

Getting Started with Giotto

SSL Configuration

Generate an SSL certificate and corresponding key:

We suggest using *Let's Encrypt. Certbot* (<https://certbot.eff.org/>) will help you to generate and maintain the certificate. In this step, you will get the locations of *privkey.pem* and *fullchain.pem* obtained by Let's Encrypt.

Register your application with Mail Client:

We suggest using a Google email address to register your application. This [link](#) describes explains how to do it in detail. In this step, you will get:

- client id
- client secret
- access token
- refresh token

Installation

Unpack the tarball archive, change into the Giotto directory, and type:

```
$ sudo ./install.sh
```

The installation process is interactive. You will be given a series of questions to answer. A list of the Instructions are as follows (assume using SSL):

1. Do you have a SSL certificate and key that you would like to use? Please enter [y/n]
-> y
2. Please enter the path to the certificate:
-> Location of the fullchain generated by Let's Encrypt.
E.g., /etc/letsencrypt/live/example.com/fullchain.pem
3. Please enter the path to the key:
-> Location of the fullchain generated by Let's Encrypt.
E.g., /etc/letsencrypt/live/example.com/privkey.pem
4. Please enter the ip address or the domain name of this installation
-> example.com
5. Enter Y to install an MTA and N to use your GMail account.
-> n
6. Please enter your Gmail id
-> [example_user@gmail.com](#) (used for application registration)
7. Please enter your client id
-> client id from Google API Console for application registration

8. Please enter your client secret
-> client secret corresponding to the above client id
9. Please enter access token
-> Access token generated by the above instruction while application registration
10. Please enter refresh token
-> Refresh token generated by the above instruction while application registration

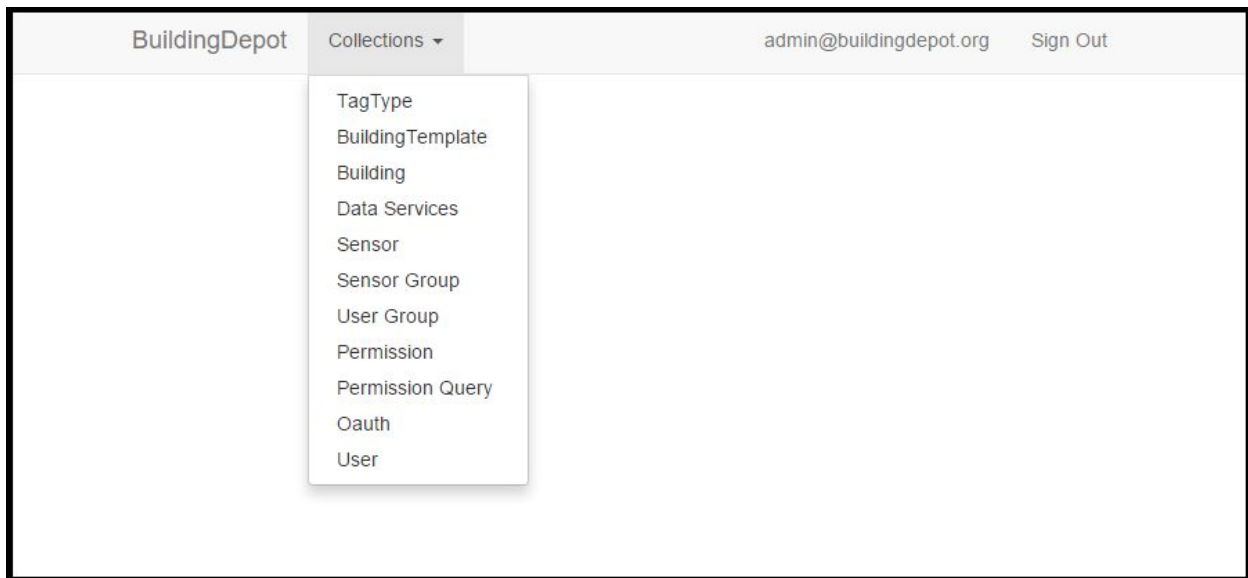
Your user id and a temporary password will be displayed on the screen, when the program completes. Please record both for use in the steps below. You will also need the IP address or hostname of this host, to access the web-based interface.

Configure your Installation with the Web-based Interface

To access the web-based interface, direct your browser to `https://<hostname or ipaddress>:81`. Port 81 is assigned for Central Service (CS) and port 82 is assigned for Data Service (DS) (In the future, these will be changed to use port 80 as usual but with different sub domain name). In the screen below, Click "Sign In" and login with your login information. If you are logging in for the first time, you will be prompted to change your password, before continuing.



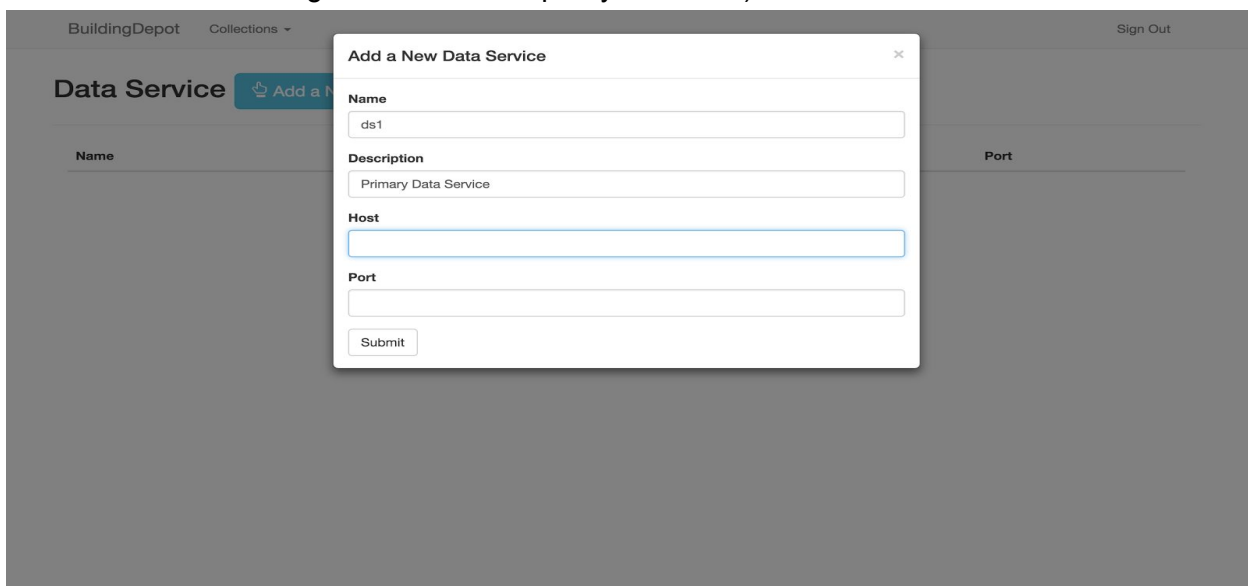
You can find various options in Collections tab. Since this is a Getting Started guide, we won't cover every option in detail.



Adding a New Data Service:

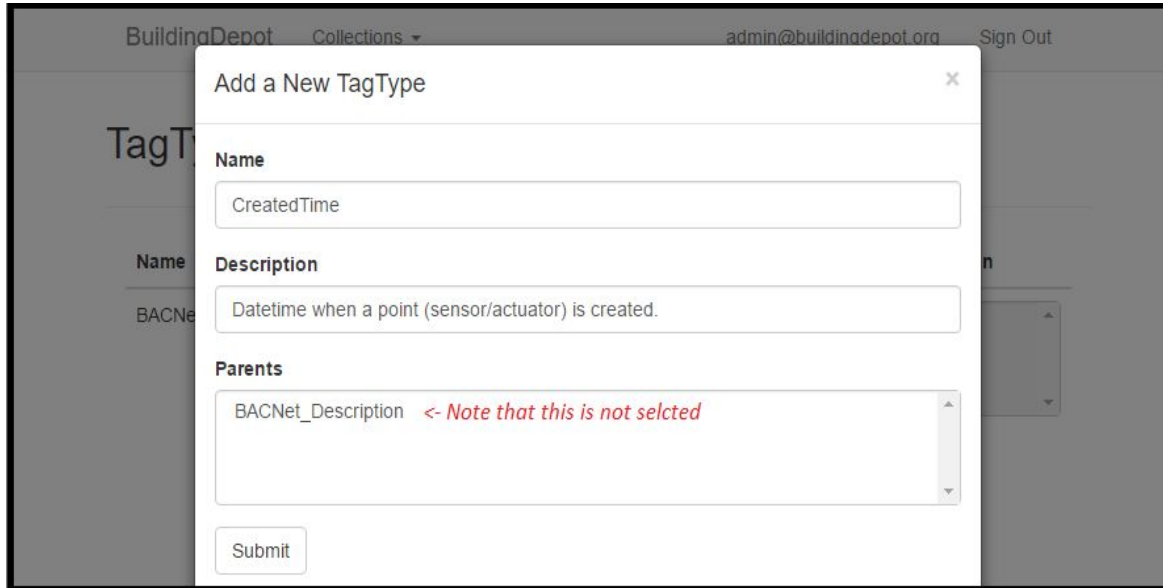
Data for Giotto is stored in one or more Data Services. When a new Building is created, it must be associated with a Data Service, before it can begin acquiring data. A default Data Service is created for you, during installation, and named 'ds1'. You may wish to register additional Data Services before continuing.

Select Data Service from the pull-down menu. The 'Add a New Data Service' dialog should appear. Go the DataService tab and register a DataService as shown below. (Note, in order to create this Data Service, you will need to run the installation script, or otherwise create a Data Service instance running on the host and port you desire.)



Adding a TagType

Select TagType from the pull-down menu. The 'Add a New TagType' dialog should appear. A TagType is like a ready-made form for defining hierarchies of attribute/value pairs known as Tags. The simplest TagType is simply the name of an attribute and a description, with no parents defined.

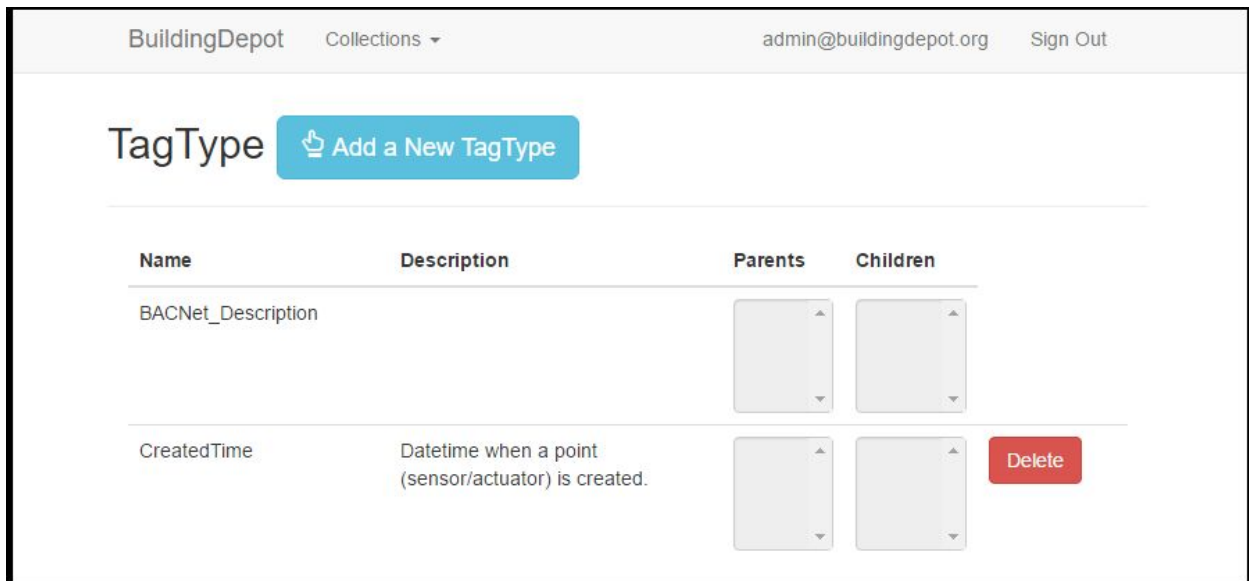


The screenshot shows a web application interface with a modal dialog titled "Add a New TagType". The dialog has a close button (X) in the top right corner. It contains three main sections: "Name", "Description", and "Parents".

- Name:** A text input field containing "CreatedTime".
- Description:** A text input field containing "Datetime when a point (sensor/actuator) is created.".
- Parents:** A dropdown menu with "BACNet_Description" selected. A red note next to it says "<- Note that this is not selcted".

At the bottom of the dialog is a "Submit" button. The background shows a blurred view of the "TagType" management page.

Hierarchies of tags can be built upon these simple tag types, by creating new tags to be the children of other tags. (This TagType feature is under continuous development, and may see additional changes.)

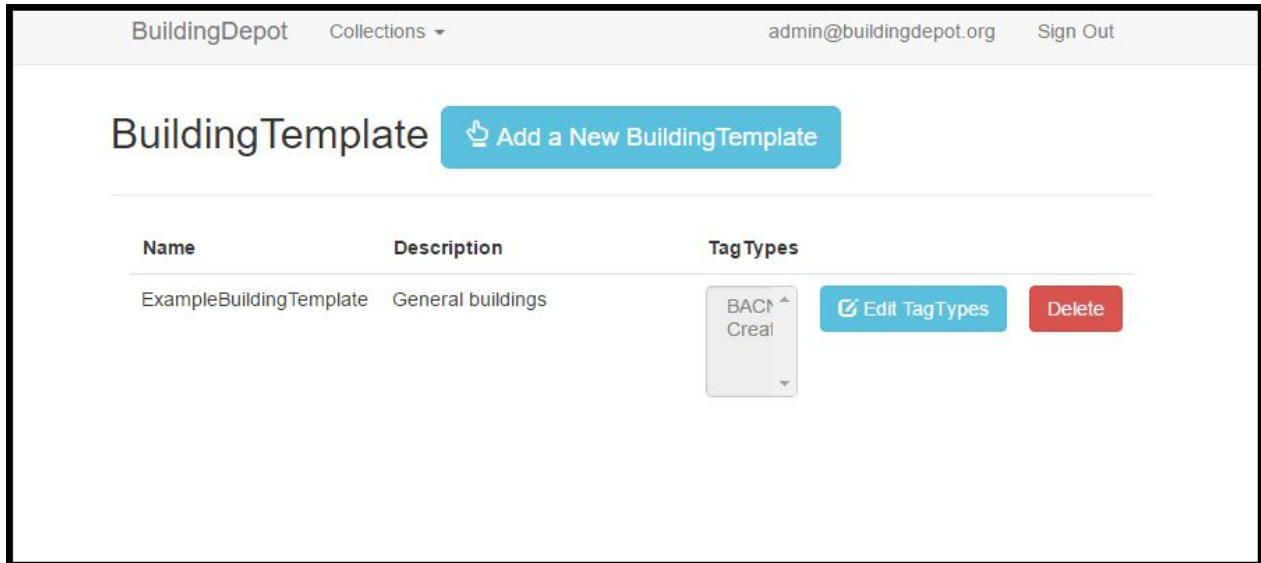


The screenshot shows the "TagType" management page in the BuildingDepot application. At the top, there is a navigation bar with "BuildingDepot", "Collections", "admin@buildingdepot.org", and "Sign Out". Below the navigation bar, the page title "TagType" is displayed next to a blue button labeled "Add a New TagType".

Name	Description	Parents	Children	
BACNet_Description		<input type="text"/>	<input type="text"/>	
CreatedTime	Datetime when a point (sensor/actuator) is created.	<input type="text"/>	<input type="text"/>	Delete

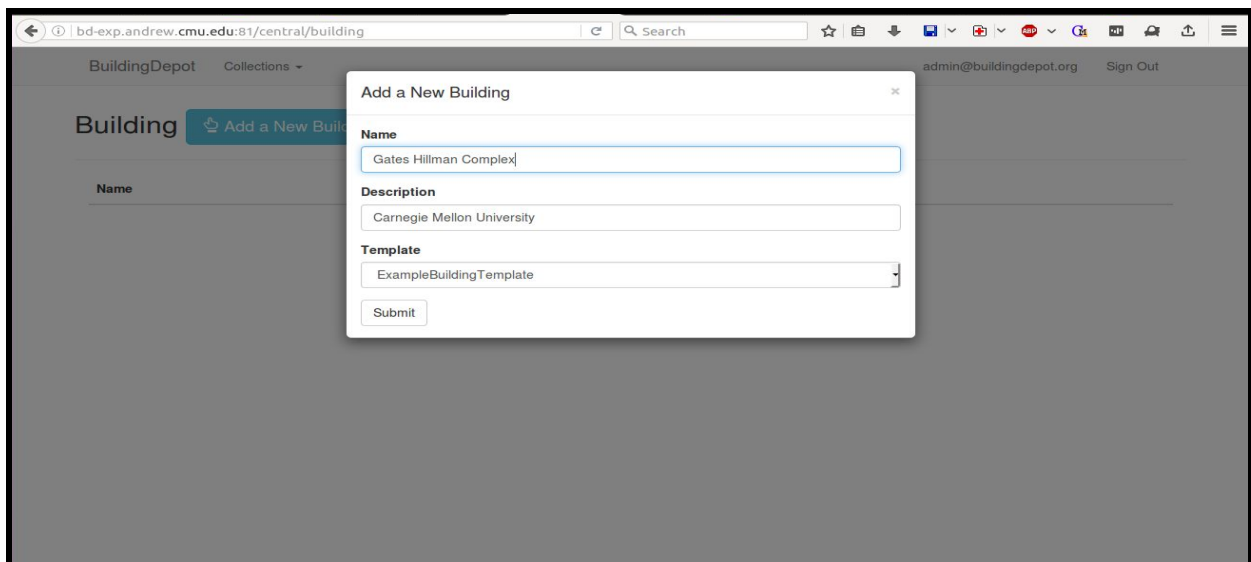
Adding a Building Template:

Select BuildingTemplate from the pull-down menu. The 'Add a New BuildingTemplate' dialog should appear. A BuildingTemplate is a little like a TagType, except that it's a ready-made form for describing buildings. Once a BuildingTemplate has been given a name and a description, it can be given multiple tag types, by highlighting the tags defined in the previous step. Multiple selection is possible with ctrl+right-button click.



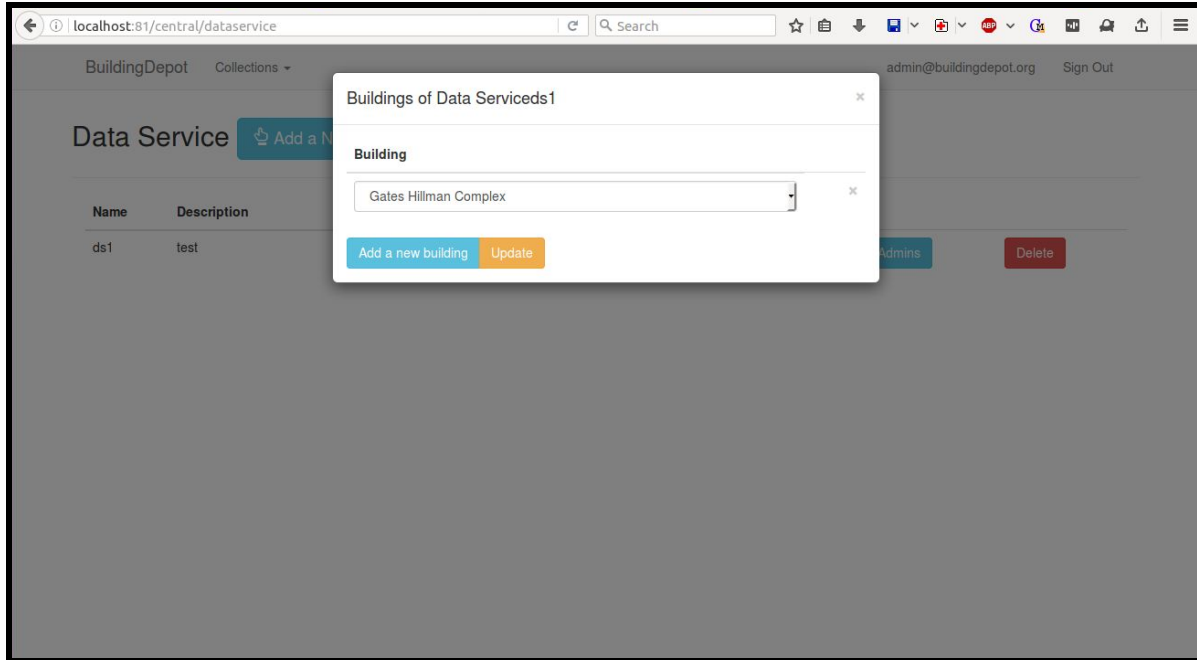
Adding a new Building:

Select Building from the pull-down menu. The 'Add a New Building' dialog should appear. Every Building is created from a BuildingTemplate. To create a new Building, select a BuildingTemplate from the pull-down menu in the dialog, and give the new building an individual name and description.



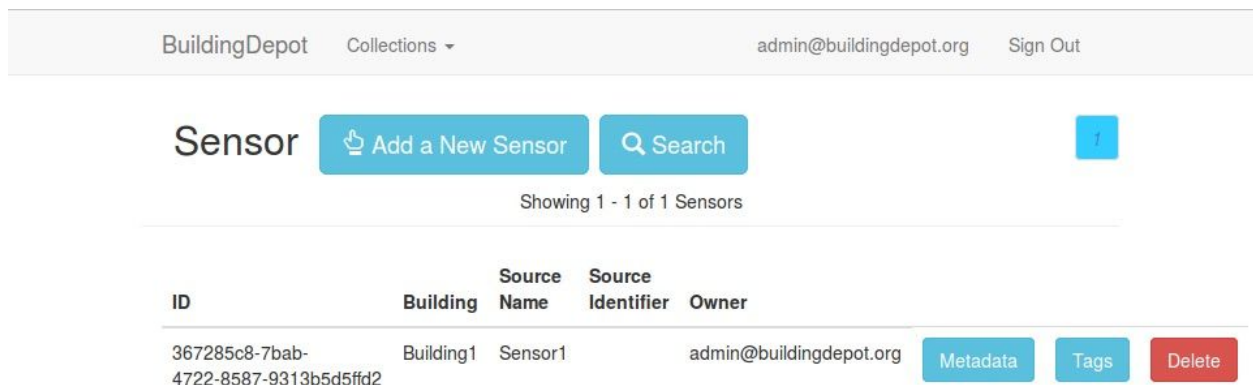
After a new Building has been created, it must be registered with a Data Service, before new data can be stored. Select Data Service from the pull-down menu. Press the 'Building' button next to the Data Service you wish to associate with this Building. A 'Buildings of Data Service <name>' will appear.

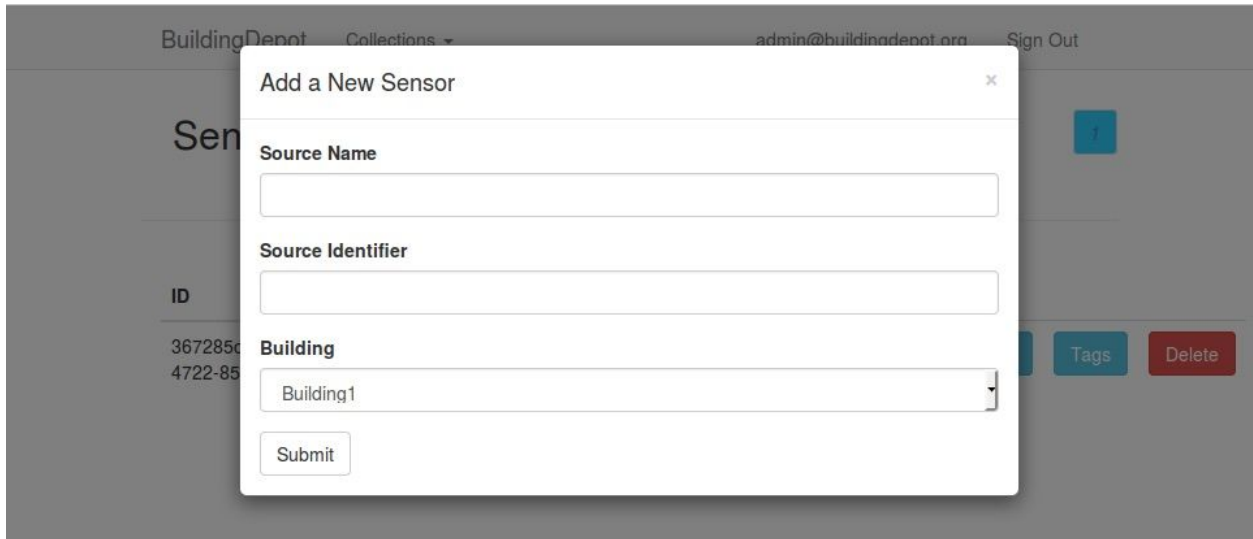
Press the 'Add a New Building' button on the dialog. A new row with a pull-down menu should appear. Select your new Building in the pull-down menu.



Adding a New Sensor:

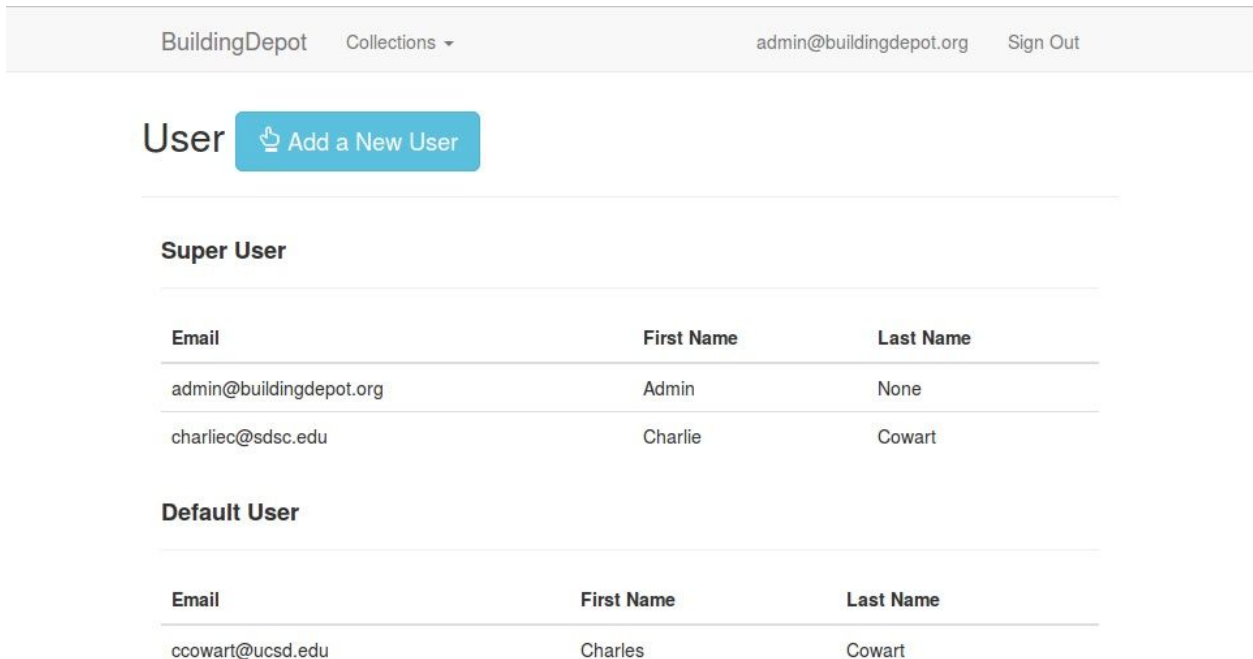
Select Sensor from the pull-down menu. A list of Sensors will appear. Press the 'Add a New Sensor' button. The 'Add a New Sensor dialog should appear. Give your new sensor a unique descriptive name and 'short name' or identifier, and select the Building this Sensor is located in.



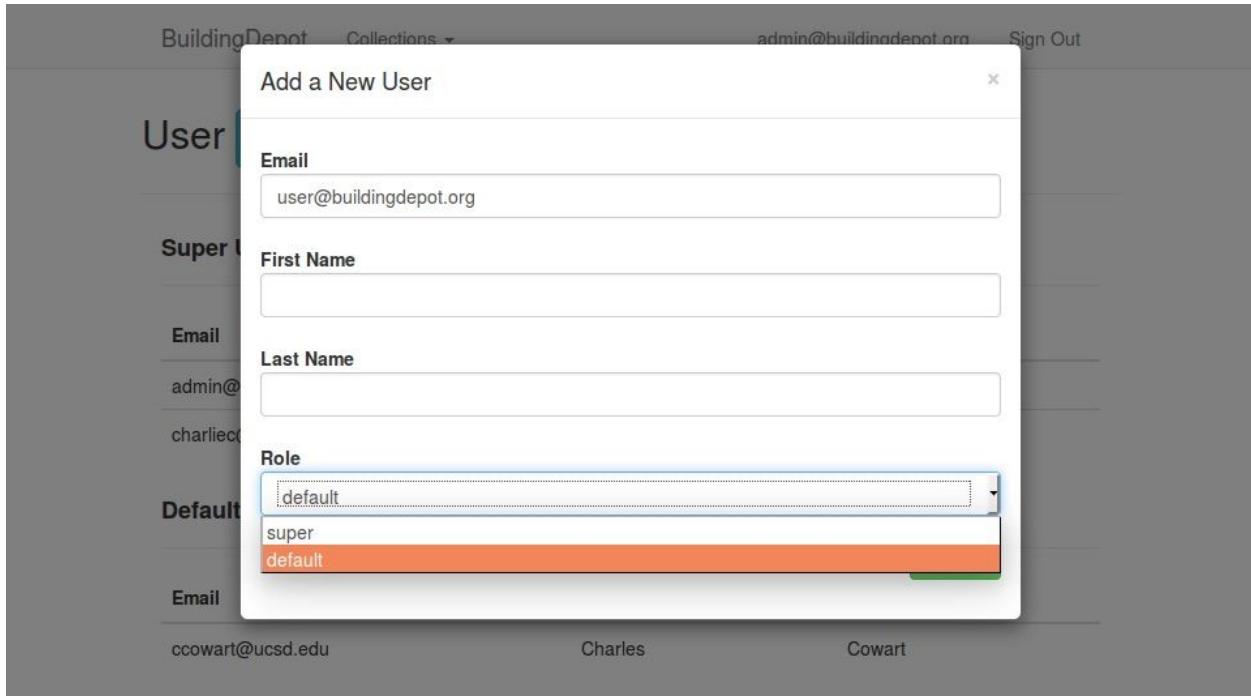


Add a New User:

Select Users from the pull-down menu. A list of Users will appear. Press the 'Add a New User' button.



The 'Add a New User dialog should appear. Fill out the relevant information for your new User. Select the appropriate role for your user from the pull-down menu. Administrator users should be given 'Super' access, while regular users should be assigned the 'default' access level.



OAuth:

In order to use Giotto with other software, a user is going to have to create and use their own Client ID and Client Key. Select OAuth from the pull-down menu, and you will be taken to the list of client ID/keypairs created for you. Do not share your client ID and keys with other users! A first keypair has been created for you. Pressing the 'Generate client ID and Key' button will create additional keypairs for you to use. More information on how to use these keypairs can be found in the Sample Connector documentation.

