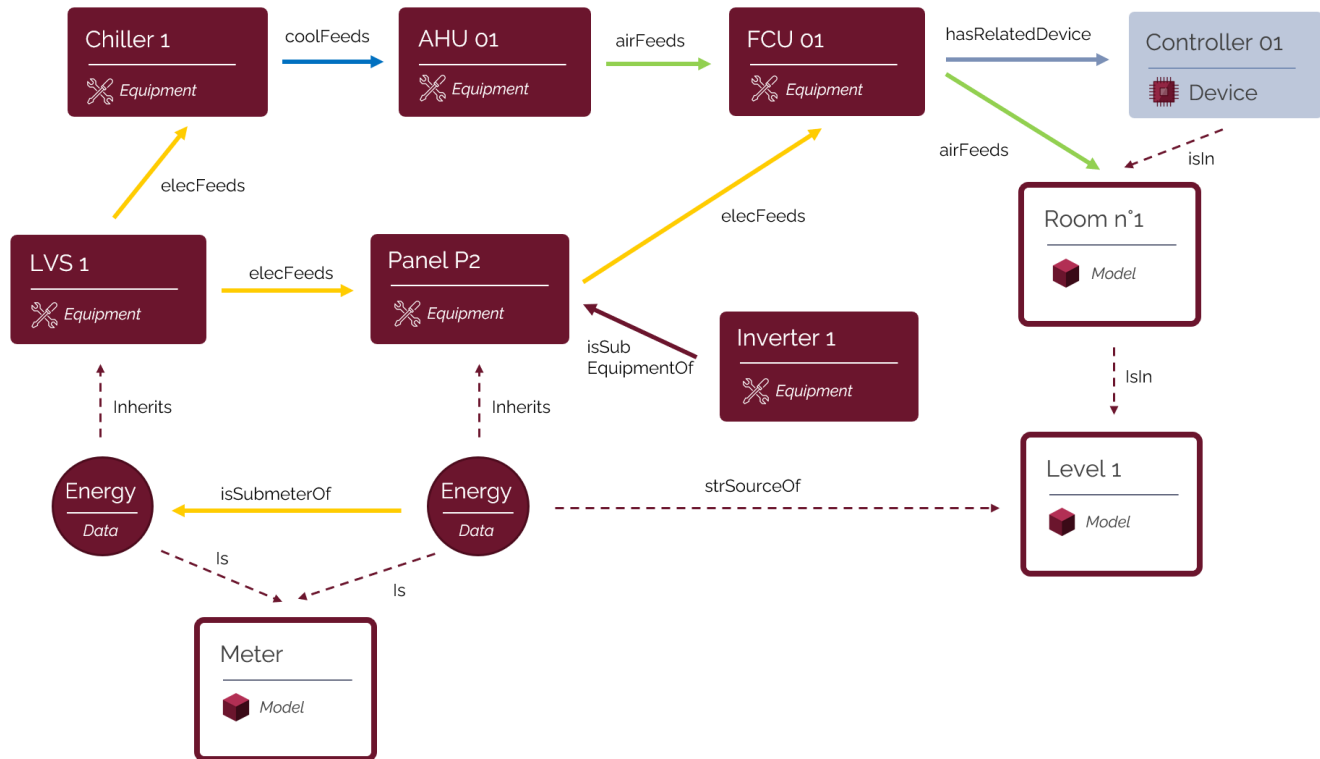


# Linkspers assets relationships

A **Building Operating System** exposes assets to third parties. These assets use relations and tags to describe their mutual interactions. To make it consistent between different sites Linkspers defines standardized relations to help describe these interactions.

Below is a schema showing several types of assets (Equipment, Device, Model, Data) and some examples of their mutual relationships. It's only a small part of a complex system, not all the relations are represented.



The following is a very important side of Linkspers data models. On the above schema, we can distinguish two types of relations:

- **Direct relations** (plain line). They are direct relations between assets and are exposed to third parties with a dedicated tag. The tag is in the source asset and named with a similar name to the relation plus a suffix "Ids". This is useful to jump from an asset to another. For example the asset "Chiller 1" will contain a direct tag "coolFeedsIds" with the AHU 01 identifier as a value (Every asset has a unique identifier)
- **Generic relations** (dashed line). They are used to assign an asset to a data model (remember data models contain assets). There is no a direct tag for generic relation (such as ~~isIn~~) but there are dedicated tags from the data model itself. For example the second "Energy" Data asset will have several tags such as "floor":"Level 1" and "pointType":"Meter" because they implement the data model. Since it also has a direct relation with another Energy data point, it will contain a tag "isSubmeterOfIds" with the ascendant meter id.

Example on the left of direct relations transformed with a direct tag in every source asset and on the right of a mix between generic relations transformed as a tag and direct relations.

Chiller 1

✕ Equipment

**displayName** = Chiller 1  
**assetType** = Equipment  
**id**: B%dh47Fsd7TPOds  
**coolFeedsIds** = QSffh8o\$sd fsdfsvdf

...Many other tags

AHU 01

✕ Equipment

**displayName** = AHU 01  
**assetType** = Equipment  
**id**: QSffh8o\$sd fsdfsvdf  
**airFeedsIds** = Bdfsd%fds4E52Vol\$

...Many other tags

FCU 01

✕ Equipment

**displayName** = FCU 01  
**assetType** = Equipment  
**id**: Bdfsd%fds4E52Vol\$  
**hasRelatedDeviceIds** = 78QDx8D54c5FcAm  
**airFeedsIds** = Sfjosqd8Ds q466D

...Many other tags

Energy

Data

**displayName** = Level 1 – Global Energy  
**assetType** = Data  
**id**: C7D2fpA%q@Fhx63  
**floor** = Level 1  
**floorId** = FskljjOSdds jfhfe  
**pointType** = Meter  
**pointTypeId** = Df%SfmDfepVuZf

**isSubMeterOf** = CXlk9pmdDZed78

...Many other tags

Energy

Data

**displayName** = Building A – Global Energy  
**assetType** = Data  
**id**: CXlk9pmdDZed78  
**building** = Building A  
**buildingId** = Pc%d71D8gsPcNz  
**pointType** = Meter  
**pointTypeId** = Df%SfmDfepVuZf

...Many other tags

## Relations from Equipment assets

Every relation described starts from an Equipment asset to another asset type

Relation	Source asset type	Source examples	Target asset type	Target examples	Related Hierarchy	Related tag
<b>airFeeds</b>	Equipment	AHU, Fan Coil Unit...	Equipment, Model (Space)	Fan Coil Unit, Space...	Air Distribution	airFeedsIds
<b>airCompFeeds</b>	Equipment	Compressor	Equipment, Model (Space)	Compressed Air Circuit	Compressed Air Distribution	airCompFeedsIds
<b>airExtracts</b>	Equipment	Air Extractor...	Equipment, Model (Space)	Space	Air Extraction	airExtractsIds
<b>coolFeeds</b>	Equipment	Chiller, Cooling Circuit...	Equipment, Model (Space)	Terminal Units	Cooling Distribution	coolFeedsIds
<b>heatFeeds</b>	Equipment	Boiler, Heating Circuit...	Equipment, Model (Space)	Terminal Units	Heating Distribution	heatFeedsIds
<b>elecFeeds</b>	Equipment	Switchboard, Power Distribution Panel	Equipment	Power Distribution Panel, Light	Electrical Distribution	elecFeedsIds
<b>waterFeeds</b>	Equipment	Booster	Equipment	Water Circuit	Water Distribution	waterFeedsIds
<b>isSubEquipmentOf</b>	Equipment	Locker, Switch	Equipment	Locker Bank, Computer Rack	--	isSubEquipmentIds
<b>hasRelatedDevice</b>	Equipment	Fan Coil Unit, Power Distribution Panel	Device	Room Controller, Meter	--	hasRelatedDevicesIds
<b>operatesWith</b>	Equipment	Room Sensor, Light...	Equipment	Light...		operatesWithIds

## Relations from Point assets

Relation	Source asset type	Source examples	Target asset type	Target examples	Related Hierarchy	Related tag
<b>isSubmeterOf</b>	Data	Energy data points	Data	Energy data points	Metering Distribution	isSubmeterOfIds
<b>dataFeeds</b>	Data	Data point	Device	Gateways, Controllers, IO Module	Data Distribution	dataFeedsIds

## Relations from Device assets

Relation	Source asset type	Source examples	Target asset type	Target examples	Related Hierarchy	Related tag
xxxDataFeeds	Device	IoT Device	Device, Linksper Instance	Hub	Data Distribution	restIpDataFeedsIds

## Direct access to relations

Direct access to relations is usually not used from the API, Hierarchies are read instead (Each of them provides a specific point of view on a group of assets)

However this is entirely possible using the additional field "allRelations" parameter while using the *GET /v1/explore/assets/{id}* endpoint (Other relations from the ones described above will appear as well).

**GET** `/v1/explore/assets/{id}` Explore an asset

Retrieve the asset matching the given id

**Parameters**

Name	Description
<b>id</b> * required	ID of the asset to get
string (path)	<input type="text" value="id"/>
<b>additionalFields</b>	fields to encode
array[string] (query)	Available values : <b>allRelations</b> , allTags, description, displayName, enabled, facets, id, link, mnemonic, name, out, pointValue, slotPathOrd, status, {tagId}, {relationId}
	<input type="text" value="allRelations"/>