

Configuration portal

Developer's guide

June 9th, 2015

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Contents

1 INTRODUCTION.....	7
2 SESSION MANAGEMENT.....	8
2.1 LOG IN.....	8
2.1.1 LOG IN AS REGIONAL SERVICE PROVIDER	9
2.2 LOG OUT	9
2.3 AVAILABLE ROLES	9
2.4 CHANGING WORKSPACES (SERVICE OR SUBSERVICE)	10
2.5 ACESIBLE SECTIONS BY ROLE	11
3 SECTIONS.....	12
3.1 ENTITIES.....	12
3.1.1 LIST OF ENTITIES	12
3.1.2 CREATE A NEW ENTITY	14
3.1.3 EDIT AN EXISTING ENTITY.....	16
3.1.4 DELETE AN EXISTING ENTITY.....	17
3.2 RULES.....	17
3.2.1 LIST OF VISUAL RULES	18
3.2.2 CREATE A NEW VISUAL RULE	18
3.2.3 HOW TO COMPOSE A VALID RULE	21
3.2.4 AVAILABLE CARDS	21
3.2.5 EDIT AN EXISTING VISUAL RULE.....	26
3.2.6 DELETE AN EXISITING VISUAL RULE	27
3.3 DEVICES (NEW IN V2.0)	27
3.3.1 LIST OF DEVICES	28
3.3.2 DEVICE PROVISIONING	29
3.3.3 EDIT AN EXISTING DEVICE	35
3.3.4 DELETE AN EXISTING DEVICE	37
3.3.5 ENTITY RELATED TO A DEVICE (BETA)	38
3.3.6 SENDING A COMMAND (BETA)	40
3.4 SERVICE MANAGEMENT (NEW IN V2.0)	42
3.4.1 LIST OF SERVICES	43
3.4.2 CREATE A NEW SERVICE	43
3.4.3 EDIT AN EXISTING SERVICE	45
3.4.4 DELETE AN EXISTING SERVICE	46
3.5 SUBSERVICE MANAGEMENT (NEW IN V2.0)	46
3.5.1 LIST OF SUBSERVICES	47
3.5.2 CREATE A NEW SUBSERVICE.....	47
3.5.3 EDIT AN EXISTING SUBSERVICE.....	48
3.5.4 DELETE AN EXISTING SUBSERVICE	49
3.6 USER MANAGEMENT (NEW IN V2.0).....	49
3.6.1 LIST OF USERS	50

3.6.2 CREATE A NEW USER	52
3.6.3 EDIT AN EXISTING USER	55
3.6.4 DELETE AN EXISTING USER	56
4 REFERENCES.....	57

Table of Figures

Fig. 1 Login with username and password.....	8
Fig. 2 Login with username, password and service name.....	8
Fig. 3 Log out	9
Fig. 4 Top bar - Logout link.....	9
Fig. 5 Switch workspaces options.....	10
Fig. 6 Current workspace.....	10
Fig. 7 Switch workspaces button.....	10
Fig. 8 Entities button.....	12
Fig. 9 List of all entities.....	12
Fig. 10 Filter entities by type.....	13
Fig. 11 Group rows by column.....	13
Fig. 12 Table menu	14
Fig. 13 New entity button	14
Fig. 14 New entity form.....	14
Fig. 15 Edit a compex attribute value	15
Fig. 16 Add metadata to entity attribute.....	15
Fig. 17 Entity validation messages.....	16
Fig. 18 Edit an existing entity	17
Fig. 19 Rules button	18
Fig. 20 List of visual rules	18
Fig. 21 Create visual rule button	18
Fig. 22 Visual rules canvas	19
Fig. 23 Drag&Drop a visual rule condition.....	19
Fig. 24 Adding more conditions to a rule.....	20
Fig. 25 A complete rule	20
Fig. 26 ID card.....	21
Fig. 27 Type card.....	22
Fig. 28 Value threshold card	22
Fig. 29 Attribute Threshold card.....	23
Fig. 30 EPL card.....	23
Fig. 31 Elapsed card.....	24
Fig. 32 Send SMS card.....	25
Fig. 33 Update Attribute Card.....	25
Fig. 34 Send Email card.....	26

Fig. 35 Detail of a rule.....	26
Fig. 36 Rule edition mode.....	27
Fig. 37 Devices button	28
Fig. 38. Not configured subservice for devices.....	28
Fig. 39 List of all devices.....	29
Fig. 40 Filter devices by protocol	29
Fig. 41 New device button.....	30
Fig. 42 New device with Ultralight protocol.....	30
Fig. 43 New device with MQTT protocol.....	31
Fig. 44 Device attribute mapping section	32
Fig. 45 Device static attributes	33
Fig. 46 Configure commands for a device	33
Fig. 47 Validation errors in device provisioning.....	35
Fig. 48 Detailed data for a device.....	36
Fig. 49 Device edition	37
Fig. 50 Mixed list of entities: local entities and device-related entities.....	38
Fig. 51 Entity related to a device	39
Fig. 52 Editing the device-related entity	40
Fig. 53 Sending a command to a device	41
Fig. 54 Command status	41
Fig. 55 Command response	42
Fig. 56 Service Management button.....	42
Fig. 57 List of Services.....	43
Fig. 58 Create a new Service	44
Fig. 59 Validation errors in Service creation	45
Fig. 60 Edit a service.....	45
Fig. 61 Subservice Management button	46
Fig. 62 List of subservices	47
Fig. 63 New Subservice button	47
Fig. 64 Create a new Subservice	48
Fig. 65 Edit a Subservice	49
Fig. 66 User Management button.....	50
Fig. 67 List of all users in the service.....	50
Fig. 68 Users list. Admin users.....	51
Fig. 69 List of users. Service Customer users.....	51
Fig. 70 Users filtered by subservice.....	52
Fig. 71 New User button.....	52
Fig. 72 Create a new user. Basic data.....	53
Fig. 73 Role assignment in subservice	54
Fig. 74 Role assignmet in service.....	54
Fig. 75 Details of an existing user	55
Fig. 76 Edit an existing user	56

Signature control table

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1 Introduction

The Configuration Portal has been built as a client of the IoT platform APIs, and it is intended to help IoT Platform users to manage their Services, Subservices, including their Entities, Devices and CEP rules. It will include all the configuration features needed to setup and operate services. The current release supports CRUD operations (provision, update, delete, ...) on IoT Platform concepts:

- Services (available for Service Providers)
- Subservices and users (available for Service Admins)
- Orion Context Broker Entities
- IoTAgents devices
- Rules configuration in Perseo CEP (both Visual and advanced manual rules)

The goal of this document is to guide users in the usage of the Configuration Portal.

2 Session Management

The Configuration Portal is restricted to registered users. Accessing to the portal URL will automatically redirect unauthenticated users to the login page.

2.1 Log in

Users in the IoT Platform are identified by their username and the service they belong to. If the service is indicated in the typed URL (<https://mgmt.iotplatform.telefonica.com:8008/servicename>), the login page will

A screenshot of a web-based login form. The form has a dark blue header bar with the word "Login" in white. Below the header are two input fields, both outlined in orange. The top field is labeled "Username" and the bottom field is labeled "Password". To the right of the fields is a blue rectangular button with the word "Login" in white.

Fig. 1 Login with username and password

request them to introduce their username and password. This behavior is depicted in the following image:

If the service name is not indicated in the typed URL (<https://mgmt.iotplatform.telefonica.com:8008/>), the login page will request the users to introduce the service name they want to access along with their username and password.

A screenshot of a web-based login form. The form has a dark blue header bar with the word "Login" in white. Below the header are three input fields, all outlined in orange. The top field is labeled "Username", the middle field is labeled "Password", and the bottom field is labeled "Service name". To the right of the fields is a blue rectangular button with the word "Login" in white.

Fig. 2 Login with username, password and service name

2.1.1 Log in as Regional Service Provider

Regional Service Providers are special users that belong to the `admin_domain` service (see 2.3Available roles).

In order to log in as a Regional Service Provider, the user will have to use `admin_domain` as service name.

2.2 Log out

In order to log out of the site, the user has to click on the “Logout” link in the top right-hand corner of the page.



Fig. 4 Top bar - Logout link

Then, a confirmation window will be shown:

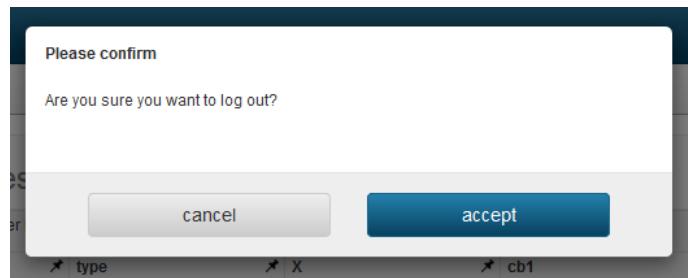


Fig. 3 Log out

Confirming the action will close the current session.

2.3 Available roles

The current version of the Configuration Portal is intended for the final client, both IT Managers and access-granted users, and to System Integrators. Depending on the scope they can access, the Configuration Portal users can be divided into five types:

- Regional Service Provider (new in v2.0): accountable for creating new Services (Operating Business). This type of users can only manage organizational issues of the services. They do not have access to the final client items (Entities, Rules and Devices).
- Admin or Service Admin: accountable for managing a Service (final client IT Manager or System Integrator). This type of users are usually granted a *spreadable* role with Subservice Admin privileges, so that they can manage any subservice belonging to the service. If not, they can only access the service scope.
- Service Customer: user granted for accessing the whole Service data with read-only permissions. This type of users are usually granted a *spreadable* role with

Subservice Customer permissions, so that they can access any subservice belonging to the service. If not, they can only access the service scope.

- SubService Admin: accountable for managing a SubService (final client IT Manager or System Integrator)
- Subservice Customer: granted for accessing a specific SubService data with read-only permissions.

2.4 *Changing workspaces (service or subservice)*

Once the users have been authenticated in the system, they can select the scope to work with: the service the user belongs to or each of the subservices that compose that service can be seen as different workspaces.

Working in a workspace means that all the elements created in the current workspace will belong to the corresponding Service, or to the specific Subservice.

The Configuration Portal offers a menu of options to choose the workspace. The available options depend on the users' permissions.

The menu of options is available from the top bar menu.

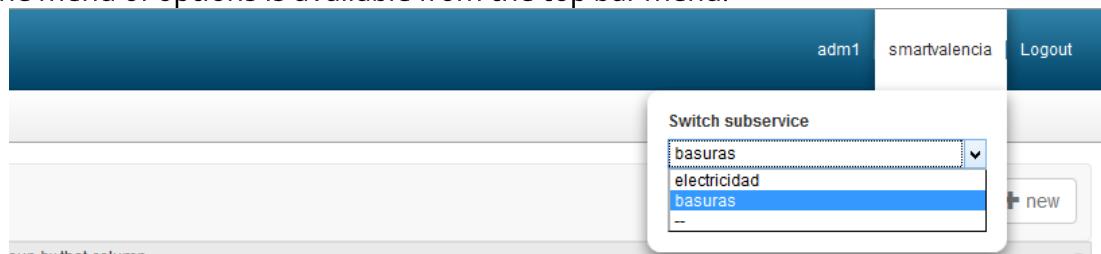


Fig. 5 Switch workspaces options

Once a workspace is selected i.e., a different subservice, click the switch button to change to it.

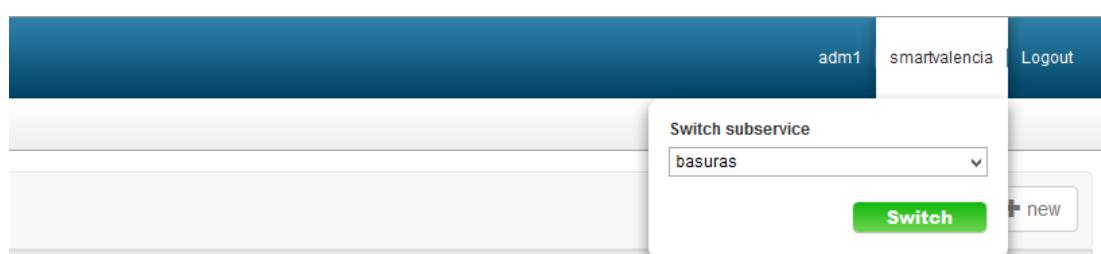


Fig. 7 Switch workspaces button

The current workspace is shown in the top bar menu. When the workspace is changed, the label shows the destination workspace.



Fig. 6 Current workspace

The service option, represented with '--', will be only available for Service Admin and Service Customer users. A subservice option will be available if the user has access to that subservice.

In the current version, Regional Service Providers cannot impersonate service/subservice users. So they cannot change to other service/subservice from this menu.

2.5 Accessible sections by role

On the left side of the screen there is a vertical main menu to access to portal sections. The sections users can access depend on the user's role and chosen workspace.

Regional Service Providers can create services and manage the organizational issues of those services (Users and Subservices). They cannot manage final client items (Entities, Rules and Devices). They work in the administration workspace so therefore, they have access to the Service, Subservice and User management sections.

Service Admins and Service Customers work under the service scope. They can access both the organizational issues of their service (Users and Subservices) and the final client items (Entities and Rules). However, devices cannot be provisioned under the service scope (servicePath "/"), so the devices section is not available if the user does not choose a subservice to work in.

Subservice Admins and Subservice Customers work under the subservice scope. Users have a Subservice role if they have selected a subservice in the top bar menu. In a subservice, users cannot manage the organizational issues (Users) so the available sections in this case are Devices, Entities and Rules.

3 Sections

Each section of the Configuration Portal has an access button in the left bar menu. As for the current version, the available sections are the following ones.

3.1 Entities

In this section, users can list, create, edit and delete entities in the Orion ContextBroker [1]. Service Admin and Service Customer (with *spreadable* Subservice permissions), and Subservice Admin and Subservice Customer users can access this section.

To open the Entities section, click on the Entities button in the left bar menu.

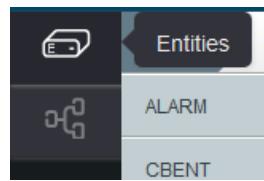


Fig. 8 Entities button

3.1.1 List of Entities

The main view of the Entities section is the list of entities created in the current workspace. The main panel shows the list of all entities and their attribute values whereas the left panel allows filtering entities by type.

 A screenshot of the IOT Platform Entities Management page. The top navigation bar shows 'IOT Platform', 'adm1 | smartvalencia /basuras | Logout'. The left sidebar has buttons for 'Entities Management' (highlighted in blue) and 'All', with sub-options 'CAR' and 'MAP'. The main content area shows a table titled '5 Entities' with columns: ID, type, fuel, speed, temperature, pressure, and action. The table contains five rows of data. At the bottom, it says 'Total Items: 5' and 'Page Size: 15'.

ID	type	fuel	speed	temperature	pressure	action
SDTT0x1	MAP			24	720	
SDTT0x2	MAP			23	720	
SDTT0x3	MAP			21	720	
2134GTH	CAR	75	100			
2135GTH	CAR	40	45			

Fig. 9 List of all entities

The previous image shows a paginated table with all the entities. There is a column for each attribute name. An extra column is added to show the type of the entity.

To filter entities by type, click on one of the types of the left panel.

The screenshot shows the IOT Platform Entities Management interface. On the left, there's a sidebar with icons for Entities Management, CAR, and MAP. The main area is titled '3 Entities' and contains a table with the following data:

ID	temperature	pressure	action
SDTT0x1	24	720	
SDTT0x2	23	720	
SDTT0x3	21	721	

At the bottom, it says 'Total Items: 3' and 'Page Size: 15' with navigation controls.

Fig. 10 Filter entities by type

In a page, rows can be ordered by columns by clicking on the column header. Columns can be reordered by dragging and dropping them on the required place. To fix a column and show it always visible, use the pin button which is in the left side of the column header.

The bottom bar of the table includes the pagination controls. The top bar of the table allows grouping the page data by column values: just drag one of the column headers

This screenshot shows the same table as Fig. 10, but the 'pressure' column header is highlighted with a blue background, indicating it is the current group. The table data is now grouped by pressure value:

ID	temperature	pressure	action
SDTT0x1	24	720	
SDTT0x2	23	720	
SDTT0x3	21	721	

The top bar shows 'pressure x' and the bottom bar shows 'Total Items: 3' and 'Page Size: 15'.

Fig. 11 Group rows by column

and drop it into the bar.

Use the top bar menu to select which columns are visible.

3.1.2 Create a new entity

To create a new entity click on the **New** button in the top bar of the entities section:

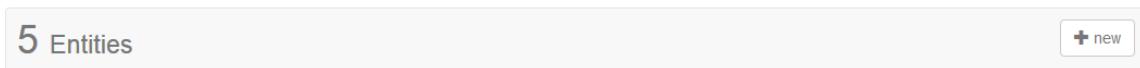


Fig. 13 New entity button

This button is only available for users with edition permissions (Admin and Subservice Admin).

A new view is opened when the create entity button is clicked. This view shows a form to fill every needed data to create a new entity.

A screenshot of the IIoT Platform Entity Detail form. The title bar says "IOT Platform" and "Entity Detail". The main form has a title "myEntity" and a "BASIC DATA" section. It contains fields for "ID" (set to "myEntity") and "type" (set to "MyEntityType"). Below this is a table for "attributes" with columns "NAME", "TYPE", "VALUE (Basic type or JSON format)", and "METADATA". A single row is shown with "attribute1" as the name, "myAttr1Type" as the type, and "myValue" as the value. There are buttons for "Save" and "Close" at the top right of the form area.

Fig. 14 New entity form

Fill in the basic data and add as many attributes as needed by clicking on the **+** button. A new row will be added to fill in the attribute data. Simple values can be edited in the value field itself but, in order to edit complex values (objects) in an easier way, click on the button. This will open a bigger text area where the object can be written in JSON format. To save the changes, click on *Close*.

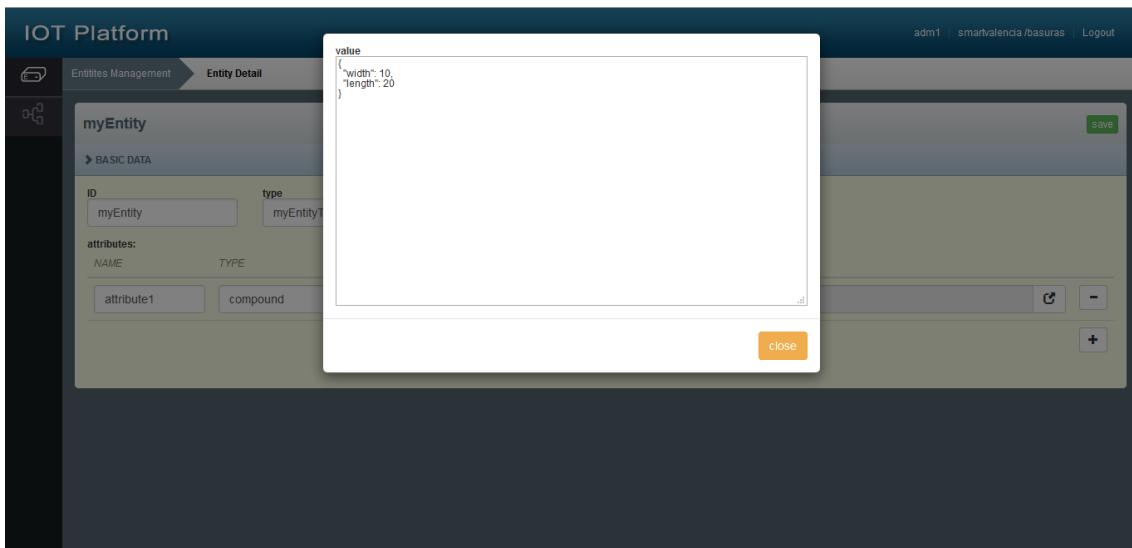


Fig. 15 Edit a complex attribute value

To add some metadata to an attribute, click on the button. This will open a new window to add as many metadata as needed. To add a new row, click on the

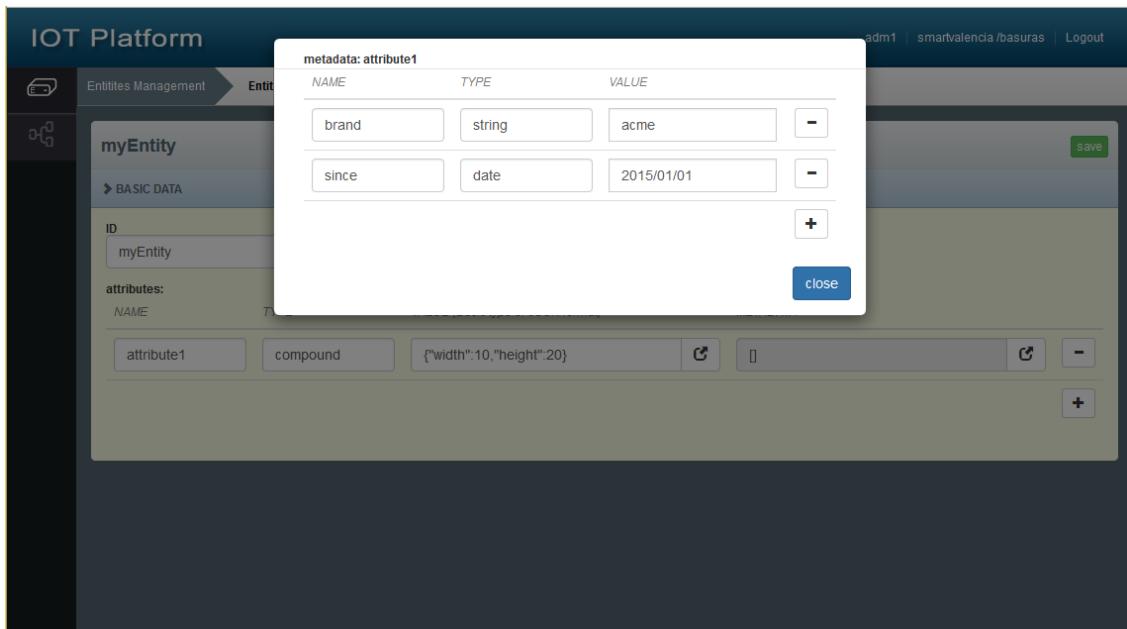


Fig. 16 Add metadata to entity attribute

button.

To save the changes click on *Close*.

The entity data must follow some conventions:

- Harmful characters used in cross scripting attacks are forbidden for every field.
- id is mandatory
- type is optional. Not setting a type will be taken as empty type.

- An entity can have 0..N attributes.
- Attribute fields:
 - name is mandatory
 - Must start with a letter
 - Allowed: . (dot) _ (underscore)
 - Not allowed: __ (two underscores consecutively) - (hyphens)
 - type is optional.
 - value is mandatory. Can be of any type (Object, Array, string, int, float...)
 - an attribute can have 0..N metadata
- Metadata fields:
 - name is optional
 - type is optional
 - value is optional. If it is specified, it must be a simple value (string, int, float...)

If the values are not valid, the entity cannot be saved and a warning message will be

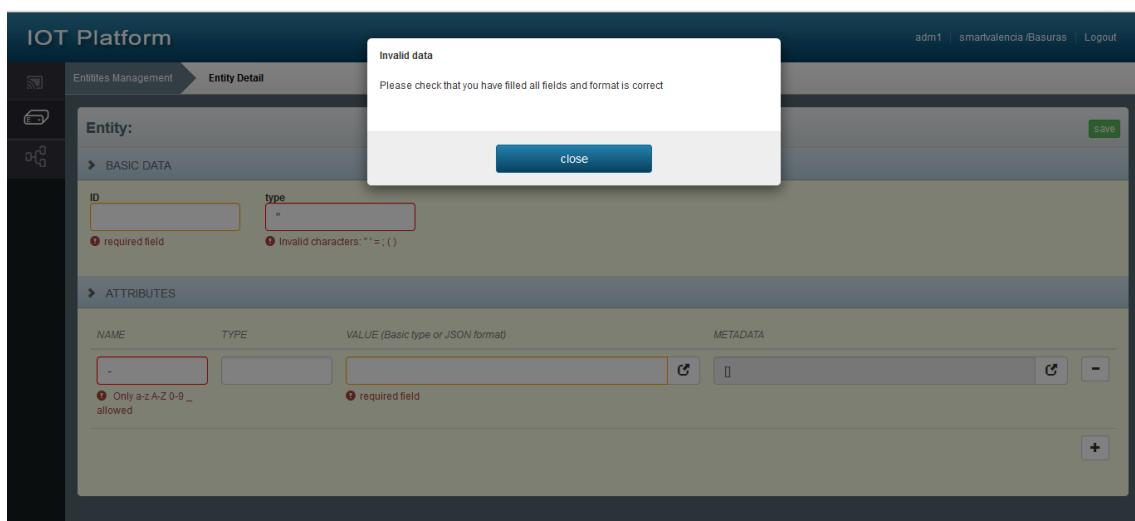


Fig. 17 Entity validation messages

shown.

For more information about entities validation see [1].

Once all the data has been filled, click on the **save** button to create the entity in Orion ContextBroker.

3.1.3 Edit an existing entity

From the list of entities, double click on the required entity row or click on **edit** button. A new view will be opened where the entity data can be easily edited. To edit the data, click on the **edit** button.

This button is only available for users with edition permissions (Admin and Subservice Admin).

The screenshot shows the 'Entity Detail' view of the IOT Platform. At the top, there's a header with 'IOT Platform', user info ('adm1 | smartvalencia /basuras | Logout'), and a save button. The main area is titled 'myEntity' and contains a 'BASIC DATA' section. It has fields for 'ID' (set to 'myEntity') and 'type' (set to 'myEntityType'). Below this is a table for 'attributes':

NAME	TYPE	VALUE (Basic type or JSON format)	METADATA
attribute1	compound	{"width":10,"height":20}	[{"name": "brand", "type": "string", "value": "acme"}, {"name": "model", "type": "string", "value": "smartTV"}]

At the bottom right of the table are buttons for '+' and '-'.

Fig. 18 Edit an existing entity

The edition of an entity is similar to the creation of a new one. See the 3.1.2Create a new entity section for more information.

3.1.4 Delete an existing entity

The deletion of an entity is only available for users with edition permissions (Admin and Subservice Admin). Deleting an entity means deleting the data and attributes the Context Broker stored locally for that entity. The information about the entity provided by external Context Providers (i.e. commands) will remain in those Context Providers.

From the list of entities, click on the button placed at the rightmost column of the entity row. From the detailed or edition view of an entity, click on the **Delete** button placed at the bottom of the panel. A confirmation message will be shown before deleting the entity permanently.

3.2 Rules

In this section, users can list, create, edit and delete rules in Perseo CEP. Service Admin and Service Customer (with *spreadable* Subservice permissions), and Subservice Admin and Subservice Customer users can access this section.

To open the Rules section, click on the Rules button in the left bar menu.

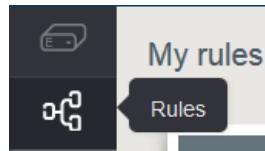


Fig. 19 Rules button

3.2.1 List of visual rules

The main view of the Rules section is the list of visual rules created in the current workspace.



Fig. 20 List of visual rules

The previous image shows how each rule is depicted as a snapshot. The name of the rule is shown in the footer. The names of the main condition and the action to be performed are shown in each rule snapshot.

3.2.2 Create a new visual rule

A rule is composed by a set of conditions and a unique action that will be performed if the set of conditions are satisfied. To create a new visual rule, click the following button, available from the list section:



Fig. 21 Create visual rule button

This button is only available for users with edition permissions (Admin and Subservice Admin).

When the create visual rule button is clicked a new view is opened. The portal will show a canvas in which users can drag and drop conditions and actions to compose a rule. Conditions and actions are also known as “cards” due to their visual representation.

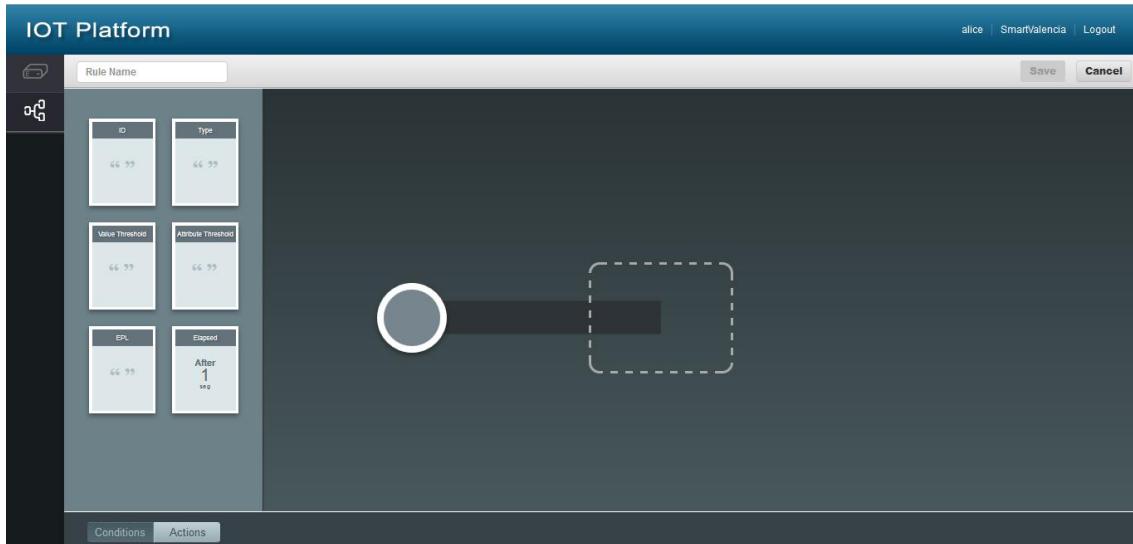


Fig. 22 Visual rules canvas

Choose a name for the new rule and type it in the field. Click on **Conditions** to see the list of available condition cards. In the same way, click on **Actions** to see the list of available action cards.

To add a condition to the rule, drag one of the condition cards and drop it into the rule canvas. The conditions must be dropped into the flow line. The card can be dropped when the cursor is on the flow line, as it is depicted in the following image:

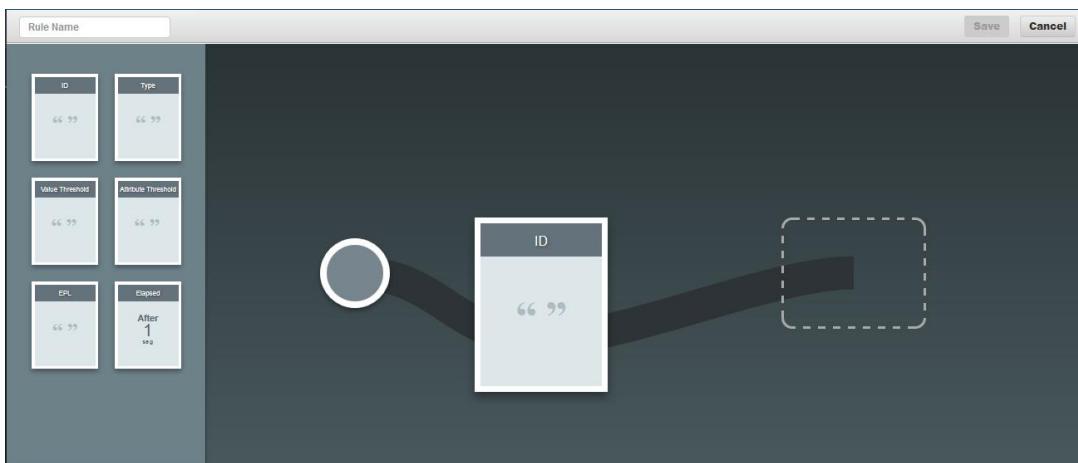


Fig. 23 Drag&Drop a visual rule condition

Once the card is added to the flow line, edit the parameters of the condition by clicking on the condition card. More conditions can be added to the rule following the same

procedure. A condition can be removed from the rule by dragging and dropping it out of the canvas. The set of conditions will be evaluated with the logical AND operator.

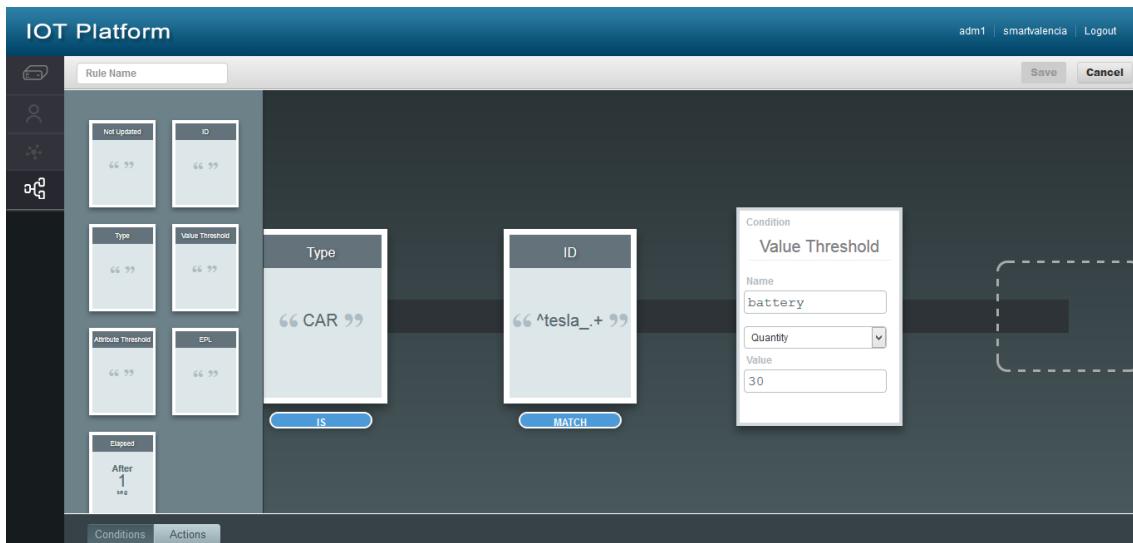


Fig. 24 Adding more conditions to a rule

Once the conditions have been filled, choose an action card from the actions list. To add an action card, drag and drop the card to the dotted area. The parameters of the action card can be edited by clicking on the action card. Only one action can be added to a rule.

When all the parameters have been filled and the rule name have been set, the rule can be saved by clicking on the `Save` button of the top bar. If any of the parameters are wrong, the `Save` button is disabled.

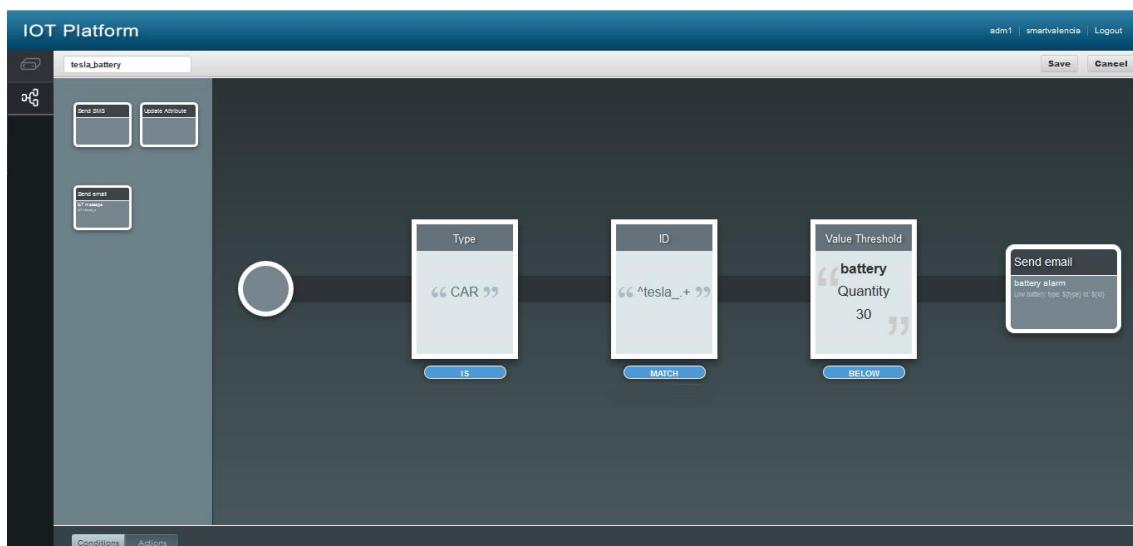


Fig. 25 A complete rule

The new rule will appear on the rules list.

3.2.3 How to compose a valid rule

- The title of the visual rule is mandatory
- One or more Condition Cards are required
- Only an Action Card is allowed
- The Elapsed condition card has to be the last condition of the set and it cannot be repeated.
- The parameters of each card must be valid.

3.2.4 Available cards

The catalogue of available cards for a rule is composed by Condition Cards and Action Cards.

The Condition Cards are:

- **ID:** execute the action for every entity whose Id matches the regular expression filled as parameter. The regular expression is required and must follow the JavaScript syntax.



Fig. 26 ID card

In the example, the condition will be satisfied if the ID of the entity starts with *tesla_*.

- **Type:** execute the action for every entity whose Type is the one filled as parameter. The *value* field is mandatory.



Fig. 27 Type card

In the example, the condition will be satisfied if the entity is a CAR.

- **Value Threshold:** compares an attribute of an entity with a constant **value**. The action will be executed for every entity that has an attribute with the given name and whose value is equal, distinct, greater than or lower than a given value. This value must follow this conventions:
 - If the type is Quantity, only numbers are allowed (float and int)
 - If the type is String:
 - Only alphanumeric characters, . (dot), - (hyphen) and _ (underscore) are allowed.
 - __ (two consecutive underscores) are not allowed.

The name of the attribute and the value to compare with are mandatory. In order to do this comparison, users must select the type of the values to be compared (text or quantity).

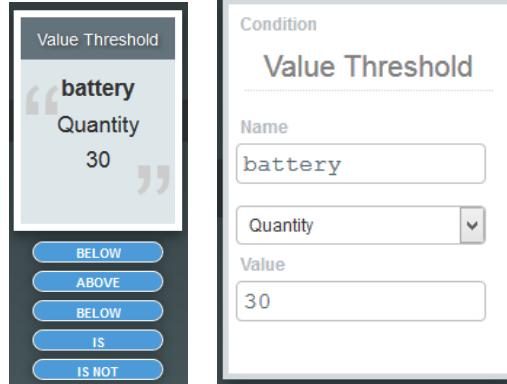


Fig. 28 Value threshold card

In the example, after choosing the BELOW comparator, the condition will be satisfied if the battery of the entity is lower than 30.

- **Attribute Threshold:** compares the values of **two attributes** of the same entity. Apply the action for every entity that has an attribute with the given name and whose value is equal, distinct, greater than or lower than the value of other attribute of the same entity. In order to do this comparison, the values

of the attributes must be of the same type and users must indicate it (text or quantity) in the card. The names of the attributes to compare are mandatory. The name of the attribute to compare with must follow the entity attribute name conventions described in section 3.1.2Create a new entity.

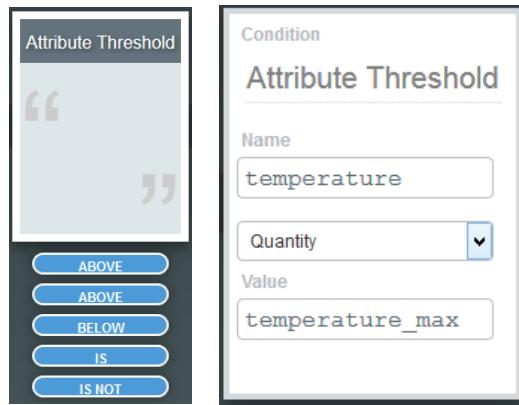


Fig. 29 Attribute Threshold card

In the example, after choosing the ABOVE comparator, the condition will be satisfied if the temperature of the entity is greater than the maximum temperature set for that entity. Unlike the Value Threshold card, the Attribute Threshold card allows setting a different limit for each entity.

- **EPL:** allows writing more complex rules using a free EPL statement. The user is responsible for creating a correct EPL statement. Additionally, it must follow several restrictions to match expectations of Perseo. See the Perseo documentation [2] for more information about writing EPL conditions.

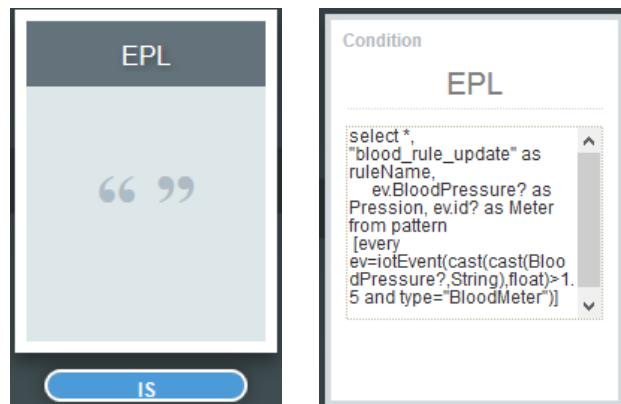


Fig. 30 EPL card

- **Not Updated:** checks if an attribute of an entity is receiving new values. To do this, it checks every Check interval minutes if Attribute name has not been updated for Max time without updating seconds.

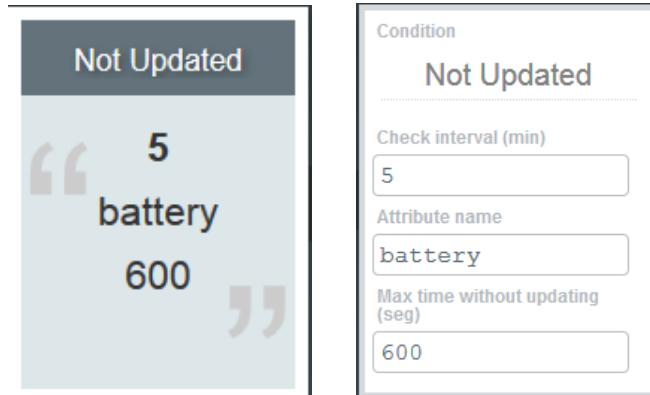


Fig. 31 Not Updated card

In this example, a timer is set to check every 5 minutes whether it is more than ten minutes since the last update of battery.

- **Elapsed:** use this card to introduce a delay before the action is performed. This card has to be placed as the final condition card of the rule. The time to wait has to be set in seconds and it has to be a positive integer. A 0 value would mean that the card will not take any effect.



Fig. 32 Elapsed card

In this example, the action of the rule will be performed after 10 minutes (600s).

When a rule is triggered, the card set as action for the rule is executed. The available actions are:

- **Send SMS:** Sends an SMS to the number set as parameter. The text of the SMS is free and can be extended with the type and id of the entity that triggered the rule. Click on the **+type** and **+id** buttons to add these data. Both, the recipient number and the text of the body are required.



Fig. 33 Send SMS card

- **Update Attribute:** updates a specific attribute of the same entity that triggered de rule. Fill in the name of the attribute to be update and the new value to set. Both parameters are mandatory.

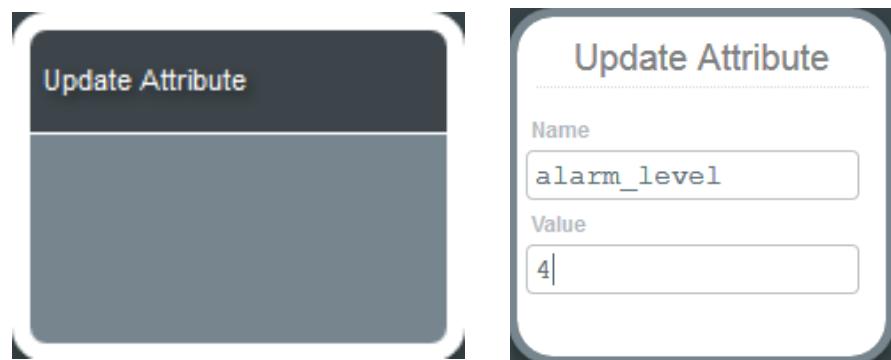


Fig. 34 Update Attribute Card

- **Send Email:** Sends an email to the recipient set and with the subject set as parameters. The body is free and can be extended with the type and id of the entity that triggered the rule. Click on the **+type** and **+id** buttons to add these data. All the fields of this card are required.

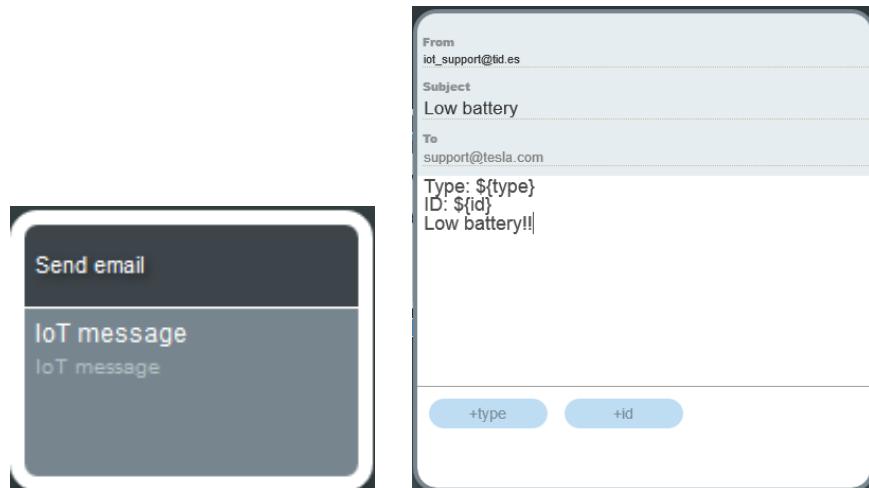


Fig. 35 Send Email card

3.2.5 Edit an existing visual rule

From the list of visual rules, click on the required rule. A new view will be opened where the rule can be easily edited.

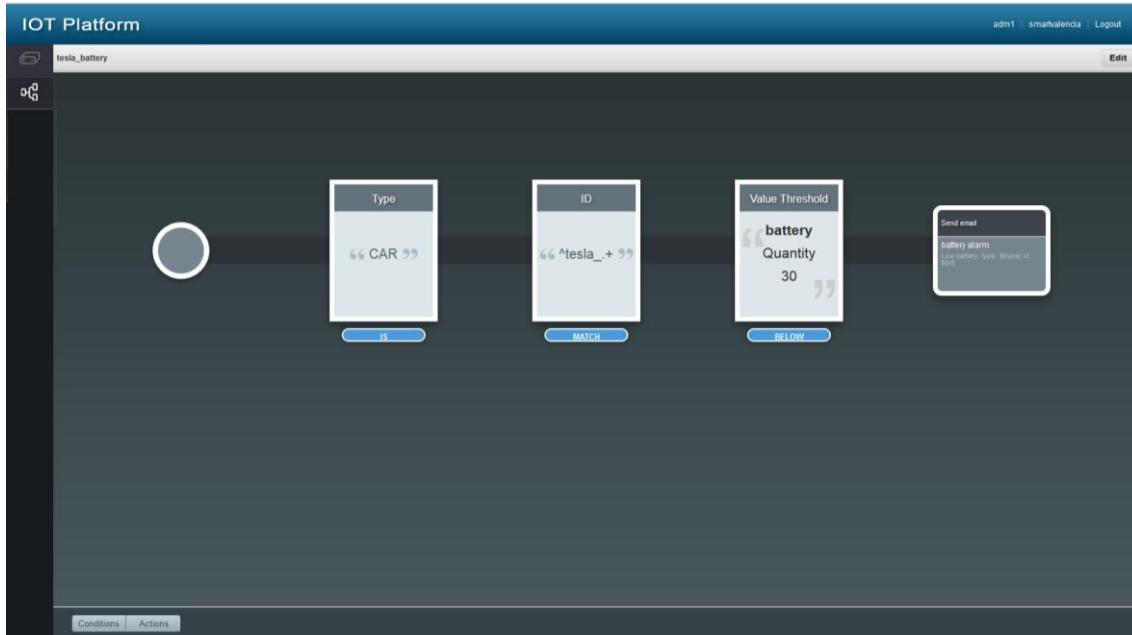


Fig. 36 Detail of a rule

To modify the name, the set of conditions, the action or any of the parameters of any card click on the **Edit** button. This will open the rule in edition mode, which is similar to the creation canvas. The edition of a rule is only available for users with edition permissions (Admin and Subservice Admin).

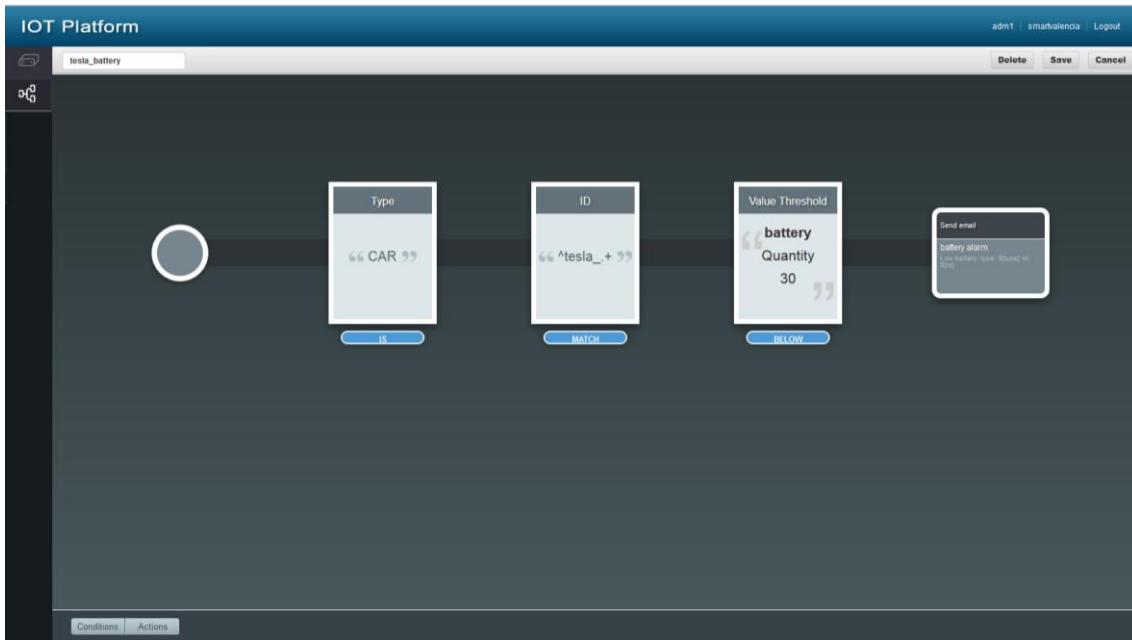


Fig. 37 Rule edition mode

Change the name of the rule, click on any of the cards to edit their parameters. Drag and drop cards into or out of the canvas to add or delete cards. Once all the modifications have been made, click on the **Save** button on the top bar to save the edited rule. To discard the changes before saving, click on the **Cancel** button.

3.2.6 Delete an existing visual rule

The deletion of a visual rule is only available for users with edition permissions (Admin and Subservice Admin).

To delete a rule it is necessary to enter the edition mode of the rule. (See Fig. 37 Rule edition mode).

Click on the **Delete** button placed at the top bar. A confirmation message will be shown before deleting the rule permanently.

3.3 Devices (new in v2.0)

In this section, users can list, provision, edit and delete devices managed by the Platform. Service Admin and Service Customer (with spreadable Subservice permissions), and Subservice Admin and Subservice Customer users can access this section.

In the current version, devices can only be provisioned in a subservice, so this section will not be available under the service scope.

To open the Devices section, click on the Devices button in the left bar menu.

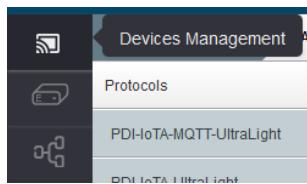


Fig. 38 Devices button

In order to manage devices in a subservice, at least a protocol must be configured. Provisioning devices is not possible in a subservice, if there are not any configured protocols for the selected subservice. The portal will show a warning message in this case.

Fig. 39. Not configured subservice for devices

The protocol configuration section for the subservice is not currently available in the portal. By now, this configuration must be done through the IoTManager API [3] for services.

3.3.1 List of Devices

The main view of the Devices section is the list of devices provisioned in the current subservice. The main panel shows the list of all devices and their basic information: *Identifier*, *Entity name*, *Entity type* and *Protocol*, whereas the left panel allows filtering devices by protocol.

ID	Entity Name	Entity Type	Protocol	action
dev_01	device:dev_01	device	PDI-IoTA-UltraLight	
dev_02	device:dev_02	device	PDI-IoTA-UltraLight	
dev_03	device:dev_03	device	PDI-IoTA-UltraLight	
sensor_01	thing:sensor_01	thing	PDI-IoTA-MQTT-UltraLight	
sensor_02	thing:sensor_02	thing	PDI-IoTA-MQTT-UltraLight	

Fig. 40 List of all devices

The previous image shows a paginated table with all the devices. There is a column for each basic data. An extra column is added to show the protocol of the device.

To filter devices by protocol, click on one of the protocols of the left panel.

ID	Entity Name	Entity Type	action
dev_01	device:dev_01	device	
dev_02	device:dev_02	device	
dev_03	device:dev_03	device	

Fig. 41 Filter devices by protocol

The main table has the same functions as the Entities one. See 3.1.1 List of Entities section to know more about these features.

3.3.2 Device provisioning

When a new device is provisioned, a related entity is created in the ContextBroker in order to publish the device status. See section 3.3.5 Entity related to a device.

To add a new device click on the **New** button in the top bar of the devices section

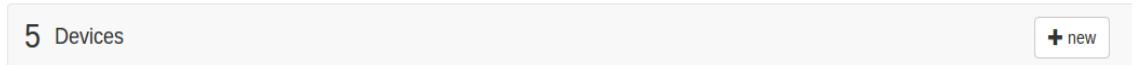


Fig. 42 New device button

This button is only available for users with edition permissions (Subservice Admin).

A new view is opened when the button is clicked. This view shows a form to fill every needed data to add a new device.

Name	Type	Value
ID		dev_0
Entity Name		device:dev_0
Entity Type		device
Protocol		PDI-ioTA-UltraLight

Protocol parameter	Entity attribute	Type

Name	Type	Value
Brand	string	ACME

Name	Type	Value

Name	Type	Value

Fig. 43 New device with Ultralight protocol

The form is composed by several sections:

Basic Data:

In the identifier of your device fill and select the protocol the device uses for its communication. Fill in the *Entity Name* of the related entity or leave the name

automatically generated by default (`{ENTITY_TYPE:DEVICE_ID}`). The *Entity Type* field placeholder shows the default value configured in the subservice for a specific protocol. Different protocols have different default values for *Entity Type* field, *Attribute Mapping* and *Static Attributes* panels. Changing protocols will involve changing those default values. Compare the following image to Fig. 43 New device with Ultralight protocol to see how *Entity Name*, *Entity Type* and *Static Attributes* panel change.

The screenshot shows the 'New device' configuration interface in the IOT Platform. The top navigation bar includes 'Devices Management' and 'New device'. The main area is titled 'Device:' with a 'save' button. The 'BASIC DATA' section contains fields for 'ID' (dev_04), 'Entity Name' (thing:dev_04), 'Entity Type' (thing), and 'Protocol' (PDI-IoTA-MQTT-UltraLigh). The 'ATTRIBUTE MAPPING' section shows a table with a single row: Protocol parameter 't' maps to Entity attribute 'temperature' with Type 'int'. The 'STATIC ATTRIBUTES' section shows a table with a single row: Name, Type, and Value columns. The 'COMMANDS' section includes an 'End Point' input field and a table for commands.

Protocol parameter	Entity attribute	Type
t	temperature	int

Name	Type	Value

Name	Type	Value

Fig. 44 New device with MQTT protocol

The previous image depicts an example of a different protocol in which the default value for *Entity Type* is 'thing' and the subservice has been configured without any default values for *Attribute Mapping* and *Static Attributes* panels.

Fill in the *Entity Type* field with a specific value if you want to overwrite the default one.

Attribute Mapping:

This section allows defining a set of mappings from protocol parameters to friendly names. These friendly names will be used as attribute names in the entity related to the device.

Fig. 45 Device attribute mapping section

The previous image depicts an example of transforming the protocol parameter τ into temperature.

Add as many attribute mappings as needed by clicking on the  button. A new row will be added to fill in the mapping data.

The subservice can have some configured default data for this section. Adding specific mappings for the device means overwriting the default mappings of the subservice, this operation is not additive.

Static attributes:

This section allows creating attributes that are independent from device measures. They are meant to populate the related entity with extra-information about the device.

Add as many static attributes as needed by clicking on the button. A new row will be added to fill in the attribute data: Name, Type and Value.

Name	Type	Value
Brand	string	ACME

Fig. 46 Device static attributes

As in Attribute Mapping section, the subservice can have some configured default data for this section. Adding specific static attributes for the device means overwriting the default static attributes of the subservice since this operation is not additive.

Commands:

This section allows defining entity attributes that will work as commands. Configure the endpoint if the device allows push commands.

Add as many commands as needed by clicking on the button. A new row will be added to fill in the command identifier (Name) and representation (Value). Leaving a blank Value means declaring a raw command. That means that the whole representation must be passed as parameter when it is executed. See section 3.3.6

Name	Type	Value
PING	command	dev_04@ping6 %
RESET	command	

Fig. 47 Configure commands for a device

Sending a command for more information.

In the above example, two commands will be configured:

- PING is an ul20 command. To configure a command with parameters, add the corresponding placeholders, separated by | (%s | %s), to the command value.

For more information about writing commands in Ultralight see its protocol syntax [4]. For more information about gateway protocols see [5].

- RESET is a raw command. The user must write the whole command as parameter when it is executed.

For more information about commands see the IoTManager API [3] for devices.

The device data must follow some conventions:

- Id is mandatory.
- Entity Name is optional. If it is not provided, an automatically generated one will be used.
- Entity Type is optional. If it is not provided, the default value configured in the subservice for a specific protocol will be used. If it was not provided, the fallback value will be *thing*.
- Protocol is mandatory.
- A device can have 0..N attribute mappings.
 - For each mapping:
 - Protocol parameter is mandatory
 - *Entity attribute* is mandatory. This field must follow the validation rules of entity attributes names (see 3.1.2 Create a new entity)
 - Type is mandatory
- A device can have 0..N static attributes.
- For each static attribute:
 - name is mandatory.
 - type is optional.
 - value is mandatory.
 - These fields must follow the validation rules of entity attributes (see 3.1.2 Create a new entity)
- Endpoint is optional.
- A device can have 0..N commands.
- For each command:
 - name is mandatory.
 - type is `command`.
 - value is optional and must follow the syntax of the specific protocol.
 - These fields must follow the validation rules of entity attributes (see 3.1.2 Create a new entity).

If the values are not valid, the device cannot be saved and a warning message will be

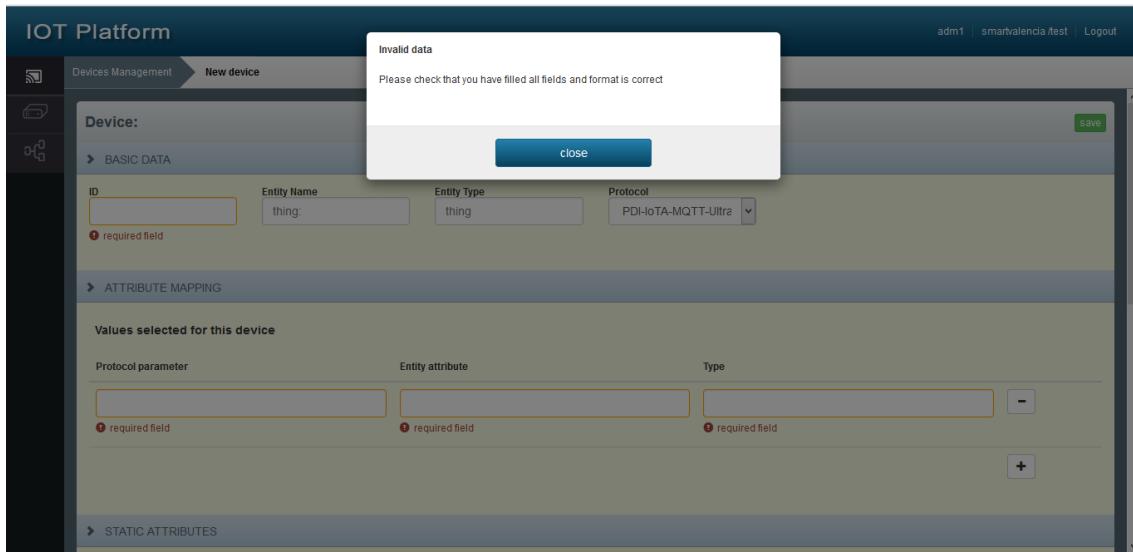


Fig. 48 Validation errors in device provisioning

shown.

Once all the data has been filled, click on the **save** button to add the device.

3.3.3 Edit an existing device

From the list of devices, double click on the required device row or click on button. A new view will be opened where the device data can be easily edited.

The screenshot shows the IOT Platform's Device detail page for a device named 'dev_04'. The top navigation bar includes links for 'Devices Management' (selected), 'PDI-IoTA-UltraLight', and 'Device detail'. The top right corner shows user information: 'adm1 | smartvalencia /test | Logout'. On the left, there's a sidebar with icons for 'Devices', 'Metrics', and 'Logs'. The main content area is titled 'Device: device:dev_04' and has an 'edit' button. It's divided into sections: 'BASIC DATA', 'ATTRIBUTE MAPPING', 'STATIC ATTRIBUTES', 'COMMANDS', and 'END POINT'. Under 'BASIC DATA', the device ID is 'dev_04'. Under 'ATTRIBUTE MAPPING', there's a table with one row: 't' (Protocol parameter) maps to 'temperature' (Entity attribute) of type 'float'. Under 'STATIC ATTRIBUTES', there's a table with one row: 'Brand' (Name) is of type 'string' and has the value 'ACME'. Under 'COMMANDS', there's a table with one row: 'PING' (Name) is of type 'command' and has the value 'dev_04@ping6%6'. At the bottom, there are 'Delete' and 'Caution! This action cannot be undone' buttons.

Fig. 49 Detailed data for a device

To edit the data, click on the **edit** button. This button is only available for users with edition permissions (Subservice Admin).

BASIC DATA

ID	Entity Name	Entity Type
dev_04	device:dev_04	device

ATTRIBUTE MAPPING

Values selected for this device

Protocol parameter	Entity attribute	Type
t	temperature	float

STATIC ATTRIBUTES

Default values

Name	Type	Value
Brand	string	ACME

Values selected for this device

Name	Type	Value
------	------	-------

COMMANDS

End Point

Name	Type	Value
PING	command	dev_04@ping6%\$

Action Buttons: Delete (red button), Caution! This action cannot be undone.

Fig. 50 Device edition

The edition of a device is similar to the creation of a new one. See the 3.3.2Device provisioning section for more information.

3.3.4 Delete an existing device

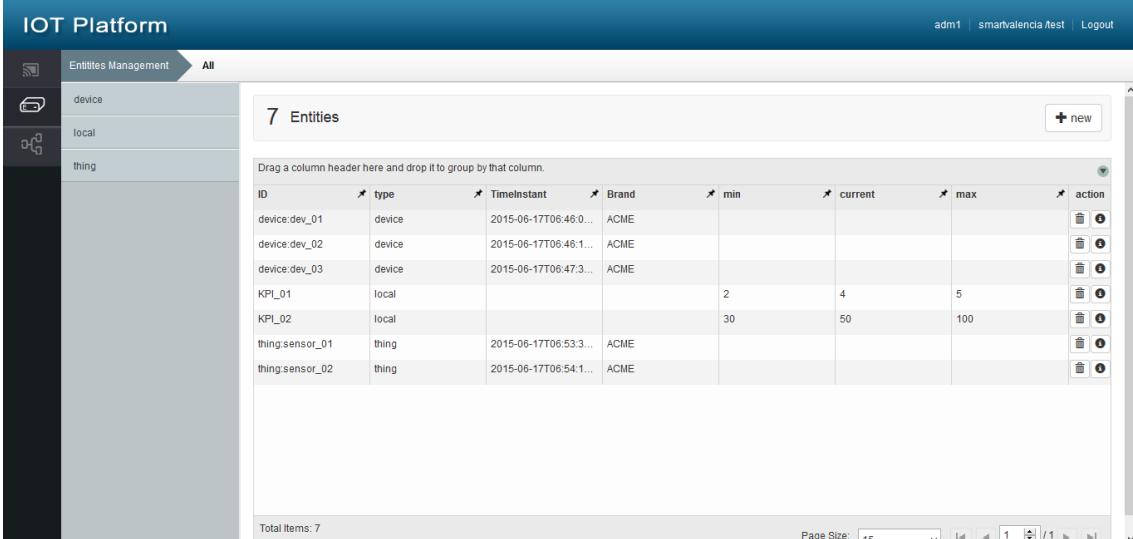
The deletion of a device is only available for users with edition permissions (Subservice Admin).

From the list of devices, click on the button placed at the rightmost column of the device row. From the detailed or edition view of a device, click on the button

placed at the bottom of the panel. A confirmation message will be shown before deleting the device permanently.

3.3.5 Entity related to a device (beta)

When a new device is provisioned, a related entity is created in the ContextBroker in order to publish the device status. The device will use the entity to publish measures and command results. This entity will have the identifier and type that were provided



The screenshot shows the IOT Platform Entities Management interface. The left sidebar has sections for Entities Management (selected), All, device, local, and thing. The main area is titled '7 Entities' and contains a table with the following data:

ID	type	Timeinstant	Brand	min	current	max	action
device:dev_01	device	2015-06-17T06:46:0...	ACME				
device:dev_02	device	2015-06-17T06:46:1...	ACME				
device:dev_03	device	2015-06-17T06:47:3...	ACME				
KPI_01	local			2	4	5	
KPI_02	local			30	50	100	
thing:sensor_01	thing	2015-06-17T06:53:3...	ACME				
thing:sensor_02	thing	2015-06-17T06:54:1...	ACME				

Total Items: 7 Page Size: 15

Fig. 51 Mixed list of entities: local entities and device-related entities

in the device creation process and will be accessible from the Entities section. The image above shows three types of entities: *local*, *devices* and *things*. This shows how local entities (entities created directly from the Entities section) and device-related entities (entities created from the Devices section) can co-exist. The following image depicts a device-related entity:

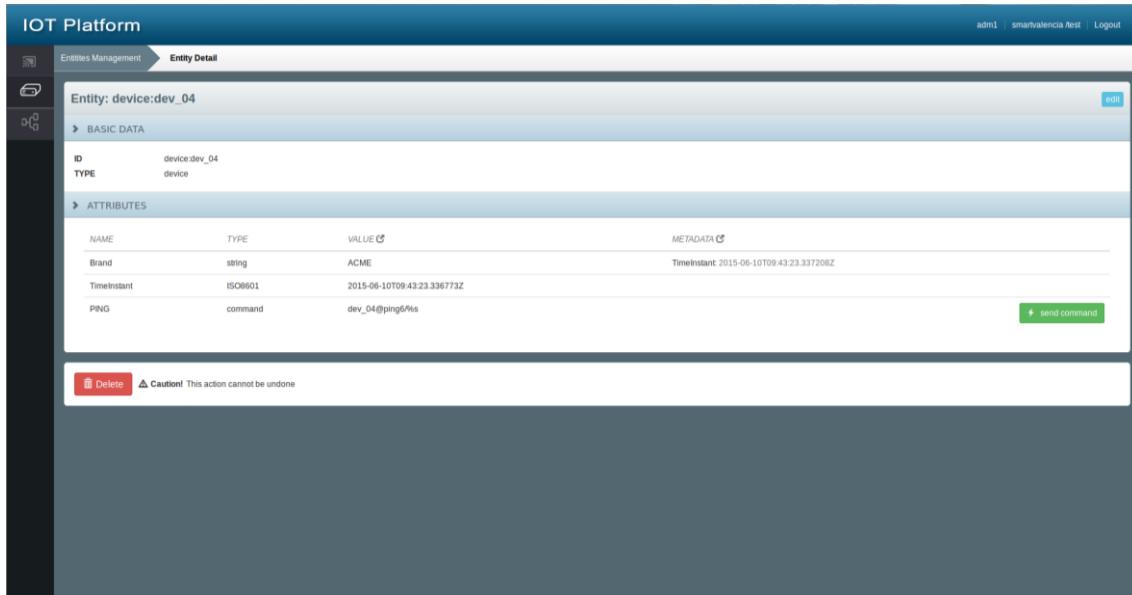


Fig. 52 Entity related to a device

If the device does not have any commands, the related entity looks like a common one. However, if the device has any configured command, the related entity will have a special attribute intended to execute that command. These special attributes are different from the common ones in that their type is `command` (a reserved type) and they can be executed clicking on **⚡ send command** button.

These special attributes have some special issues in the edition mode too: command attributes cannot be modified from the Entity detailed view. They must be edited from the Device detailed view.

The screenshot shows the Entity Detail page for a device entity named 'device:dev_04'. The 'BASIC DATA' section displays the ID as 'device.dev_04' and the TYPE as 'device'. The 'ATTRIBUTES' section lists three entries: 'Brand' (string type, value 'ACME'), 'TimeInstant' (ISO8601 type, value '2015-06-10T09:43:23.336773Z'), and 'PING' (command type, value 'dev_04@ping6!ts'). At the bottom left, there is a red 'Delete' button with a warning message: 'Caution! This action cannot be undone'.

Fig. 53 Editing the device-related entity

NOTICE:

1. Removing commands from the Entities section does not take any effect. Commands MUST be removed from the Devices section.
2. device-related entities MUST NOT be removed before removing the device itself or before changing the *Entity Name* field in the data of the device. Every time a command or a measure is sent, the entity will be recreated if it no longer exists.

3.3.6 Sending a command (beta)

The execution of commands can be done from the details view of the device-related entity.

Every command of the device will be marked with type `command`. Click on

send command

button to execute it. A pop-up window will be open to fill in the parameters of the command.

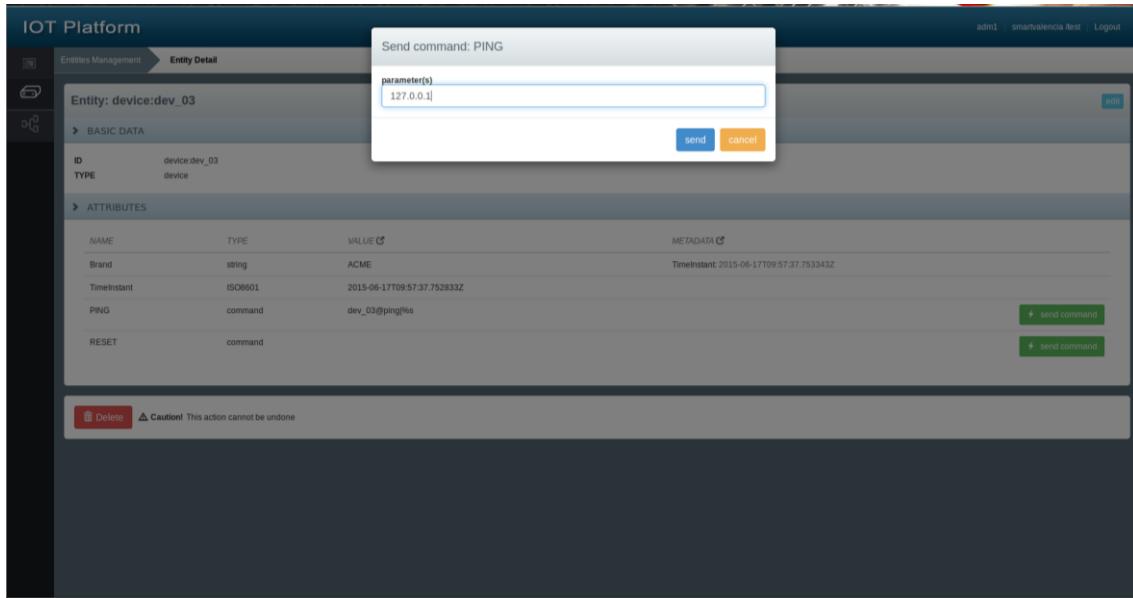


Fig. 54 Sending a command to a device

Users executing commands must know how the command works. They must have read the documentation about its parameters (number and format). If the command does not accept any parameter, users can leave the parameters input empty. If they want to execute a raw command, that is, a command that has been created without any representation (empty value), they will have to type the whole command and parameters in the parameters pop-up.

Once the command is sent, a new special attribute will appear in the device-related entity to show the status of the execution. The name of this attribute has the following format: {command_name}_status.

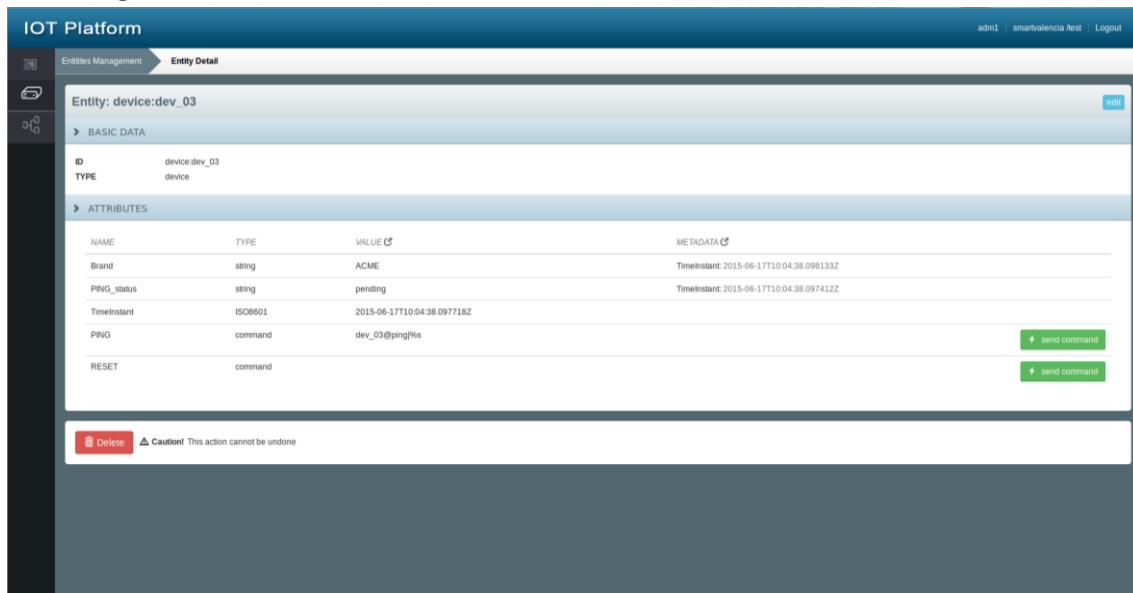


Fig. 55 Command status

In the previous image, a new attribute `PING_status` shows that the command status is pending. There will be a `_status` attribute for each executed command. Several executions of the same command will update the same `_status` attribute.

When the device respond to the command, the result is stored in a new attribute called `{command_name}_info`.

NAME	TYPE	VALUE	METADATA
Brand	string	ACME	TimeInstant: 2015-06-17T10:04:42.019191Z
PING_info	string	dev_03@ping)MADE_OK	TimeInstant: 2015-06-17T10:04:42.018561Z
PING_status	string	OK	TimeInstant: 2015-06-17T10:04:42.018292Z
TimeInstant	ISO8601	2015-06-17T10:04:42.018736Z	
PING	command	dev_03@ping)ls	<button>+ send command</button>
RESET	command		<button>+ send command</button>

Fig. 56 Command response

3.4 Service Management (new in v2.0)

This section is intended for Regional Service Provider users. In it, Service Providers can list, create, edit and delete services. Service Admin providers can access this section too, but for a different purpose: they can only see the basic data of the service they belong to. However, they cannot edit or delete the service.

From now on, this section will focus on the Regional Service Provider use case, as it includes the functionality for Service Admin users.

To open the Service Management section, click on the Rules button in the left bar

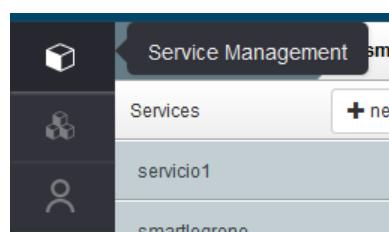


Fig. 57 Service Management button

menu.

3.4.1 List of Services

The main view of the Service Management section is the list of services. The left panel allows selecting the service whereas the main panel shows the details of the selected service. On loading, the first service is selected.

The screenshot shows the IOT Platform interface. The top navigation bar includes 'Service Management' and the service name 'smartvalencia'. The left sidebar lists several services: 'service1', 'service2', 'service3', 'service4', 'service5', 'service6', 'smartvalencia' (which is highlighted in blue), and 'service7'. The main content area displays the details for the selected service 'smartvalencia'. It shows the 'BASIC DATA' section with fields: ID (a9ef161cd1764bedbb3b19eac178c91f), NAME (smartvalencia), and DISPLAY NAME (smartvalencia). Below this, there is a red 'Delete' button and a warning message: 'Caution! This action cannot be undone'. At the top right of the main content area is an 'edit' button.

Fig. 58 List of Services

Select a service to see its basic data:

- ID: the unique identifier (for administrative purposes)
- Name: the name that will be used as identifier of the service in the IoT Platform. This name must be used as `Fiware-Service` header in every HTTP request to the IoT Platform APIs. It cannot be edited.
- Display Name: the public and editable name of the service. It is the name displayed to users in the portal.

3.4.2 Create a new Service

To create a new Service, click on the button on the left panel. This button is only available for Regional Service Provider users.

In the current release of the Platform, creating a new Service using the portal involves:

- Creating the service in the Identity Manager
- Creating the basic Platform roles and permissions for the service. These roles are *Service Admin*, *Subservice Admin* and *Subservice Customer* (**Notice:** *Service Customer* role has to be created on demand).
- Creating a Service Admin user for the service.

Fill in the following form with the needed data for the new service.

The screenshot shows the 'Service Management' section of the IOT Platform. A service named 'Smart City' is being created. In the 'BASIC DATA' tab, the 'name' field contains 'smarcticy' and the 'display name' field contains 'Smart City'. In the 'ADMIN DATA' tab, there is a note: 'This data is required to create an Administrator for the above service'. The 'name', 'email', 'password', and 'repeat password' fields are present but have not been filled. A 'save' button is visible in the top right corner.

Fig. 59 Create a new Service

The service data must follow some conventions:

- name is mandatory
 - Only **lowercase**, alphanumeric and _ (underscore) characters are allowed.
 - Maximum length: 50 characters
- display name is mandatory. NOTICE: you SHOULD NOT use very long display names (more than 50 characters). They are going to be displayed in service lists and menus on the portal and can become unfriendly for the user.
- admin name is mandatory
 - Only alphanumeric and _ (underscore) characters are allowed.
 - Maximum length: 50 characters
- admin email is mandatory
 - it must follow an email format¹.
- admin password is mandatory:
 - Minimum length: 6 characters

If the values are not valid, the service cannot be saved and a warning message will be shown.

¹ The default email format used in the current version is: [A-Za-z0-9._%+-]+@[A-Za-z0-9.-]+\.[A-Za-z]{2,4}

The screenshot shows the 'Service Management' section of the IOT Platform. A modal dialog box is open, displaying an 'Invalid data' message: 'Please check that you have filled all fields and format is correct'. The 'close' button is visible at the bottom of the dialog. The main form has two sections: 'BASIC DATA' and 'ADMIN DATA'. In 'BASIC DATA', the 'name' field is highlighted in red with error messages: 'required field' and 'Only a-z,A-Z,0-9,_ allowed'. The 'display name' field is also highlighted in red with the message 'required field'. In 'ADMIN DATA', there are four fields: 'name', 'email', 'password', and 'repeat password'. The 'name' field has errors: 'Only a-z,A-Z,0-9,_ allowed' and 'required field'. The 'password' field has errors: 'The minimum length for this field is 6' and 'Passwords are not equal'. The 'repeat password' field has the error 'required field'. A green 'save' button is located at the top right of the main form.

Fig. 60 Validation errors in Service creation

Once all the data has been filled, click on the **save** button to add the service.

3.4.3 Edit an existing service

From the Service details section, click on the **edit** button. Only Regional Service Provider users can edit services. The following form will be available to edit the Service

The screenshot shows the 'Service Management' section of the IOT Platform, specifically for the 'Smart City 1' service. The service details are displayed in a form. The 'ID' field shows the value '548e1af14b4843be8285bb9529821d06'. The 'name' field is 'smartcity1' and the 'display name' field is 'Smart City 1'. At the bottom of the form, there is a red 'Delete' button and a warning message: 'Caution! This action cannot be undone'. A green 'save' button is located at the top right of the form. The top navigation bar shows 'Service Management' and 'Smart City 1'.

Fig. 61 Edit a service

data.

Users can edit the service in order to change its display name. This field follows the validation rules explained in section 3.4.2 Create a new Service.

3.4.4 Delete an existing service

The deletion of a Service is only available for users with Regional Service Provider permissions. In the current release of the Platform, deleting a Service using the portal involves:

- Deleting the service from the Identity Manager
- Deleting the basic Platform roles and permissions created for the service.
- Deleting the subservices belonging to the service from the Identity Manager
- Deleting the users belonging to the service.

Every entity, rule, device, etc. created for the service will remain in the platform for operational reasons.

To delete a service, click on the  Delete button placed at the bottom of the main panel. A confirmation message will be shown before deleting the service permanently.

3.5 Subservice Management (new in v2.0)

In this section, users can list, create, edit and delete subservices. Regional Service Provider, Service Admin and Service Customer users can access this section.

To open the Subservices section, click on the Subservice Management button in the

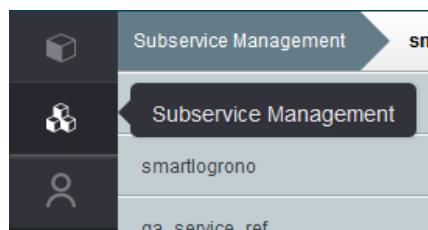
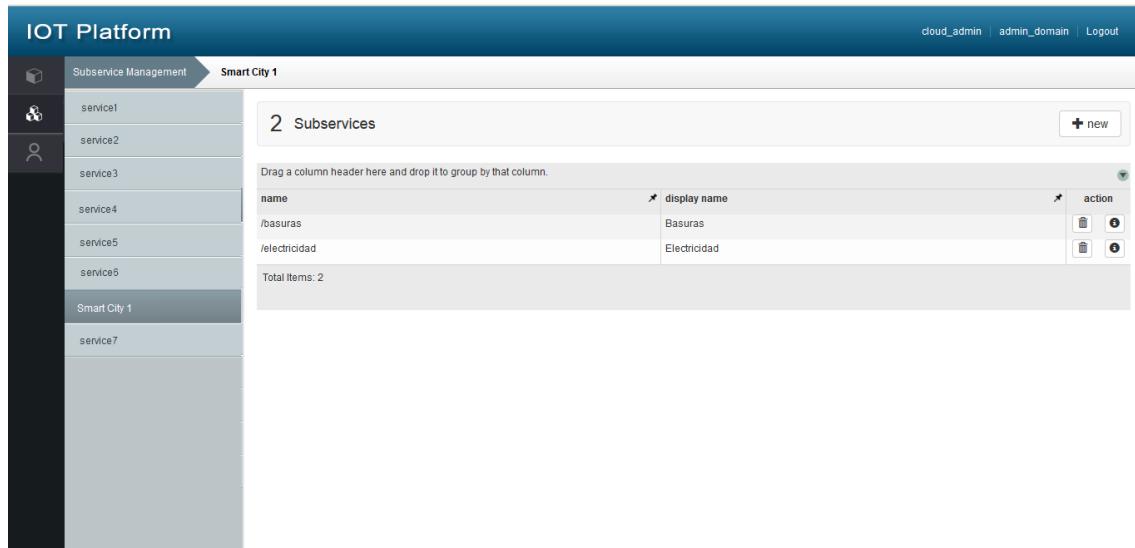


Fig. 62 Subservice Management button

left bar menu.

3.5.1 List of subservices

The main view of the Subservices section is the list of subservices created in the current service. The main panel shows the list of all subservices and their basic information. In the case of Regional Provider Users, the left panel allows selecting subservices by service. On loading, the first service is selected.



The screenshot shows the IOT Platform Subservice Management interface. The top navigation bar includes 'cloud_admin', 'admin_domain', and 'Logout'. The main panel title is 'Smart City 1'. On the left, a sidebar lists services: 'service1' (selected), 'service2', 'service3', 'service4', 'service5', 'service6', 'Smart City 1' (selected), and 'service7'. The main content area displays a table titled '2 Subservices' with two rows:

name	display name	action
/basuras	Basuras	
/electricidad	Electricidad	

Total Items: 2

Fig. 63 List of subservices

The main table has the same characteristics as the Entities one. See 3.1.1List of Entities section to know more about these features.

3.5.2 Create a new Subservice

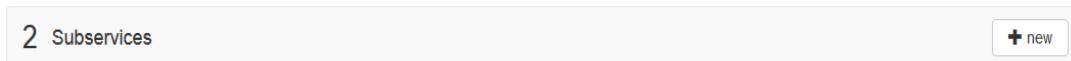


Fig. 64 New Subservice button

To create a new Subservice, click on the New button in the top bar of the Subservices section.

This button is only available for Regional Service Provider and Service Admin users.

Fill in the following form with the needed data for the new subservice.

The screenshot shows the IOT Platform's Subservice Management interface. At the top, there are navigation links: Subservice Management, Smart City 1, and New Subservice. On the right side of the header, there are links for cloud_admin, admin_domain, and Logout. The main content area is titled "Subservice: North District" and contains a "BASIC DATA" section. Within this section, there are two input fields: "name" containing "district_1" and "display name" containing "North District". In the top right corner of the input area, there is a green "save" button.

Fig. 65 Create a new Subservice

The subservice data must follow some conventions:

- name is mandatory
 - Alphanumeric and _ (underscore) characters are allowed.
 - Maximum length: 50 characters
 - The Platform will automatically add a / (slash) at the beginning of the subservice name due to Platform restrictions. In the example, the real name of the subservice will be /district_1.
- display name is mandatory. NOTICE: you SHOULD NOT use very long display names (more than 50 characters). They are going to be displayed in service lists and menus on the portal and can become unfriendly for the user.

If the values are not valid, the subservice cannot be saved and a warning message will be shown. Once all the data has been filled, click on the **save** button to add the subservice.

3.5.3 Edit an existing subservice

From the list of subservices, double click on the required subservice row or click on button. A new view will be opened where the subservice data can be easily edited. To edit the data, click on the button. Only Regional Service Provider and Service

Admin users can edit subservices. The following form will be available to edit the Subservice data.

The screenshot shows the IOT Platform's Subservice Management interface. The top navigation bar includes 'IOT Platform', 'cloud_admin | admin_domain | Logout', and a breadcrumb path: 'Subservice Management > Smart City 1 > Subservice Detail'. The main panel displays a 'Subservice: North District' detail view. It has a 'BASIC DATA' section with fields: 'ID' (89b2dc3addc148b6b19ad194cd6e256d), 'name' (/district_1), and 'display name' (North District). A 'Save' and 'cancel' button are at the top right. At the bottom, there is a red 'Delete' button and a warning message: 'Caution! This action cannot be undone'.

Fig. 66 Edit a Subservice

Users can edit the subservice in order to change its display name. This field follows the validation rules explained in section 3.5.2 Create a new Subservice.

3.5.4 Delete an existing subservice

The deletion of a Subservice is only available for users with Regional Service Provider and Service Admin permissions.

Every entity, rule, device, etc. created for the subservice will remain in the platform for operational reasons.

To delete a subservice, click on the button placed at the rightmost column of the subservice row in the list of subservices. It can be also deleted by clicking on the button placed at the bottom of the main panel of the subservice details section. A confirmation message will be shown before deleting the subservice permanently.

3.6 User Management (new in v2.0)

In this section, users can list, create, edit and delete the users of a service. Only Regional Service Provider and Service users can access this section.

To open the Users section, click on the User Management button in the left bar menu.

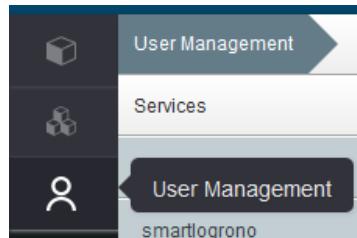


Fig. 67 User Management button

3.6.1 List of users

The main view of the User Management section is the list of users provisioned in the current service. The main panel has a special layout. It is depicted in the following image.

A screenshot of the IIoT Platform's User Management section. The left sidebar shows 'User Management' selected. The main panel displays a table titled '4 Users' with columns 'name', 'description', and 'action'. The table contains four rows: 'adm1' (user of domain smartcity1), 'alice' (Alice), 'bob' (Bob), and 'carl' (Carl). The 'action' column includes icons for edit, delete, and more. At the bottom, there is a page size dropdown set to 15, and a navigation bar with page numbers 1, 2, and 1.

Fig. 68 List of all users in the service

Users belonging to the service but with no specific roles at the service scope will be listed only in the *All* users table. However, users that have been assigned a set of roles in the service will also appear in the corresponding accordion panels. There will be as many panels as role assigned in the service. This is, to see the Service Admin users of the current service, click on the *Admin* panel.

In the previous example, *adm1* is the administrator of the service *Smart City 1*. Because of that, *adm1* appears in both, *All* users table and *Admin* table. In this example, there is another assignment:

The screenshot shows the IOT Platform User Management interface for the *Smart City 1* service. On the left, a sidebar lists various services and sub-services. The main area displays two tables of users:

- Service Customer:** Shows 4 users: carl (description: Carl). Total items: 1.
- All:** Shows 4 users: adm1 (description: user of domain smartcity1), alice (description: Alice), bob (description: Bob), and carl (description: Carl). Total items: 4.

Fig. 70 List of users. Service Customer users

The screenshot shows the IOT Platform User Management interface for the *Smart City 1* service. On the left, a sidebar lists various services and sub-services. The main area displays one table of users:

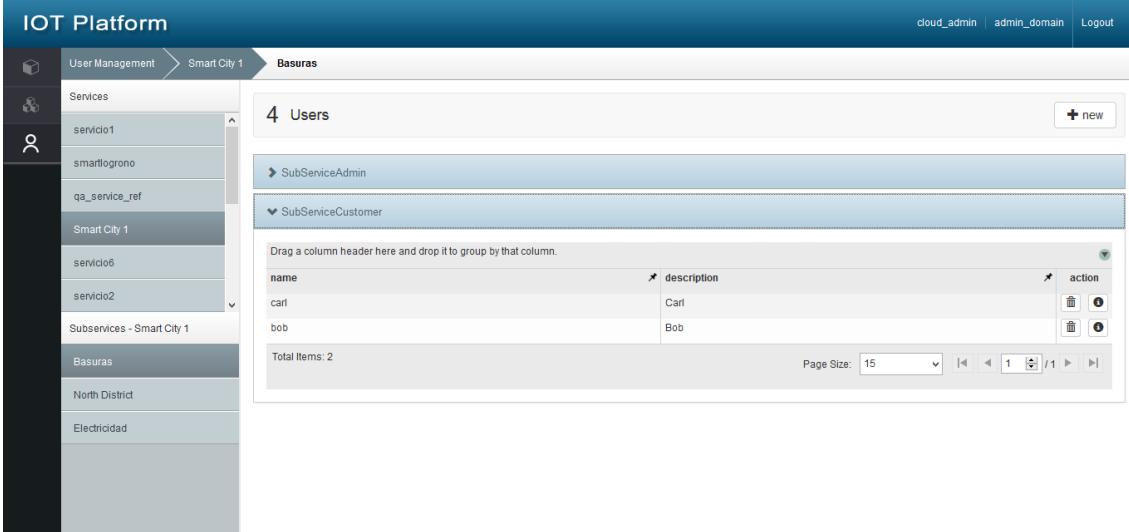
- All:** Shows 4 users: adm1 (description: user of domain smartcity1), alice (description: Alice), bob (description: Bob), and carl (description: Carl). Total items: 4.

Fig. 69 Users list. Admin users

Those are the only role assignments done at service level. This means that *Bob* and *Alice* do not have permissions to access to the service scope (they are neither Service Admin nor Service Customer of *Smart City 1*).

The left panel allows selecting the users of a specific service. Moreover, once a service is selected users can also filter by subservice to see the role assignments at that scope.

NOTICE: although users are assigned to a subservice, they keep belonging to the service. This is, a user can be given a role in different subservices and also in the service



The screenshot shows the IOT Platform User Management interface. The left sidebar lists services: servicios1, smartlogrono, qa_service_ref, Smart City 1, servicio6, servicio2, Subservices - Smart City 1, Basuras, North District, and Electricidad. The main area shows a table titled '4 Users' with two rows: 'SubServiceAdmin' and 'SubServiceCustomer'. Under 'SubServiceCustomer', there are two users: carl (description: Carl) and bob (description: Bob). The table has columns for name, description, and action (with edit and delete icons). A message at the bottom says 'Drag a column header here and drop it to group by that column.' The top right of the interface shows 'cloud_admin | admin_domain | Logout'.

Fig. 71 Users filtered by subservice

itself.

The above picture shows the users with *Subservice Customer* role in a specific subservice.

All of these are different ways of filtering the users of a service. They are different views of the same list.

Every table of this section has the same functions as the Entities one. See 3.1.1List of Entities section to know more about these features.

3.6.2 Create a new User

To create a new User, click on the **New** button in the top bar of the Users section.

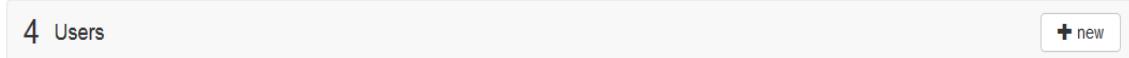


Fig. 72 New User button

This button is only available for Regional Service Provider and Service Admin users. Only service users can be created.

A new form is opened to fill in the user details. This include filling in the basic data to create the user in the Identity Manager and assing the required roles to the user.

The screenshot shows the IOT Platform's User Management interface. A navigation bar at the top includes 'User Management' (with a dropdown arrow pointing to 'Smart City 1'), 'New User', and user status ('cloud_admin | admin_domain | Logout'). On the left, there's a sidebar with icons for 'User Management' (person icon) and 'Smart City 1' (city icon). The main content area is titled 'User: John'. It has three tabs: 'BASIC DATA' (selected), 'PASSWORD', and 'ROLES'. Under 'BASIC DATA', fields include 'name' (John), 'email' (john@smcity1.com), and 'description' (John Smith). Under 'PASSWORD', fields are 'password' and 'repeat password', both showing five asterisks. Under 'ROLES', there are two sections: 'Service' (Smart City 1) and 'Subservice' (Basuras), each with a 'Role' dropdown menu labeled 'select'. A green 'save' button is located in the top right of the form area.

Fig. 73 Create a new user. Basic data

User data must follow some conventions:

- name is mandatory
 - Only alphanumeric and _ (underscore) characters are allowed.
 - Maximum length: 50 characters
- email is mandatory
 - It must follow an email format².
- password is mandatory:
 - Minimum length: 6 characters

Selecting roles for new users is optional. Users without roles can be saved. To assign roles to the user, select the required roles for each subservice and/or the service itself.

² The default email format used in the current version is: [A-Za-z0-9._%+-]+@[A-Za-z0-9.-]+\.[A-Za-z]{2,4}

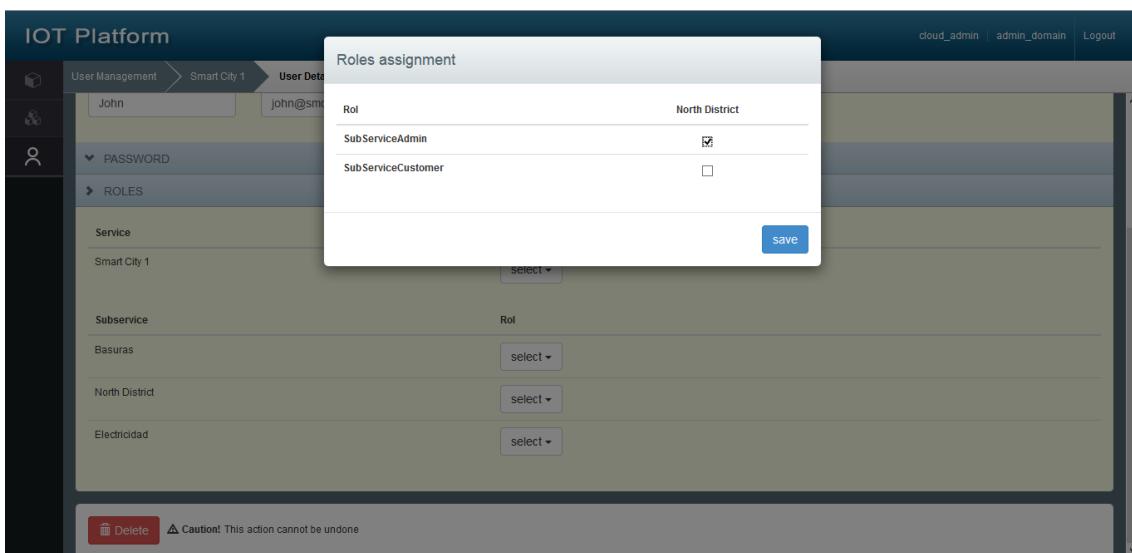


Fig. 74 Role assignment in subservice

When a subservice is selected, the available roles are the subservice applicable roles (SubserviceAdmin and SubserviceCustomer)

In case of assigning a role in the service itself, the applicable roles are different.

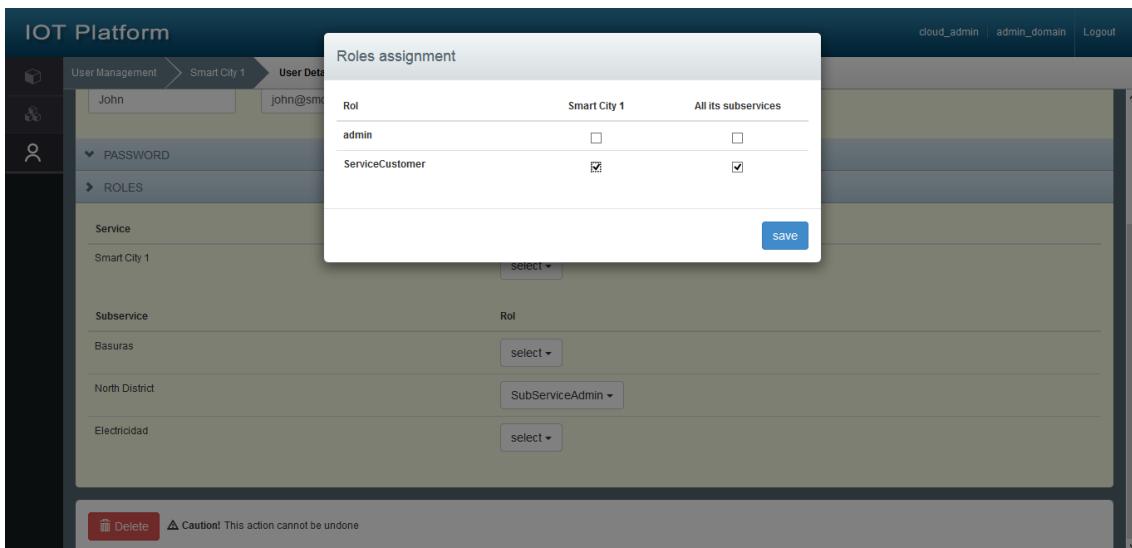


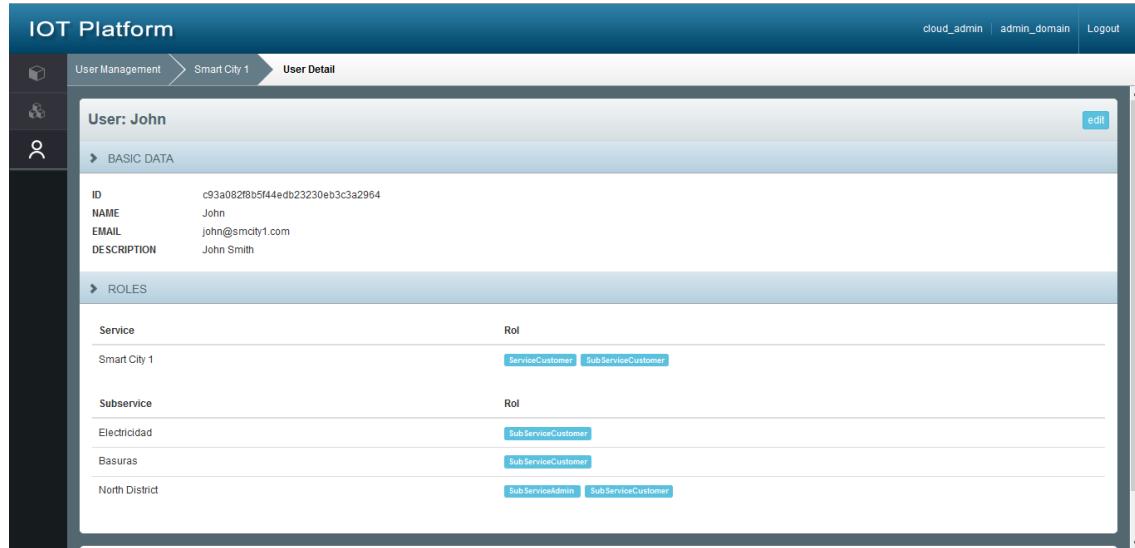
Fig. 75 Role assignment in service

In this case administrators can choose a role and whether it should be propagated to all the subservices. In the previous example, *John* will be *Service Customer* of *Smart City 1* and *Subservice Customer* of every subservice. However, *John* can also be the *Subservice Admin* of *North District*.

If the values are not valid, the user cannot be saved and a warning message will be shown. Once all the data has been filled, click on the **save** button to create the user in the service.

3.6.3 Edit an existing user

From the list of users, double click on the required user row or click on  button. A new view will be opened where the user data can be easily edited.



The screenshot shows the IOT Platform User Management interface. The top navigation bar includes 'User Management' (selected), 'Smart City 1', and 'User Detail'. The main content area displays the details for a user named 'John'. The 'BASIC DATA' section shows the following information:

ID	c93a082f8b5f44edb23230eb3c3a2964
NAME	John
EMAIL	john@smcity1.com
DESCRIPTION	John Smith

The 'ROLES' section lists roles assigned to different entities:

Service	Role
Smart City 1	ServiceCustomer Sub ServiceCustomer
Subservice	Role
Electricidad	SubServiceCustomer
Basuras	SubServiceCustomer
North District	SubServiceAdmin Sub ServiceCustomer

Fig. 76 Details of an existing user

The previous image depicts the basic information and roles assignments of an existing user. Users can have different roles in subservices and the service itself. In this case, John can see entities, rules, etc. created in Smart City 1 scope because he has reading permissions in Smart City 1 service (Service Customer). In addition to this, these permissions have been propagated to all subservices (Subservice Customer). This means that he will be able to see any existing or new subservice in the service. John has also special permissions in North District because he is Subservice Admin of the subservice.

To edit the data, click on the  button. This button is only available for Regional Service Provider and Service Admin users.

The screenshot shows the 'User Detail' page for a user named John. The basic data section includes an ID (c93a0b2fb5f44edb23230eb3c3a2964), name (John), email (john@simcity1.com), and description (John Smith). The 'ROLES' section lists roles assigned to various services: Smart City 1 (ServiceCustomer, SubServiceCustomer), Basuras (SubServiceCustomer), North District (SubServiceAdmin, SubServiceCustomer), and Electricidad (SubServiceCustomer). At the bottom of the page is a red 'Delete' button with a trash icon and a warning message: 'Caution! This action cannot be undone'.

Fig. 77 Edit an existing user

The edition of a user is similar to the creation of a new one. The only difference is the password is optional in this case. See section 3.6.2 Create a new User for more information.

3.6.4 Delete an existing user

The deletion of a user is only available for Regional Service Provider and Service Admin users.

From the list of users, click on the button placed at the rightmost column of the user row.

NOTICE: the table from which the user is removed does not matter. The user appears in different tables because they are different views of the same list. Removing a user means deleting her from the service completely.

From the detailed or edition view of a user, click on the button placed at the bottom of the panel. A confirmation message will be shown before deleting the user permanently.

4 References

- [1] Context Broker APIs usage document
- [2] Perseo CEP EPL API usage document
- [3] IoTManager API reference
- [4] UL2 syntax: <http://docs.telefonicaiotul2.apiary.io>
- [5] Southbound GW protocols document