. Anyone interacting with the device must first have read this documentation, especially this safety information. This document supplements and does not replace any safety laws or directives.

The device has been developed using state-of-the-art technologies and following current safety regulations; it is, however, not possible to totally exclude all possible damage or interaction with other devices during its operation. The device complies with EMC guidelines and harmonised European standards; any changes to the device may affect EMC compatibility.

The supply voltage must be strictly within the range indicated in this manual and on the device; danger of fire or explosion if power is supplied outside this range. The equipment shall be powered by a limited power supply circuit whose isolation from the mains shall be not less than that between the primary and secondary circuits of a safety transformer according to IEC 61558-2-6 or equivalent.

The CE declaration of conformity of the device can be requested from Eelectron SpA, at the contacts on the website www.eelectron.com



In accordance with Directive 2002/96/EC, electronic devices must be disposed of in dedicated facilities and not in the collection of municipal solid waste.

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OVERVIEW

Introduction

HORIZONE SERVER is able to supervise a KNX home and building automation system through direct connection to the TP twisted pair, thanks to its integrated KNX interface. HORIZONE SERVER also supports connections to the KNX bus via KNX IP ROUTER in the case of systems with IP backbones.

All the power and flexibility of HORIZONE SERVER are available to the installer and end user to manage home and building automation functions freely from any device, both locally and remotely; KNX commands can be entered into graphics pages, scenarios, logics, schedules, etc. and interact with other technologies managed by HORIZONE SERVER, helping to create a unique browsing experience of the smart building.

Purpose of this document

This manual contains all the information you need to install, configure and use the specific features of KNX technology onboard HORIZONE SERVER.

It assumes a good knowledge of both KNX technology and HORIZONE SERVER. Some sections of this document refer to general concepts of supervision that can be found in the following manuals, all freely available for download on the company website.

- HORIZONE - INSTALLATION MANUAL
- HORIZONE – USER MANUAL

Requirements

In order to manage a KNX system with HORIZONE SERVER, you must have:

- A HORIZONE SERVER (upgraded to version 1.0 or higher)
- A physical connection to the KNX twisted-wire bus cable or, alternatively, the ability to communicate via TCP/IP with an IP router

Installation

HORIZONE SERVER can be connected to a KNX system in two ways:

- Direct connection to the twisted-wire bus cable
- IP backbone connection via a KNX IP ROUTER

For direct connection, use the standard red-black terminal provided to connect to the bus, taking care to respect the correct polarity.

For communication via KNXNET/IP, HORIZONE SERVER and IP router must be on the same network, and multicast/broadcast traffic must be enabled.

IMPORT FROM ETS

Introduction

HORIZONE SERVER can import the project created in ETS completely automatically to speed up the creation of KNX objects. You can also import repeatedly in the same project after making changes in ETS; HORIZONE SERVER interprets the changes and only makes the necessary adjustments to the supervision, without losing any previous configurations.

Supported formats

You can import the project from ETS in the following formats:

FORMAT	DESCRIPTION	RESTRICTIONS
ESF + PHD	Export for OPC	
CSV	Export group addresses	Contains only the list of group addresses; information on the type of data to be entered by hand, if any

To generate export files in **ESF / PHD format**, select the “EXPORT TO OPC SERVER” entry in ETS. This procedure generates two files with the following extension:

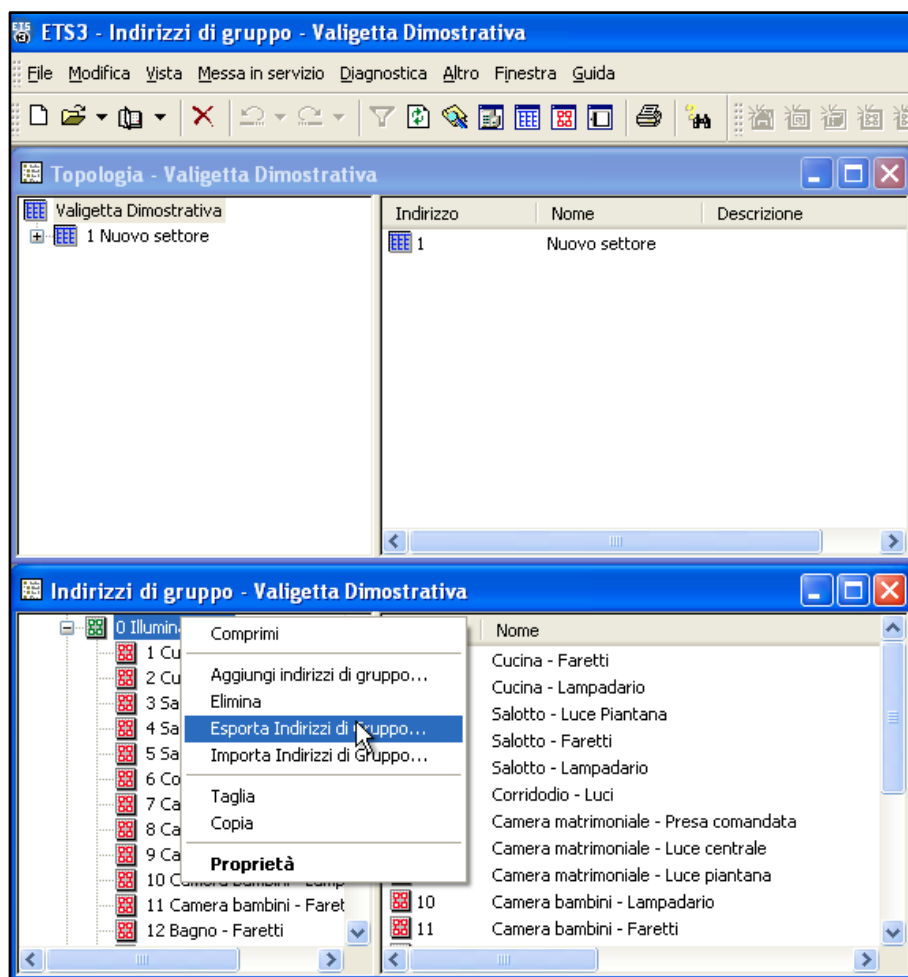
ESF	Contains group addresses, their labels, and relationships with other group addresses
PHD	Contains the physical addresses of the devices in the project

HORIZONE SERVER can import KNX addresses from a **CSV file** as follows:

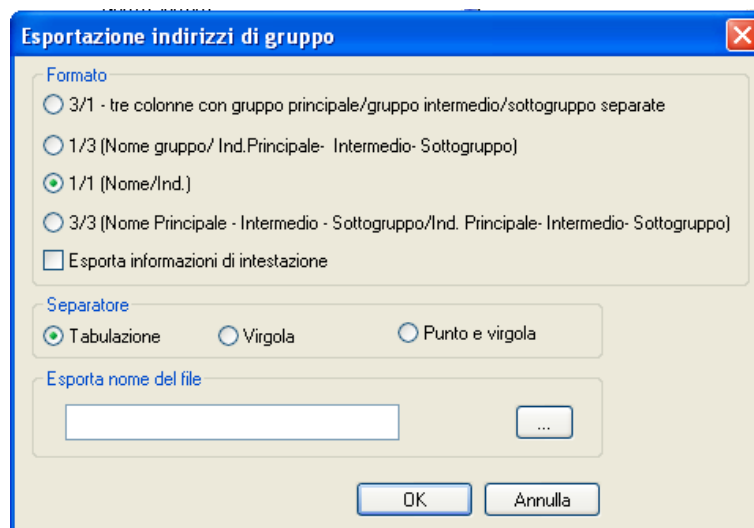
- Tab as column separator
- Label of group addresses in the first column
- Group address in second column
- Bit length in third column

This type of file can be generated manually (for example, by using Microsoft Excel) or automatically by ETS software. In the latter case, it is necessary to:

- Select the branch of group addresses that you want to export
- Select “EXPORT GROUP ADDRESSES” from the context menu



- Specify the following options:
 - Data organized into 2 columns (label + address)
 - Tab separation between columns



Importing from CSV can also be convenient to quickly create new KNX objects within HORIZONE SERVER without necessarily going through ETS: simply fill in the label and group address information in a new file and start the import procedure.

ETS Rules

To speed up the process of importing from ETS, HORIZONE SERVER uses a set of rules to automatically customize objects created from information in your project.

Before importing the ETS project, you should take a few minutes to familiarize yourself with these rules, because they can greatly reduce the time required for subsequent customization of objects.

To edit ETS rules, go to the TECHNOLOGIES section → KNX → ETS RULES: the following page is displayed, containing the list of all the default rules for importing from ETS.



Rules search for one or more keywords within group address names and automatically assign the correct data encoding (required for supervision to work properly) and graphical appearance of the corresponding objects.

Each rule consists of the following information:

KEYWORDS	One or more words (or partial text) to be searched for within the names assigned in ETS to group addresses. To specify more than one word, separate them with a comma; the space is searched for within the ETS project, thus allowing greater granularity in the composition of the rules
TYPE	Length (in bits/bytes) used in KNX addresses to be searched for within the ETS project
ENCODING	Type of encoding to be used in HORIZONE SERVER to correctly interpret the data in transit on the KNX bus (depends on the length of the data specified in the "TYPE" field)
FUNCTION	Category in which to place objects created by HORIZONE SERVER when importing KNX addresses that meet the ETS rule search criteria
ICON	Icon (or set of icons) to be used for graphical representation of objects that meet the rule search criteria

The rule must be interpreted as follows: If HORIZONE SERVER finds a group address that contains at least one of the KEYWORDS specified in the rule name, that has the data length specified as the TYPE, it adopts the ENCODING specified in the rule for writing/reading information about the KNX bus and automatically assigns the FUNCTION and ICON chosen for the graphical representation of the corresponding object.

Importing the project

Starting the procedure

Whatever file format you want to use for importing, you must:

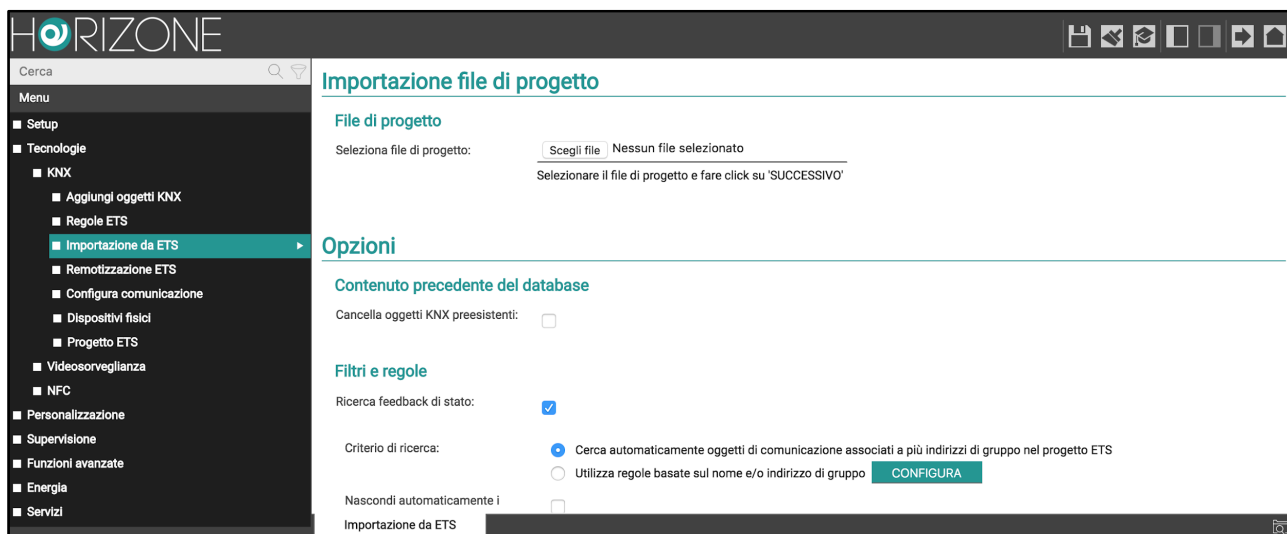
- Go to the HORIZONE SERVER ADMINISTRATION section
- Select TECHNOLOGIES → KNX → IMPORT FROM ETS
- Use the BROWSE button to select the file previously exported from ETS on your PC.
- Set the import options as outlined below, then press the “NEXT” button to start the procedure

The “BASIC” access level provides the following options:

CLEAR PRE-EXISTING KNX OBJECTS	Deletes any previously imported KNX objects. Rooms, scenarios, etc. are not removed.
SEARCH STATUS FEEDBACK	Enable automatic search for status feedback within the project, as further detailed below
CHOOSE WHICH ADDRESSES TO IMPORT	<p>This entry allows you to selectively select which ETS project addresses to import.</p> <p>NOTE: This option is automatically activated if an ETS project, containing more KNX addresses than your license allows, is detected during import.</p>

The “ADVANCED” access level also allows you to specify the following:

DELETE OBJECTS NOT IN THE PROJECT	Selecting this item automatically deletes pre-existing objects in HORIZONE SERVER that no longer have a match in the imported ETS project
UPDATE LABELS UPDATE ETS FLAG	<p>When updating a previously imported project to HORIZONE SERVER, these two options allow you to determine whether or not read/write names and flags should be aligned with the new project.</p> <p>Unselect these options if, in the meantime, you have made customisations, since the previous project import, that have not also been reflected in the ETS project.</p>
COMMUNICATION PORT	Allows you to determine which communication channel HORIZONE SERVER should use to communicate with the new imported KNX addresses. Only the KNX port built into the web server is available as an option, except for special configurations.



If you select an ESF file, you are automatically prompted to upload the corresponding PHD file as well. It is not mandatory to upload the PHD file; if you do not, HORIZONE SERVER will not be able to monitor the status of the physical devices present in the system, as detailed below.

Finding status feedback

As indicated, there may be group addresses within the ETS project that are intended solely for sending status feedback on the bus, in the event of changes in the status of actuators or similar devices.

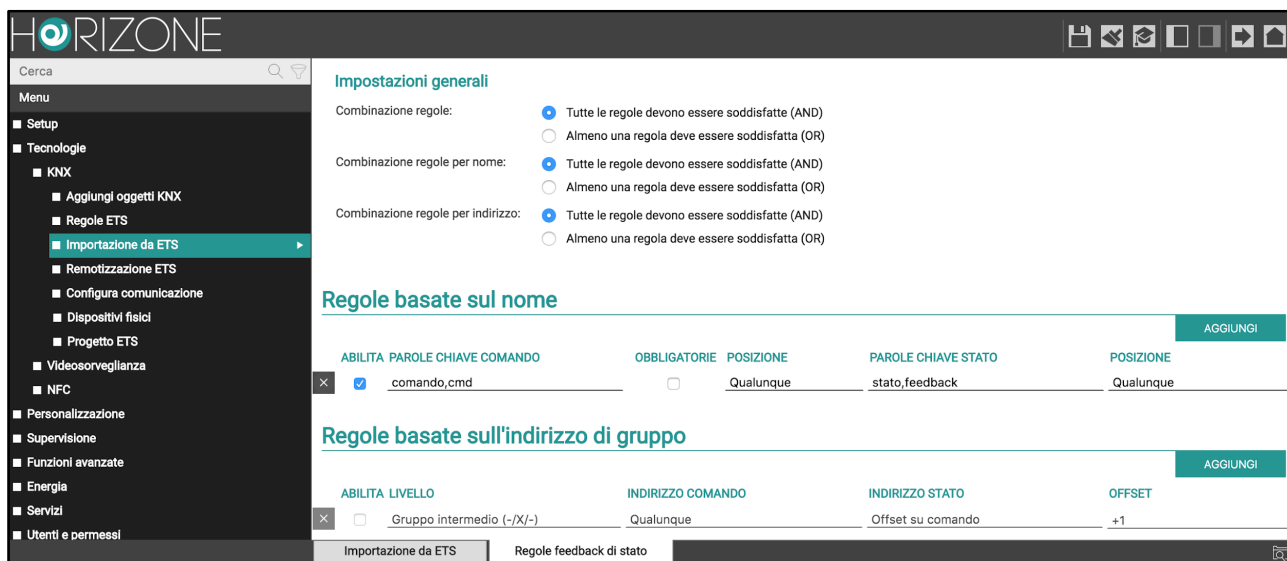
These addresses do not usually have to be displayed in the supervision, but conversely, they should be “associated” with the command group addresses of the corresponding actuators, so that HORIZONE SERVER also remains aligned if changes are made to the status of the latter.

HORIZONE SERVER provides two distinct status feedback search algorithms:

- Automatically search for communication objects associated with multiple group addresses in the ETS project
- Use rules based on group name and/or address

In the first instance, communication objects belonging to more than one group address are searched for during import; a relationship is created, for each communication object, between the KNX object representing the first group address (identified as “principal”, typically used for the command) and the KNX objects associated with the other group addresses (typically, status feedback, but also any multiple commands involving the same actuator).

The second method allows you to define a set of custom rules with which to search for associations between group addresses and create the resulting relationships between KNX objects within the supervision. Press the “CONFIGURE” button to define import rules: the following page is displayed...



... that allows you to create one or more rules, of two types:

NAME-BASED RULES	Status feedbacks are searched for among objects whose names differ from the command for one or more keywords.
ADDRESS-BASED RULES	Feedbacks are searched for based on the KNX address, which must be related to the respective command in some way

Rules can be defined and not activated by unselecting the appropriate “ENABLE” checkbox; in this instance, their definition remains stored in the project, but is not used during import.

If you define (and activate) multiple rules, you can decide whether they should work in OR or in AND, using the appropriate options at the beginning “RULE COMBINATION”; you can establish an AND/OR criterion within the rules by name (if more than one), by address, and cumulatively between the two types of rules, for maximum flexibility.

Name-based rules work like this: you can specify one or more words to be searched for in command objects, which will be removed to search for their status; if these words are mandatory, the “required” option must be selected. You must then specify one or more words to search for in status objects, specifying (as in the case of command keywords) whether they should be at the beginning, end, or anywhere in the ETS name.

The search automatically ignores a series of "special" characters:

- space
- -
- _
- +
- ,
- ;
- .

The **rules based on the** address, in the other hand, firstly provide a possible filter on the command address; by choosing “any” then they are all good, otherwise it is possible to establish a filter on the command address (based on the level - 1, 2 or 3 - of the KNX address on which the rule operates). The status address can be “any”, “equal to command” or “offset on command”, in the latter instance, a positive or negative offset must be chosen.

Here are some examples:

- same name with an extra “status” or “feedback” (possibly replacing “command” or “cmd”);
- KNX address shifted by 1 to an intermediate address with the same “main group” and “address group” (i.e. the first and third address numbers).

By combining multiple rules, you can achieve more powerful filters: e.g. if you have a project in which the statuses have been shifted by 1 as an intermediate address and 10 as a group address, i.e...

0/0/1 -> 0/1/10
0/0/2 -> 0/1/11

... you can create two address rules, putting AND as a combination.

Conversely, if you have different intermediate addresses that reason differently, you create rules in OR by also putting a filter on the command address, e.g. if you have the intermediate address 0 that has statuses in intermediate 1 and intermediate 2 that has them in 4...

The default configuration includes an active name-based rule, which typically searches for status addresses with the same command name and the keywords “status” or “feedback”, in addition to the command name or possibly replacing the keywords “command” or “cmd” (see previous examples).

In addition, by way of example, an offset rule on group addresses is available, but not active.

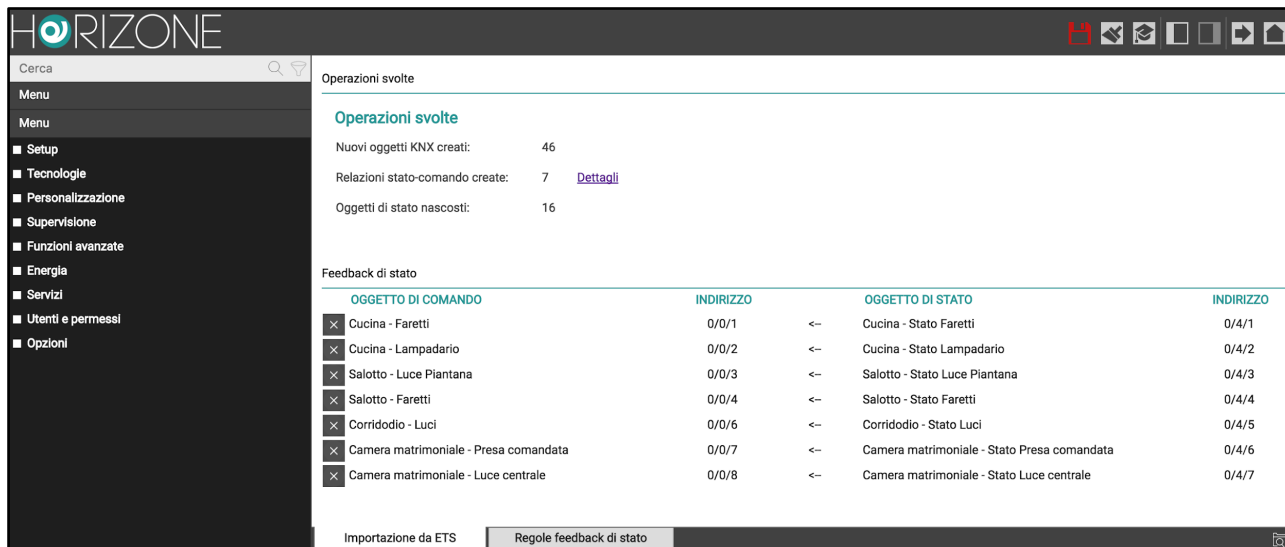
In addition to choosing the status feedback search criteria, you can also set the following options:

AUTOMATICALLY HIDE STATUS FEEDBACKS	Selecting this option automatically hides KNX objects identified as status feedback from other KNX objects, so they are not visible in supervision (but can still be searched for in “ADVANCED” mode)
CLEAR PRE-EXISTING STATUS RELATIONSHIPS	This option allows you to completely remove any previously created status – command relationships and replace them entirely with those identified in the new import. Otherwise, previous relationships are maintained.

Importing

After configuring the general parameters and search criteria of the status feedback, pressing the NEXT button starts the actual import procedure.

At the end, a detailed summary of all the status-command associations performed is proposed, with the possibility of selectively deleting one or more of these relationships, if they do not respond to the desired behaviour (the list is visible by selecting the “details” link):



Operazioni svolte

Nuovi oggetti KNX creati: 46

Relazioni stato-comando create: 7 [Dettagli](#)

Oggetti di stato nascosti: 16

Feedback di stato

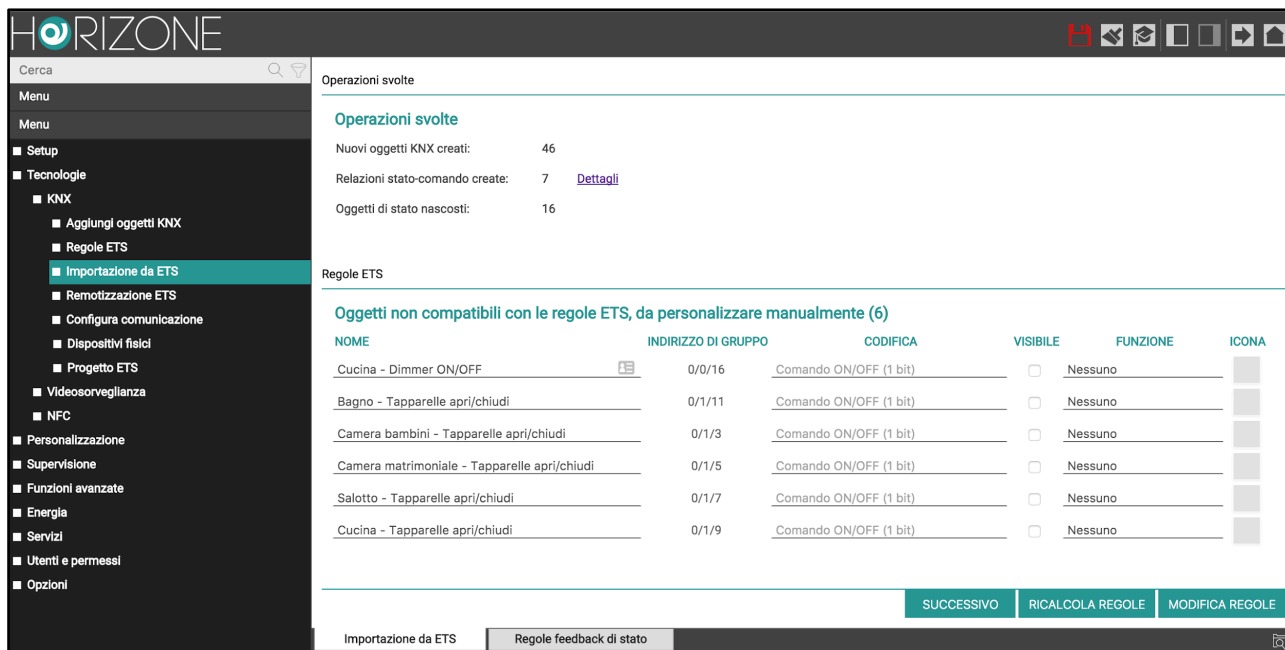
OGGETTO DI COMANDO	INDIRIZZO		OGGETTO DI STATO	INDIRIZZO
<input checked="" type="checkbox"/> Cucina - Faretto	0/0/1	<-	Cucina - Stato Faretto	0/4/1
<input checked="" type="checkbox"/> Cucina - Lampadario	0/0/2	<-	Cucina - Stato Lampadario	0/4/2
<input checked="" type="checkbox"/> Salotto - Luce Piantana	0/0/3	<-	Salotto - Stato Luce Piantana	0/4/3
<input checked="" type="checkbox"/> Salotto - Faretto	0/0/4	<-	Salotto - Stato Faretto	0/4/4
<input checked="" type="checkbox"/> Corridorio - Luci	0/0/6	<-	Corridorio - Stato Luci	0/4/5
<input checked="" type="checkbox"/> Camera matrimoniale - Presa comandata	0/0/7	<-	Camera matrimoniale - Stato Presa comandata	0/4/6
<input checked="" type="checkbox"/> Camera matrimoniale - Luce centrale	0/0/8	<-	Camera matrimoniale - Stato Luce centrale	0/4/7

Importazione da ETS Regole feedback di stato

The two columns on the right show the KNX objects interpreted as status feedback (label and group address), while the two columns on the left show the relative command objects, to which the statuses have been associated.

Application of ETS rules

If the ETS project contains group addresses that do not comply with ETS rules, they are listed in the summary phase, so that they can be handled before you finish the procedure:



Operazioni svolte

Nuovi oggetti KNX creati: 46

Relazioni stato-comando create: 7 [Dettagli](#)

Oggetti di stato nascosti: 16

Regole ETS

Oggetti non compatibili con le regole ETS, da personalizzare manualmente (6)

NOME	INDIRIZZO DI GRUPPO	CODIFICA	VISIBILE	FUNZIONE	ICONA
Cucina - Dimmer ON/OFF	0/0/16	Comando ON/OFF (1 bit)	<input type="checkbox"/>	Nessuno	
Bagno - Tapparelle apri/chiedi	0/1/11	Comando ON/OFF (1 bit)	<input type="checkbox"/>	Nessuno	
Camera bambini - Tapparelle apri/chiedi	0/1/3	Comando ON/OFF (1 bit)	<input type="checkbox"/>	Nessuno	
Camera matrimoniale - Tapparelle apri/chiedi	0/1/5	Comando ON/OFF (1 bit)	<input type="checkbox"/>	Nessuno	
Salotto - Tapparelle apri/chiedi	0/1/7	Comando ON/OFF (1 bit)	<input type="checkbox"/>	Nessuno	
Cucina - Tapparelle apri/chiedi	0/1/9	Comando ON/OFF (1 bit)	<input type="checkbox"/>	Nessuno	


Importazione da ETS | Regole feedback di stato

SUCCESSIVO | RICALCOLA REGOLE | MODIFICA REGOLE

These objects have, therefore, been created within the project, but are provisionally marked as *not visible*, to prevent them from being incorrectly displayed in supervision before they have been properly configured.

If the ENCODING field contains more than one option, you must select the most appropriate one to ensure proper communication of HORIZONE with KNX devices. Once you have made this choice, you can:

- Specify a reference FUNCTION, which is the category in which the new object will be inserted
- Select the most appropriate ICON by pressing the corresponding preview button and selecting the most appropriate one in the pop-up window that is displayed



Nuovi oggetti KNX creati: 46

Relazioni stato-comando create: 7 [Dettagli](#)

Oggetti di stato nascosti: 16

Regole ETS

Oggetti non compatibili con le regole ETS, da personalizzare manualmente (6)

NOME	INDIRIZZO DI GRUPPO	CODIFICA	VISIBILE	FUNZIONE	ICONA
Cucina - Dimmer ON/OFF	0/0/16	Comando ON/OFF (1 bit)	<input checked="" type="checkbox"/>	illuminazione	
Bagno - Tapparelle apri/chiedi	0/1/11	Comando ON/OFF (1 bit)	<input type="checkbox"/>	Nessuno	
Camera bambini - Tapparelle apri/chiedi	0/1/3	Comando ON/OFF (1 bit)	<input type="checkbox"/>	Nessuno	
Camera matrimoniale - Tapparelle apri/chiedi	0/1/5	Comando ON/OFF (1 bit)	<input type="checkbox"/>	Nessuno	
Salotto - Tapparelle apri/chiedi	0/1/7	Comando ON/OFF (1 bit)	<input type="checkbox"/>	Nessuno	
Cucina - Tapparelle apri/chiedi	0/1/9	Comando ON/OFF (1 bit)	<input type="checkbox"/>	Nessuno	

Importazione da ETS | Regole feedback di stato

SUCCESSIVO | RICALCOLA REGOLE | MODIFICA REGOLE

If the list contains a large number of objects with a similar name that were not initially included in ETS rules, you can still enter a new rule - or modify an existing rule - at this stage to automate the recognition of new objects.

To do this:

- Press the "EDIT RULES" button; the ETS rules page opens in another TAB
- Modify ETS rules as needed
- Return to the ETS import TAB and press the "RECALCULATE RULES" button
- Repeat the procedure if necessary

Once all objects have been configured, press "NEXT" to finish importing.



The software allows you to end the import procedure without assigning a graphical icon to one or more objects; however, this choice is not recommended, as these objects will not be displayed correctly once they are entered in the supervision graphics pages. You can still change the icon (and hence the graphic appearance) of the imported objects later, through their tab.

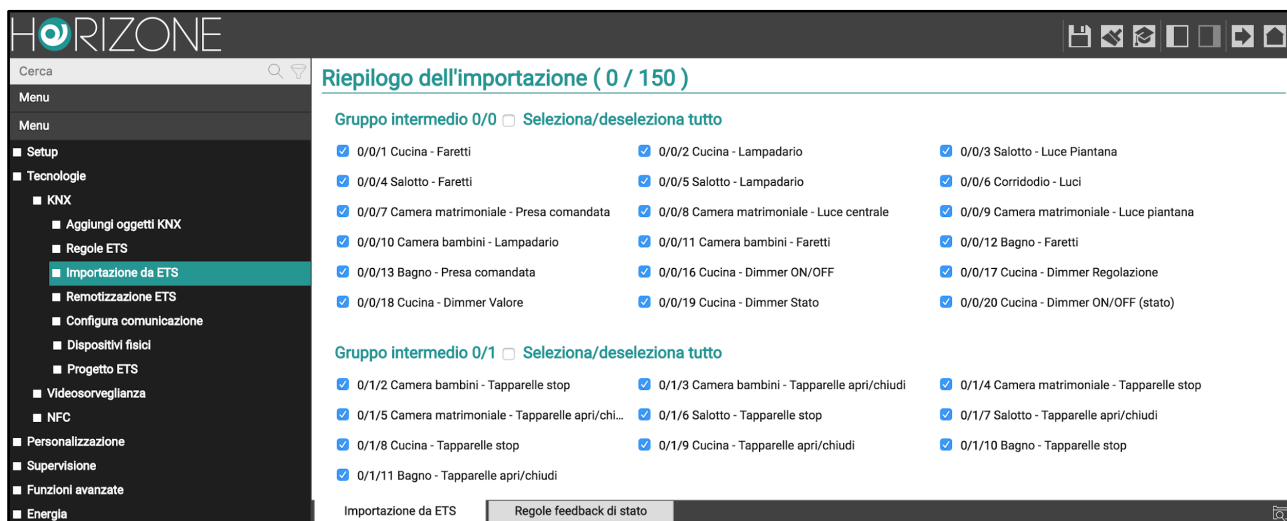
At the end of the procedure, the imported objects are available in the section of the navigation tree under TECHNOLOGIES → KNX → ETS PROJECT; the tree structure of this section replicates the hierarchy of KNX addresses present in the ETS project and can be used to selectively access the configuration tabs of KNX objects created in the software by the import procedure.

Selective import

You can import only a portion of an ETS project by manually choosing which KNX group addresses to transform into HORIZONE SERVER objects. This can be useful when:

- The project has already been imported previously and only targeted changes have been made to a subset of addresses and you do not want to lose any customisations applied to the other addresses within the supervision
- Certain addresses in the ETS project should not be managed by supervision
- The number of addresses in the ETS project exceeds those which can be managed by HORIZONE SERVER based on the version/ license

To enable this mode, select the CHOOSE WHICH ADDRESSES TO IMPORT option before starting the procedure; a list of the group addresses in the project is shown, divided by intermediate group:

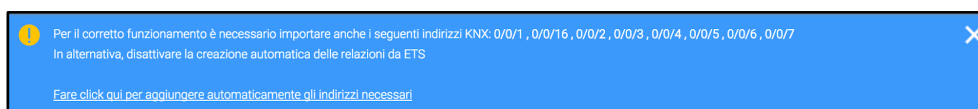


This import mode is automatically activated when the project exceeds the address limits which can be managed by the version of HORIZONE SERVER.

At the beginning of this section, the number of selected addresses (plus any previously imported ones) and the limit set by the version of HORIZONE SERVER are indicated; by selecting one or more addresses (or the entire group of addresses), the counter is recalculated, showing how many addresses are still available at all times.

Once the selection of the objects has been completed, pressing the “NEXT” button starts the import procedure; if it is completed correctly, the summary and any list of objects not covered by the ETS rules is presented, as previously seen.

Not all the KNX addresses may be selected for a successful import since some of the selected objects depend on other unselected addresses (e.g. multiple commands, status feedback, etc.). In this case, a message is displayed as in the following example:



You can then:

- Include all addresses automatically by clicking on the link at the bottom of the message
- Manually include some of them by locating them in the list of addresses in the project
- Enable ADVANCED access level and disable “CREATE AUTO-RELATIONS”

KNX OBJECTS

Creating objects manually

As an alternative to the ETS import procedure described above, you can manually enter KNX objects into the supervision. This method is useful when you need to make minor changes to your project; if you need to create a large number of objects, you should always use the import procedure.

To manually enter one or more KNX objects, go to the

TECHNOLOGIES → KNX → ADD KNX OBJECTS page

Pressing the ADD button creates a new row in the list of KNX objects (initially empty), in which you can specify:

NAME	Text label that identifies the new address in the project
W / R	Enable flags for write and read respectively Specifies whether the new group address to be created should be enabled in command and/or read.
COMMAND ADDRESS	If the W flag is active, enter the group address for the command (towards the KNX bus) in the 3-level format (X/Y/Z)
STATUS ADDRESS	If the R flag is active, enter the group address for reading from the KNX bus in the 3-level format (X/Y/Z) <i>NOTE: this field is optional if the W flag is also active. In this case, it means that the group address to be created must be used to send the command, but also to read the status. (*)</i>
LENGTH	Select the length, from those available, of the KNX telegram data for the group address you want to create. (*)
ENCODING	Depending on the <i>length</i> you choose, select the most suitable encoding for the data sent or received on the group address you want to create. (*)
FUNCTION	Choose a membership category for the objects you want to create, from those available. Choosing the function also filters the list of available <i>renderings</i>
RENDERING	Select a graphic to use to represent the objects you want to create within supervision. The list of renderings depends on the encoding type chosen

and the function selected; you can also extend the default rendering set, as shown in the INSTALLATION MANUAL.

(*) **NOTE:** These choices must be consistent with what is specified in the ETS project.



Specifying a dual address (command and status) creates two KNX objects, one for each of the addresses. The KNX status object will also be automatically associated with the command address. This association allows the graphical KNX object in HORIZONE SERVER to send commands on the command group address, while still listening and updating via the telegrams it receives at the status group address.

Once you have compiled the list of all the group addresses you want to add, press the SAVE button to start the creation process and wait for it to complete.

Once you receive the confirmation message that the procedure has been completed, you can repeat it to add new addresses.

The new objects are listed in the ETS PROJECT section of the side menu, similar to what happens downstream of an import from ETS, as detailed below.

Searching for objects

KNX objects created by the import procedure or manually are available in the

TECHNOLOGIES → KNX → ETS PROJECT section

grouped according to the hierarchical structure of the corresponding group addresses in ETS:



Alternatively, you can search for KNX objects with the search engine, using their group address or the name (or part of it) as keywords.

In both cases, you can access the details tab of the objects, through the “three dots” next to the corresponding item.

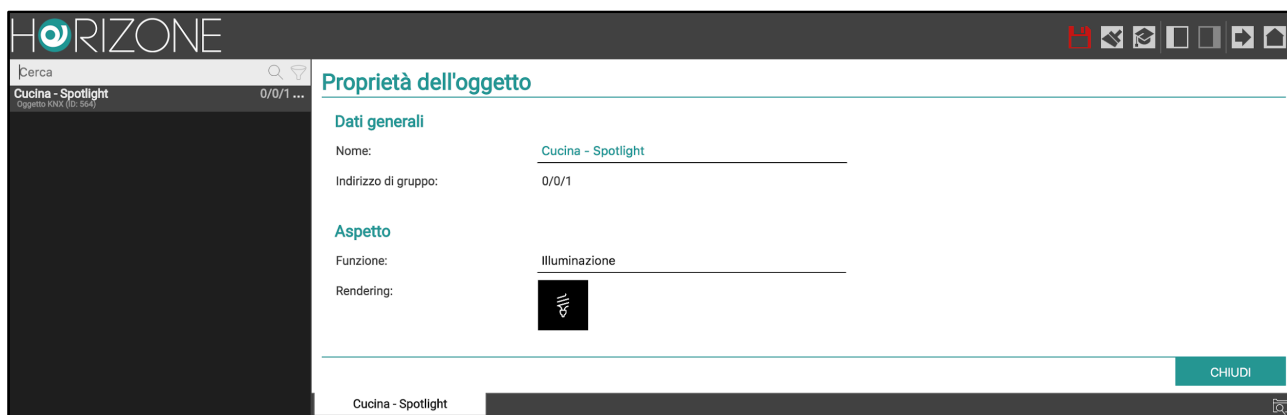
Detail tab

By accessing the detail tab of a KNX object, it is possible to modify its properties both in general terms (communication with the bus, graphic appearance, permits, etc.) and in interaction with any other supervisory objects.

The first part of the tab shows the object-specific properties; the following entries are available in the “BASIC” view:

NAME	Identifier name of the object in the supervision. Initially, the same as the name of the corresponding KNX group address in the ETS project, it can be customised as desired
GROUP ADDRESS	The primary KNX group address used by this object to communicate with the bus (cannot be edited in the tab here).
FUNCTION	Category in which to enter the object; the choice also determines the filter for the following choice of icon. You can also choose “none” if you do not want the object to be shown in any function.
RENDERING	Allows you to select the <i>rendering</i> via a pop-up window to be used for the graphic representation of the object in the supervision pages (FRONTEND). The choice of renderings depends on the type of KNX object and FUNCTION chosen (specify “none” as a function to display all possible icons/renderings).

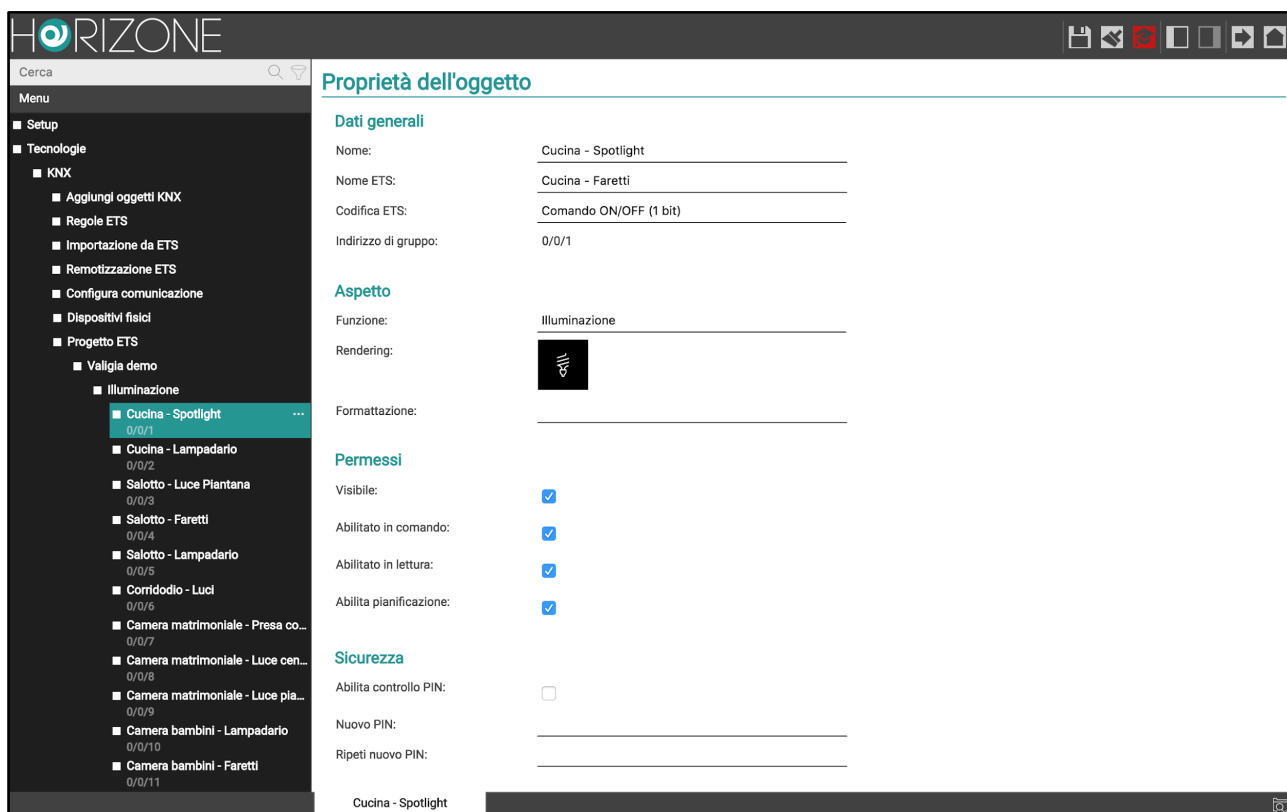
For information on how to customise the list of *renderings*, see the section in this manual.



Activating the “ADVANCED” access level makes the following properties available in the tab:


ID	Unique number identifying the object
ETS NAME	The name of the reference group address in the ETS project. The contents of this field can be specified as a keyword in the search engine.
ETS ENCODING	Allows you to determine which encoding should be used by HORIZONE SERVER to communicate with this group address on the KNX bus. NOTE: edit this field carefully, otherwise supervision may malfunction if the choice does not correspond to the settings in KNX devices
FORMATTING	Allows you to force the formatting of the numeric value, using the encoding “sprintf”; for example: %s → Value not changed %0.2f → Value rounded to two decimal places %0.1f°C → Value to 1 decimal place followed by “°C” This encoding overrides any encoding set by the <i>rendering</i>
VISIBLE	Allows you to determine whether or not the object should be visible on the supervision pages.
ENABLED IN COMMAND	Allows you to control the object through the supervision pages. Normally, this is set automatically by the ETS import; disable it to make the object view-only even if could be controlled. NOTE: to activate the command on objects which are initially read-only, change the type of communication with the corresponding KNX address

	(see below) as well; this operation may result in KNX system malfunctions
ENABLED IN READING	Reads the updated status from the KNX bus. This flag is usually always enabled.
ENABLE SCHEDULE	Determines whether or not the object should be scheduled in the FRONTEND by the end user
ENABLE PIN CONTROL	Specifies whether the KNX object command should be protected with a numeric PIN
NEW PIN REPEAT NEW PIN	If the previous entry is enabled, it allows you to specify the security PIN (to be repeated twice)



The screenshot displays the HORIZONE web interface. On the left is a dark sidebar menu with a search bar and a list of categories: Setup, Tecnologie, and KNX. Under KNX, there are sub-items like 'Aggiungi oggetti KNX', 'Regole ETS', 'Importazione da ETS', 'Remotizzazione ETS', 'Configura comunicazione', 'Dispositivi fisici', 'Progetto ETS', 'Valigia demo', and 'Illuminazione'. The 'Illuminazione' category is expanded, showing a list of objects including 'Cucina - Spotlight' (0/0/1), 'Cucina - Lampadario' (0/0/2), 'Salotto - Luce Piantana' (0/0/3), 'Salotto - Faretti' (0/0/4), 'Salotto - Lampadario' (0/0/5), 'Corridorio - Luci' (0/0/6), 'Camera matrimoniale - Presa co...' (0/0/7), 'Camera matrimoniale - Luce cen...' (0/0/8), 'Camera matrimoniale - Luce pia...' (0/0/9), 'Camera bambini - Lampadario' (0/0/10), and 'Camera bambini - Faretti' (0/0/11). The 'Cucina - Spotlight' object is selected and highlighted in green.

The main content area is titled 'Proprietà dell'oggetto' (Object Properties) and is divided into four sections:

- Dati generali** (General Data):
 - Nome: Cucina - Spotlight
 - Nome ETS: Cucina - Faretti
 - Codifica ETS: Comando ON/OFF (1 bit)
 - Indirizzo di gruppo: 0/0/1
- Aspetto** (Appearance):
 - Funzione: Illuminazione
 - Rendering: 
 - Formattazione: (empty field)
- Permessi** (Permissions):
 - Visibile: ☒
 - Abilitato in comando: ☒
 - Abilitato in lettura: ☒
 - Abilita pianificazione: ☒
- Sicurezza** (Security):
 - Abilita controllo PIN: ☐
 - Nuovo PIN: (empty field)
 - Ripeti nuovo PIN: (empty field)

At the bottom of the main area, the selected object 'Cucina - Spotlight' is displayed.

Group addresses

By enabling the “ADVANCED” access level, you can manage the KNX group addresses with which the KNX object interacts. Depending on the structure of the ETS project, this section can have one or more entries, depending on whether or not the status of this object is affected, in addition to the “main” group address from which it originated, also by other addresses (e.g. status feedback, multiple commands etc...).

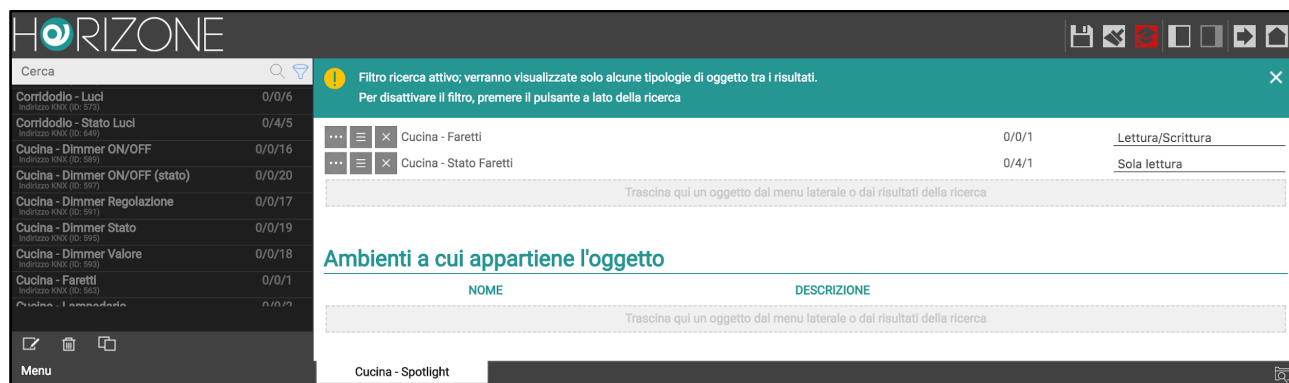
It is possible to determine for the different group addresses which type of communication to allow, choosing between “READ-ONLY”, “WRITE-ONLY” or “READ/WRITE”; edit these settings taking care to maintain consistency with the ETS project.



HORIZONE SERVER can only send commands to one of the KNX group addresses indicated in this list, so be careful that only one of these is write-enabled.

You can add KNX group addresses that must affect the status of the graphic object, if they have not been entered automatically by the ETS import procedure. To do this:

- Click on the title of the “KNX group addresses” section to activate the search filter, which then shows the list of KNX addresses
- Filter the list, if necessary, by entering the desired group address, or part of it
- Drag the desired address to the KNX address list on the tab
- Set the permission type (typically, “READ-ONLY” by adding a KNX address that affects the state of an object already associated with other addresses)
- When finished, **remove the search filter** by pressing the filter symbol next to the search field



The order of KNX addresses in this list is important because HORIZONE SERVER uses the first entry to establish a series of graphical information about the object. It is, therefore, advisable to make sure that the first item in the list is, in fact, the main group address with which the object must interact, changing the order of the addresses using the “SORT” button, if necessary and then, dragging them into the correct order.

Rooms and scenarios

The “ROOMS TO WHICH THE OBJECT BELONGS” section provides a summary of the rooms in which the current object is present; the same object can be present in multiple rooms at the same time, as well as in no room (which happens when you configure supervision for the first time).

Similarly, the “SCENARIOS THAT CONTROL THE OBJECT” section shows the list of scenarios that contain the current one, in addition to any other objects.

Refer to the **INSTALLATION MANUAL** for further details on rooms and scenarios.

Connections

The following sections of the tab allow you to create functional relationships (called “EVENTS” in the software) with other supervision objects:

OUTPUT CONNECTIONS	Drag objects here that you want to control when the current object changes status
INPUT CONNECTIONS	Drag objects here whose change of status should result in a command to the current object

In both cases, it is necessary to:

- Search for other objects that the current one should interact with through the search engine or the side tree
- Drag them to the appropriate section depending on the type of connection you want to configure

For each of the connections created in this way, you can specify:

CONDITION	Filter on the status of the object that generates the event; it can be a specific status (among those available) – in which case the event is executed only when the object assumes the selected value - or the generic “at every change in value”, which executes the event in any status that brings the object in question
ACTION	Depending on the target object type of the event, this field can have several values. For KNX objects, you can specify “WRITE” (so send a command on the bus) or “READ” (and send a status query command on the bus); for other objects, refer to the respective sections of the manual
VALUE	This field allows you to determine which value to set if the target object of the event envisages it, choosing it from those available for the object in question. You can also choose to automatically set the value of the object that causes the event to run, or to deny it.

Programmable events

This section contains the summary of **programmable events** to which the current object belongs. Refer to the INSTALLATION MANUAL for further information.

Schedules

This section allows you to create one or more **schedules** for the current object. Refer to the INSTALLATION MANUAL for further information.

KNX SCENARIOS

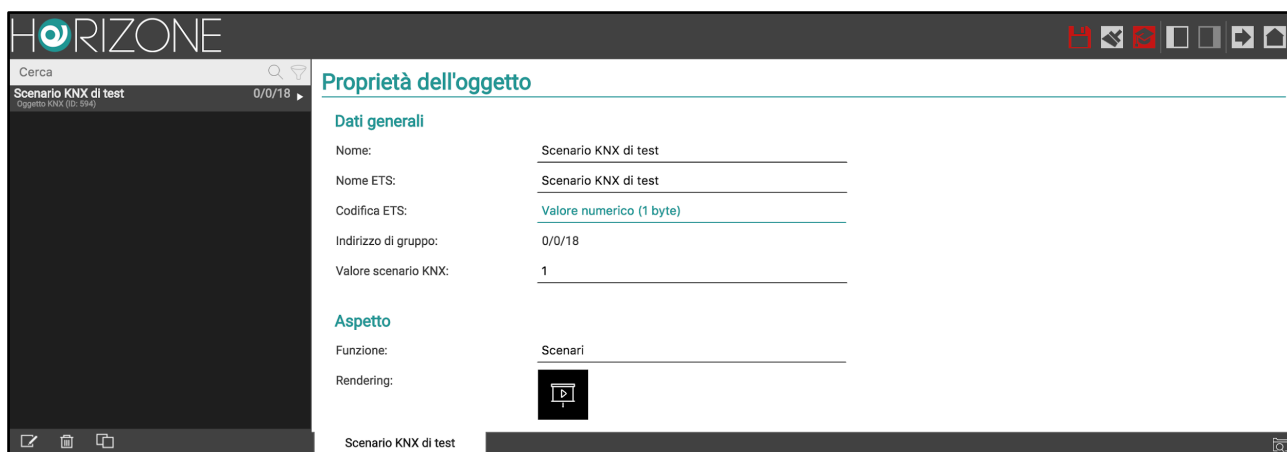
Introduction

1-byte KNX objects can be configured to operate in the ETS project as scenarios; in this case, the value sent on the bus is not a status but a number – typically between 1 and 64 – that identifies, in the KNX devices associated with the scenario, the configuration (previously stored) to which they must be taken, .

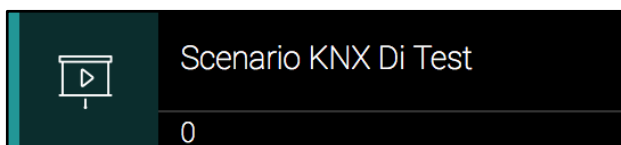
Configuring a KNX scenario

To configure a KNX object as a scenario within HORIZONE SERVER, you must:

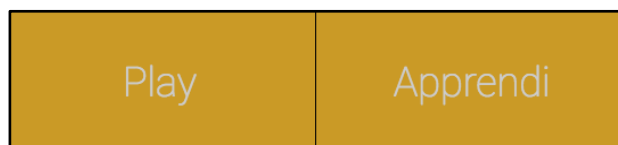
- Access its tab in the CONFIGURATION environment
- Enable ADVANCED access level
- Ensure ETS ENCODING is “numeric value (1 byte)”
- Select “SCENARIOS” as “FUNCTION” (if not available, temporarily change the ETS ENCODING to a different entry and select “numeric value (1 byte)” again)
- Select an ICON from those available for KNX scenarios through the appropriate pop-up window, as previously outlined
- Set the value to be sent on the KNX bus by pressing the scenario button in the “KNX SCENARIO VALUE” field that is only available by choosing the “SCENARIOS” function



After the configuration has been completed, the KNX scenario object looks like this:



KNX scenario when viewed in a room



Buttons available when you press the KNX scenario

Pressing the “PLAY” button sends the numerical value set in the configuration tab; the KNX devices associated (via ETS software) to the scenario automatically go to the last stored status for the scenario in question.

By pressing the “LEARN” button, on the other hand, the current status of the devices that are part of the scenario is stored, which also happens if you press and hold down the KNX buttons.

PHYSICAL DEVICES

Introduction

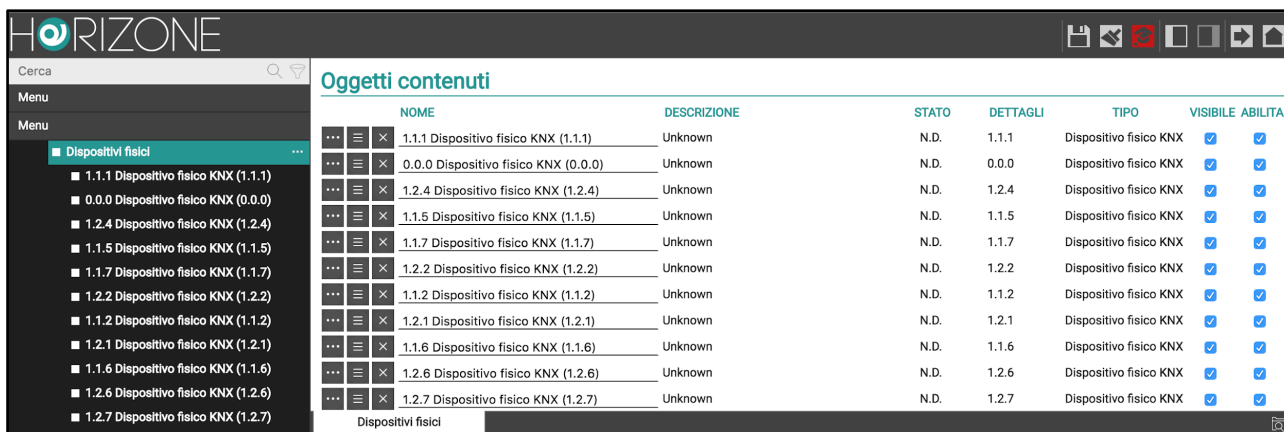
HORIZONE SERVER is able to manage the physical devices installed in the KNX system, monitoring the correct operating status during the life of the building and promptly reporting the failure to communicate one of them.

Device List

The physical devices present are imported automatically during the ETS import procedure; when finished, they are available on the

TECHNOLOGIES → KNX → PHYSICAL DEVICES page

(click on the “three dots” next to the menu item to access the list):



Oggetti contenuti		NOME	DESCRIZIONE	STATO	DETTAGLI	TIPO	VISIBILE	ABILITA
...	✕	1.1.1 Dispositivo fisico KNX (1.1.1)	Unknown	N.D.	1.1.1	Dispositivo fisico KNX	✓	✓
...	✕	0.0.0 Dispositivo fisico KNX (0.0.0)	Unknown	N.D.	0.0.0	Dispositivo fisico KNX	✓	✓
...	✕	1.2.4 Dispositivo fisico KNX (1.2.4)	Unknown	N.D.	1.2.4	Dispositivo fisico KNX	✓	✓
...	✕	1.1.5 Dispositivo fisico KNX (1.1.5)	Unknown	N.D.	1.1.5	Dispositivo fisico KNX	✓	✓
...	✕	1.1.7 Dispositivo fisico KNX (1.1.7)	Unknown	N.D.	1.1.7	Dispositivo fisico KNX	✓	✓
...	✕	1.2.2 Dispositivo fisico KNX (1.2.2)	Unknown	N.D.	1.2.2	Dispositivo fisico KNX	✓	✓
...	✕	1.1.2 Dispositivo fisico KNX (1.1.2)	Unknown	N.D.	1.1.2	Dispositivo fisico KNX	✓	✓
...	✕	1.2.1 Dispositivo fisico KNX (1.2.1)	Unknown	N.D.	1.2.1	Dispositivo fisico KNX	✓	✓
...	✕	1.1.6 Dispositivo fisico KNX (1.1.6)	Unknown	N.D.	1.1.6	Dispositivo fisico KNX	✓	✓
...	✕	1.2.6 Dispositivo fisico KNX (1.2.6)	Unknown	N.D.	1.2.6	Dispositivo fisico KNX	✓	✓
...	✕	1.2.7 Dispositivo fisico KNX (1.2.7)	Unknown	N.D.	1.2.7	Dispositivo fisico KNX	✓	✓

The list shows some information about the devices and, in particular, their operating STATUS, based on the polling query, as detailed below.

Polling enquiry

Physical device status queries are performed completely automatically, rotating on all devices to ensure minimal impact on bus traffic.

Depending on the outcome of the query, the devices can be in one of the following states:

N.A.	The device has not yet been queried or has never answered queries. May not be installed in the system
OK	The device responds to the HORIZONE SERVER queries correctly and, therefore, communicates correctly
TESTING IN PROGRESS	Device is undergoing repetitive query testing
NOT RESPONDING	The device (after communicating at least once) does not respond and, therefore, does not communicate correctly on the KNX bus

To avoid false signals, as long as a device does not respond to polling it remains in the “N.A.” state. (for example, if it has not been installed in the system) and no operation is carried out on it. If, on the other hand, a device responds to a query at least once (and its status is consequently changed to “OK”), if it then does not respond for more than 3 subsequent queries, it is signalled as abnormal (“NO RESPONSE”).

You can disable polling on one or more devices by doing the following:

- Select the “ENABLE” box on all devices you want to query (default)
- Alternatively, select or unselect the “QUERY PERIODICALLY” box on each of the tabs (as detailed below)
- When the selection is complete, restart the communication services using the following button:

SETUP > MAINTENANCE > RESTART COMMUNICATION SERVICES

Detail tab

By accessing the tab of the individual physical device, you can:

- Determine whether or not it should be queried periodically (“CHECK PERIODICALLY” option)
- If necessary, change your physical address with respect to what was imported from ETS
- Establish one or more ACTIVE CONNECTIONS that determine the actions taken when the device can no longer be reached or, conversely, when it becomes available

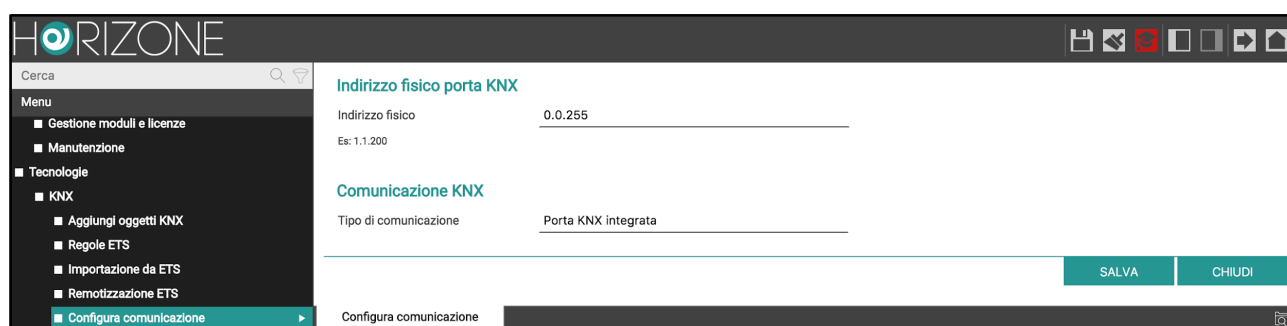
When created via import ETS, each device is accompanied by an on-screen “system” notification that automatically displays a message if the device in question can no longer be reached by polling. These notifications can be modified or deleted as desired.

SETTINGS

Introduction

You can specify general KNX communication operation settings by accessing the

TECHNOLOGIES → KNX → CONFIGURE COMMUNICATION page



Physical address with which HORIZONE SERVER communicates with the KNX bus, entering it in the appropriate field; the address must be specified in the X.Y.Z form respecting the limits imposed by the KNX protocol:

- First number between 0 and 15
- Second number between 0 and 15
- Third number between 0 and 255



Unlike most KNX devices, which must necessarily have a physical address consistent with that of the bus line in which they are installed, HORIZONE SERVER is able to communicate with all devices in the system regardless of their address.

Changing the address of HORIZONE SERVER is, therefore, mainly intended to avoid any conflicts with other devices and/or “order” within the KNX system.

It is also possible to determine whether HORIZONE SERVER should communicate with the KNX system directly, through the integrated communication port, or via an IP KNXNet/IP router; choose the desired method using the appropriate drop-down menu.

REMOTE CONTROL OF ETS

Introduction

HORIZONE SERVER offers the possibility to remotely control its communication port with the KNX bus for access via ETS, both on the local network and through the internet. In this way, you can use the web server to program KNX devices or diagnostics, without having to be physically connected with your PC to the system via a USB port or similar.



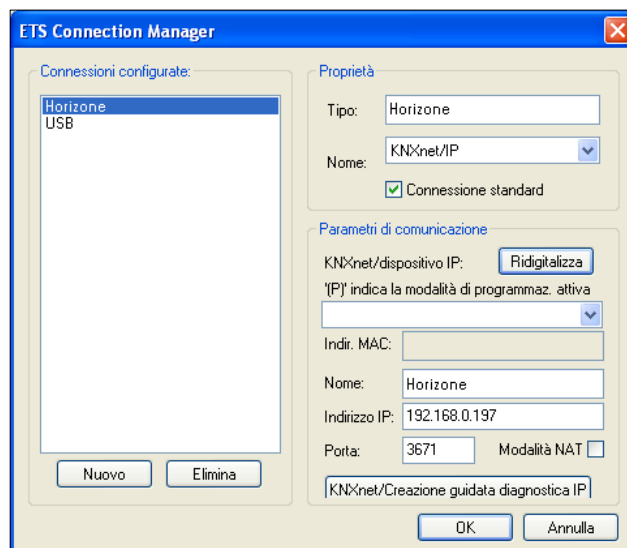
ETS remote control is currently unavailable for ETS5.

Local network usage

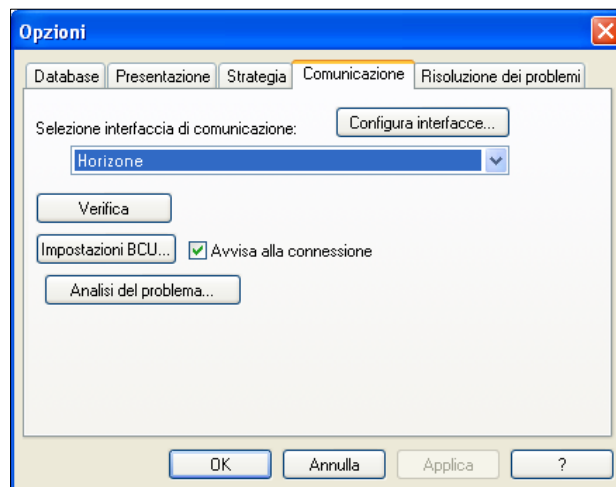
On the local network, you can connect your PC with ETS directly to HORIZONE SERVER provided they are connected to the same network (even wireless).

If ETS3 is used, proceed as follows:

- Select “OPTIONS” from the “OTHER” menu and select “COMMUNICATION”
- Press the “CONFIGURE INTERFACES” button
- Press the “NEW” button then assign “HORIZONE” as “type” and choose “KNXNet/IP” from the drop-down menu
- Wait a few seconds for the network scan, then select HORIZONE from the drop-down menu below. If HORIZONE is not detected, press the “REDIGITALIZE” button
- If HORIZONE is not detected automatically due to network problems, manually enter its IP address and specify “3671” as the port, taking care not to select NAT mode
- When finished, confirm the changes with the “OK” button

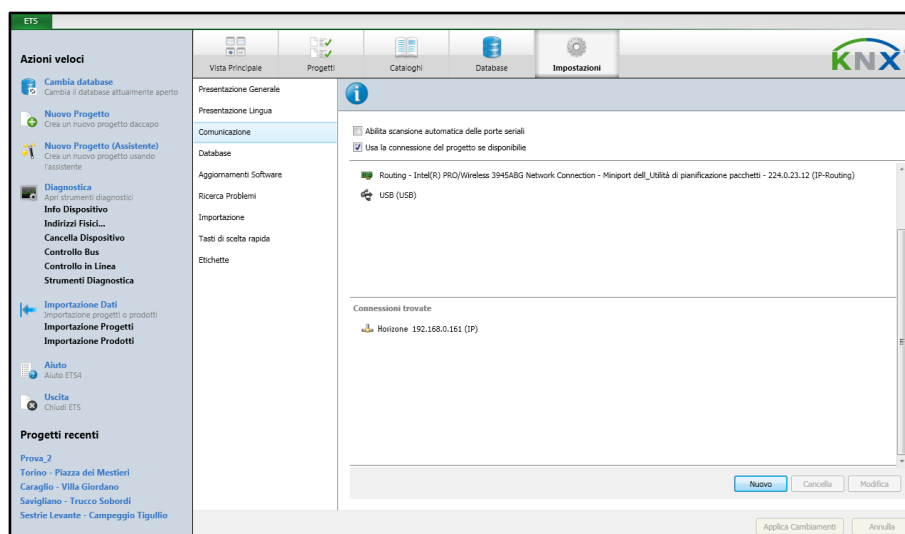


- In the communication management window, select “HORIZONE” and press the “TEST” button to verify the communication. If the message “OK” is displayed after a few seconds, ETS is ready to use HORIZONE as the communication port.

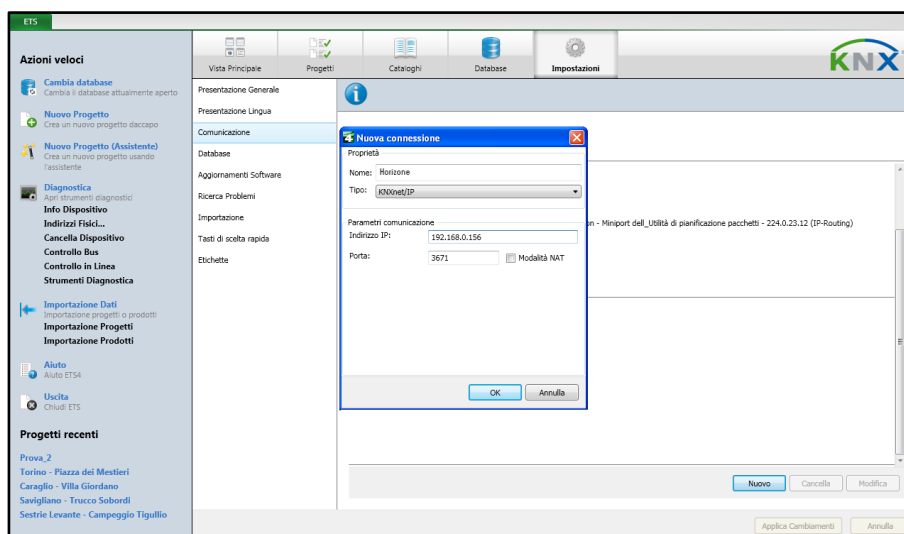


Conversely, if ETS4 is used, proceed as follows:

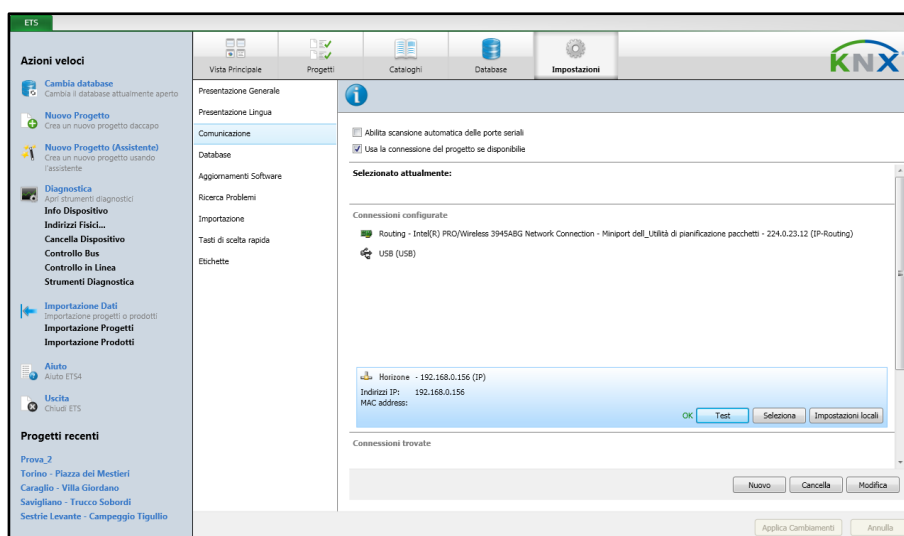
- Select “SETTINGS” from the main menu
- Select “COMMUNICATION” from the side submenu



- After a few seconds, HORIZONE appears in the list of “CONNECTIONS FOUND”
- Press the “NEW” button to open the “NEW CONNECTION” window; specify a name for the connection, select “KNXNet/IP” and manually enter the IP address of the webserver, specifying 3671 as the port (not NAT mode)



- Once confirmed with the OK button, the connection is available in the “CONFIGURED CONNECTIONS” section. Click on it to select it; press “TEST” to check the correct configuration and “SELECT” to make it active. ETS is now ready to use HORIZONE as a



communication port.



In ETS remote mode, only the “ON-LINE CONTROL” function can be used to perform a diagnostic of the system; the “PROJECT CONTROL” function requires a direct connection to the bus. This constraint applies to both ETS3 and ETS4.

Remote use

If you want to use ETS remote control over the Internet, in addition to what has been configured beforehand, you need to channel KNXNet/IP traffic through HORIZONE SERVER's built-in VPN service. As a first step, you must configure this service by:

- Select "SETUP" from the administration menu
- Select "VPN"
- Enter the required information:

USERNAME <input type="text"/> PASSWORD <input type="password"/>	Credentials to for remote VPN connection
IP HOST	Specify the IP address that serves as the VPN server (specify the IP address of HORIZONE unless otherwise specified by your network administrator)
IP RANGE	<p>Indicate a range of IP addresses that will be dynamically assigned to PCs that will connect remotely; use the form XXX.XXX.XXX.XXX-YYY – Example:</p> <p style="text-align: center;">192.168.0.120-130 (Range of 11 available addresses)</p> <p>The address range should not already be used on the network by other devices or apparatus</p>

Once you have entered all the information, press the SAVE button to confirm. After a few seconds, a confirmation message is displayed that the VPN service has been saved; from now on, the VPN service is active with the specified parameters.

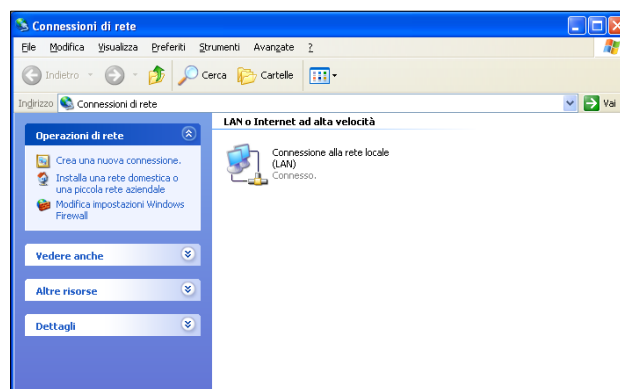
At this point you need to create a *port forwarding* rule on your Internet router (e.g. ADSL) so that the remote connections on the VPN port are correctly routed to HORIZONE SERVER. Depending on your router specification, create a rule with the following attributes:

- External port: 1723
- Internal port: 1723
- Internal IP address: SERVER HORIZONE IP address
- Transport: TCP + UDP

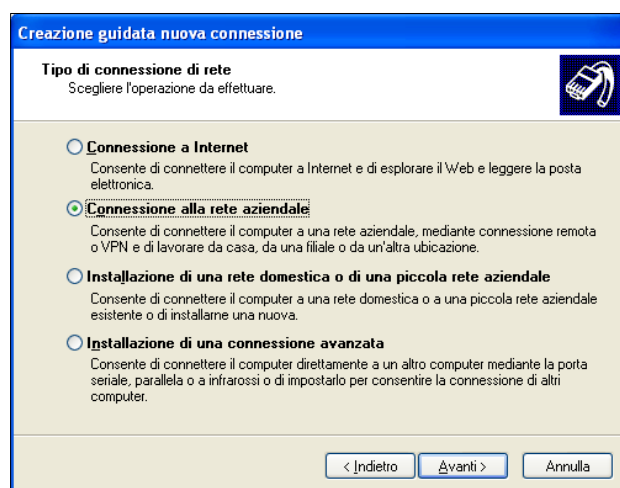
Once the rule is configured on the router, you can connect remotely. The connection involves creating a VPN connection to the network on which HORIZONE is located, whose public IP address or, alternatively, the DYNDNS domain name must be known.

If you are using Windows XP on your PC, do the following:

- Access the control panel, then select “network connections”
- Select the entry “create a new connection” from the left-hand menu, then select the “connection to the company network” type when prompted



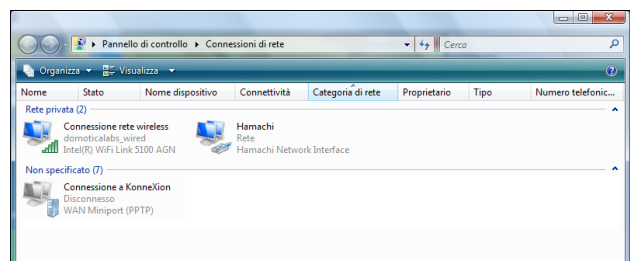
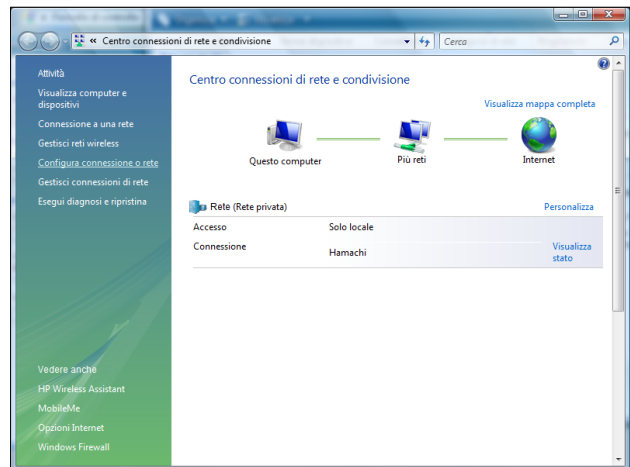
- Select “VPN connection” at the next request, then provide a name for the connection to the next request “company name” (e.g. “HORIZONE”)
- Specify the IP address to connect to; in the case of local network connections, specify the IP address of HORIZONE, vice versa specify the public IP address used by the Internet connection
- Finish the process of creating the new connection and close the connection window prompt below



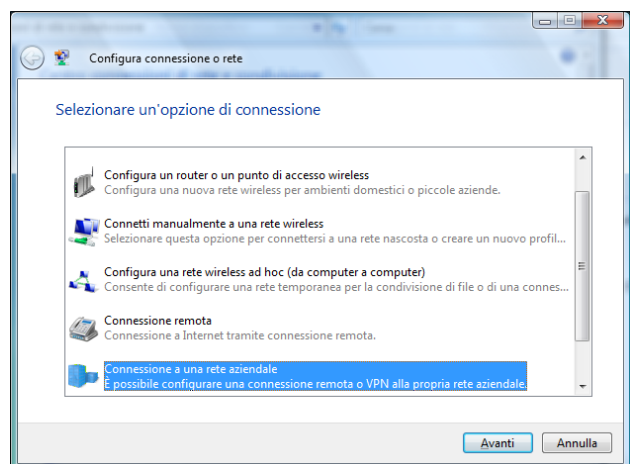
The new connection is now ready to be used; by double-clicking on it, the window in which to enter the login credentials (entered in the configuration page of HORIZONE) is shown. Once the connection is started, after a few seconds the PC is “projected” into the VPN network with one of the IP addresses provided in HORIZONE; at this point, you can switch to the ETS configuration as described above in the case of use on the local network.

If you are using Windows VISTA or SEVEN, do the following:

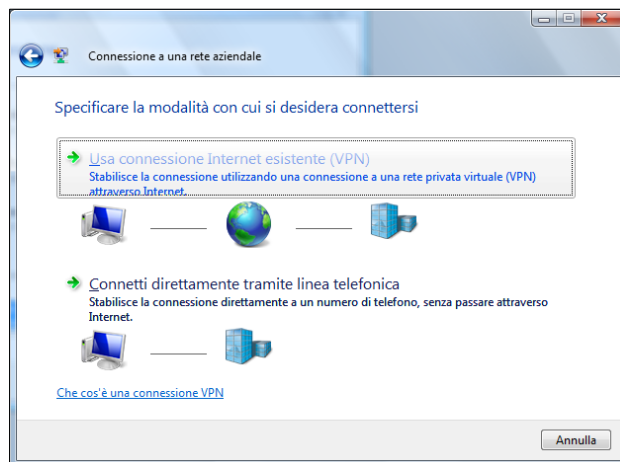
- Log in to the dashboard, then select “Network and Sharing Center”



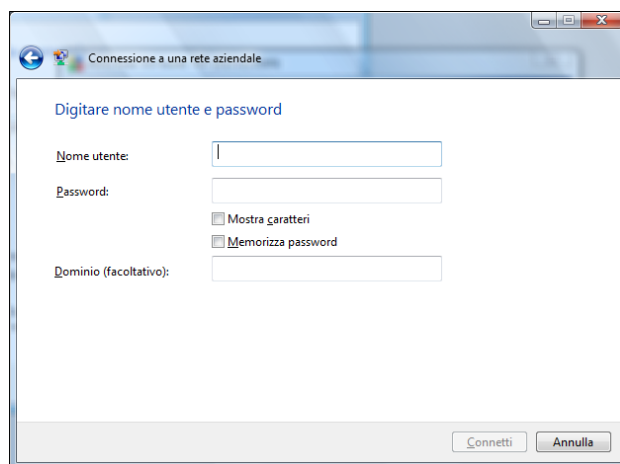
- Select “configure connection or network” in the side menu
- Select “Connecting to a company network”



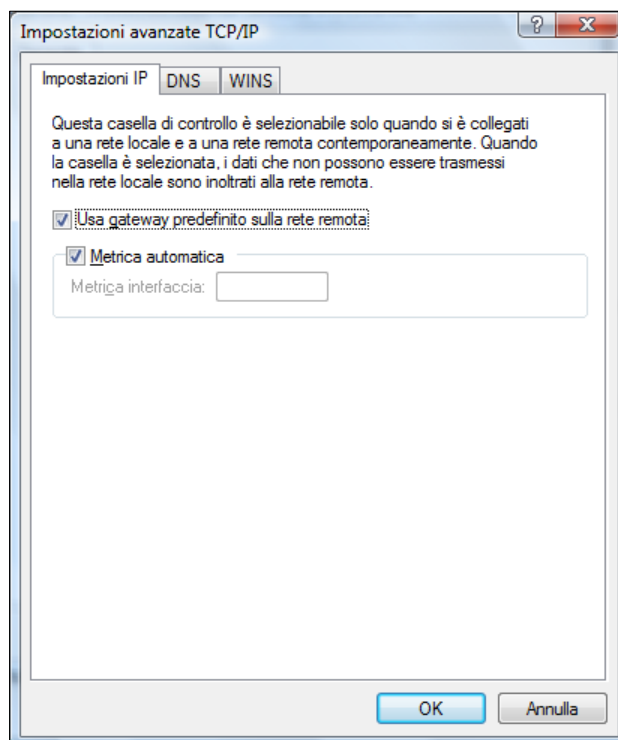
- Select the item “Use existing internet connection (VPN)”



- Enter the IP address of HORIZONE under the “internet address” entry (specifying the public IP address of the router if you connect remotely), and specify a name for the connection (e.g.: “HORIZONE”)
- Specify the login credentials indicated in the HORIZONE configuration tab and leave the “domain” box blank

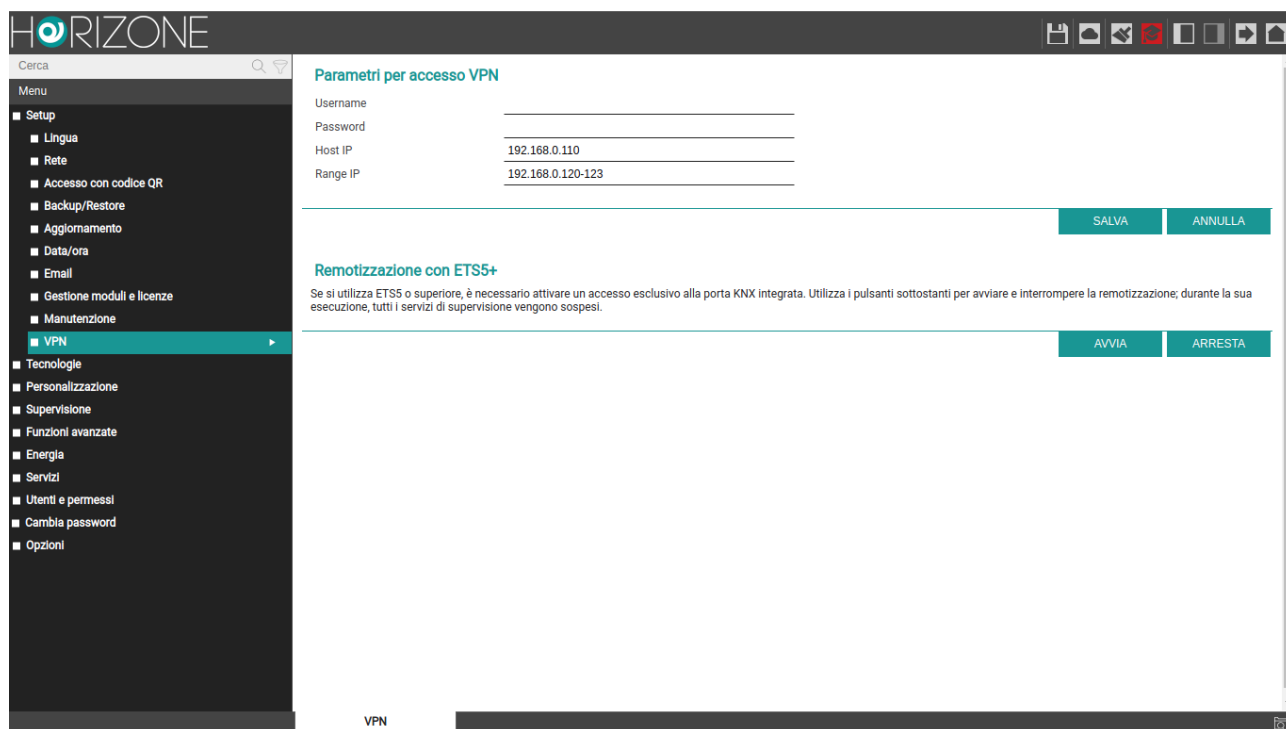


- End the connection creation process without connecting; the new connection is available on the Network Connections page (“Manage Network Connections” in the side menu of the “Network and Sharing Center”)
- Right-click on the connection, then select “properties”; in the “network” section, locate “internet protocol version 4” and click on “properties” again
- Click on “advanced”, then in the “general” section select “use default gateway on remote network”; save and close all configuration windows



The new connection is now ready to be used; by double-clicking on it, the window in which to enter the login credentials (entered in the configuration page of HORIZONE) is shown. Once the connection is started, after a few seconds the PC is “projected” into the VPN network with one of the IP addresses provided in HORIZONE; at this point, you can switch to the ETS configuration as described above in the case of use on the local network.

If ETS5 or higher is used, normal HORIZONE communication with the bus must be temporarily suspended. To do this, use the START and STOP buttons on the remote control page:



If the web page is reloaded during ETS5 remote control, the following warning is displayed:

Warning

ETS REMOTING IN PROGRESS
[Click here](#) to stop remoting and return to normal operation

In this case, to restore normal functionality of the server, press the link and wait until the page reloads.

REVISIONS

DATE	REFERENCE	COMMENTS
06/04/2017	IN00B02WEBFI00040101	First draft
06/06/2017	IN00B02WEBFI00040102	Addition of screenshots, minor fixes
15/12/2017	IN00B02WEBFI00040103	Content and screenshot adaptation to software version 1.0.2, layout restyling
10/04/2020	IN00B02WEBFI00060140	Adaptation to software version 1.4

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