Extending NOC with Custom Fields

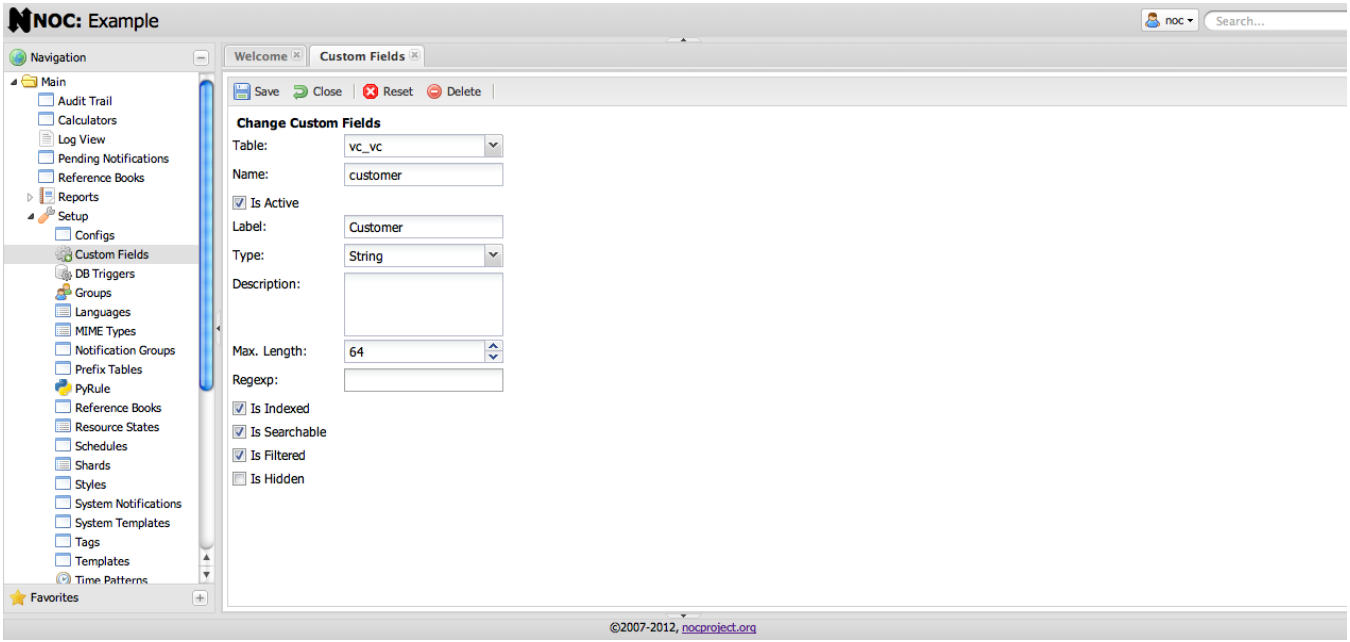
Upcoming NOC 0.7(4) contains new clue functionality - *Custom Fields*.

You can add custom fields to virtually any NOC data table to store your custom data and to organize workflow.

Lets consider a simple example - we need to store customer id attached to VLAN.

It is recommended to stop all NOC processes except noc-web before creating custom field

In *Main > Setup > Custom Fields* press *"Add"* and fill form



Press *"Save"*.

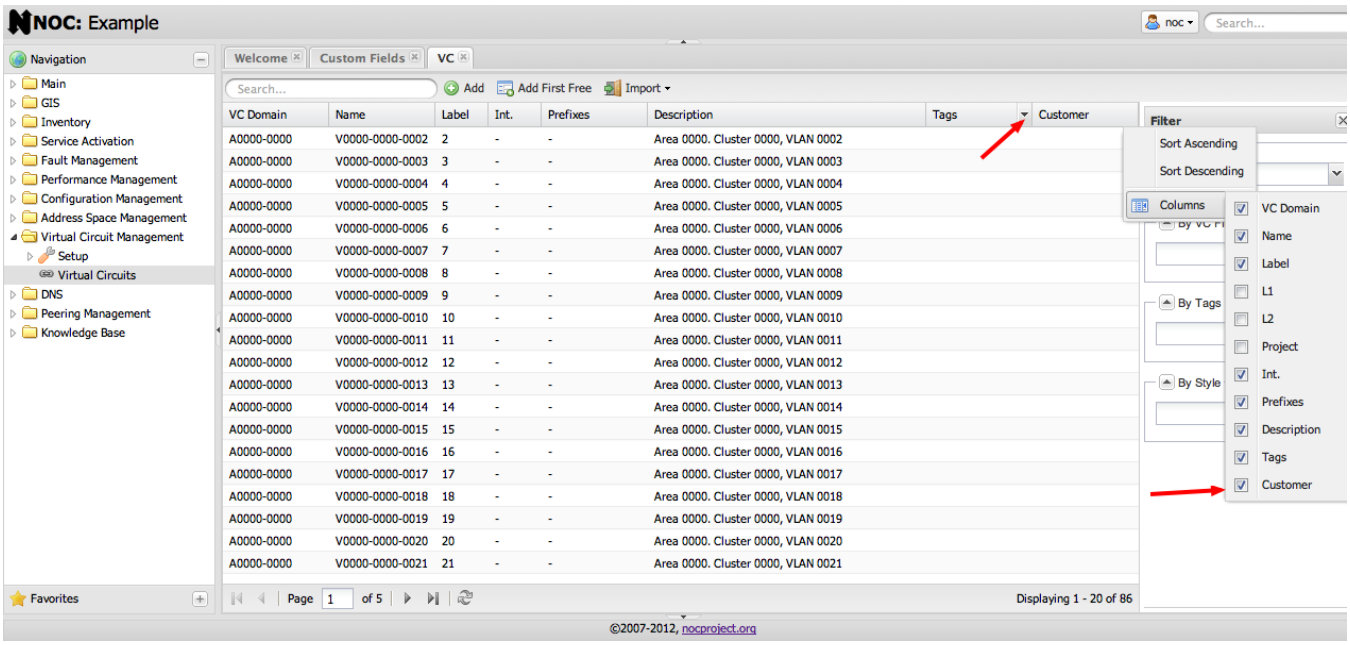
New table field will be created:

```
/opt/noc$ psql noc
noc=# \d vc_vc
                                  Table "public.vc_vc"
    Column     |          Type          |                      Modifiers
---------------+------------------------+-----------------------------------------------------
 id            | integer                | not null default nextval('vc_vc_id_seq'::regclass)
 vc_domain_id  | integer                | not null
 l1            | integer                | not null
 l2            | integer                | not null default 0
 description   | character varying(256) |
 name          | character varying(64)  | not null
 tags          | character varying(255) |
 style_id      | integer                |
 project       | character varying(256) |
 cust_customer | character varying(64)  |
Indexes:
    "vc_vc_pkey" PRIMARY KEY, btree (id)
    "vc_vc_l1" UNIQUE, btree (vc_domain_id, l1, l2)
    "vc_vc_vc_domain_id_21725b7fb0adaf81_uniq" UNIQUE CONSTRAINT, btree (vc_domain_id, name)
    "vc_vc_customer" btree (cust_customer)
    "vc_vc_project" btree (project)
    "vc_vc_project_like" btree (project varchar_pattern_ops)
    "vc_vc_style_id" btree (style_id)
    "vc_vc_vc_domain_id" btree (vc_domain_id)
Foreign-key constraints:
    "style_id_refs_id_34edbd6f1eccde9a" FOREIGN KEY (style_id) REFERENCES main_style(id) DEFERRABLE INITIALLY
DEFERRED
    "vc_domain_id_refs_id_2ad42705d2e81e25" FOREIGN KEY (vc_domain_id) REFERENCES vc_vcdomain(id) DEFERRABLE
INITIALLY DEFERRED
```

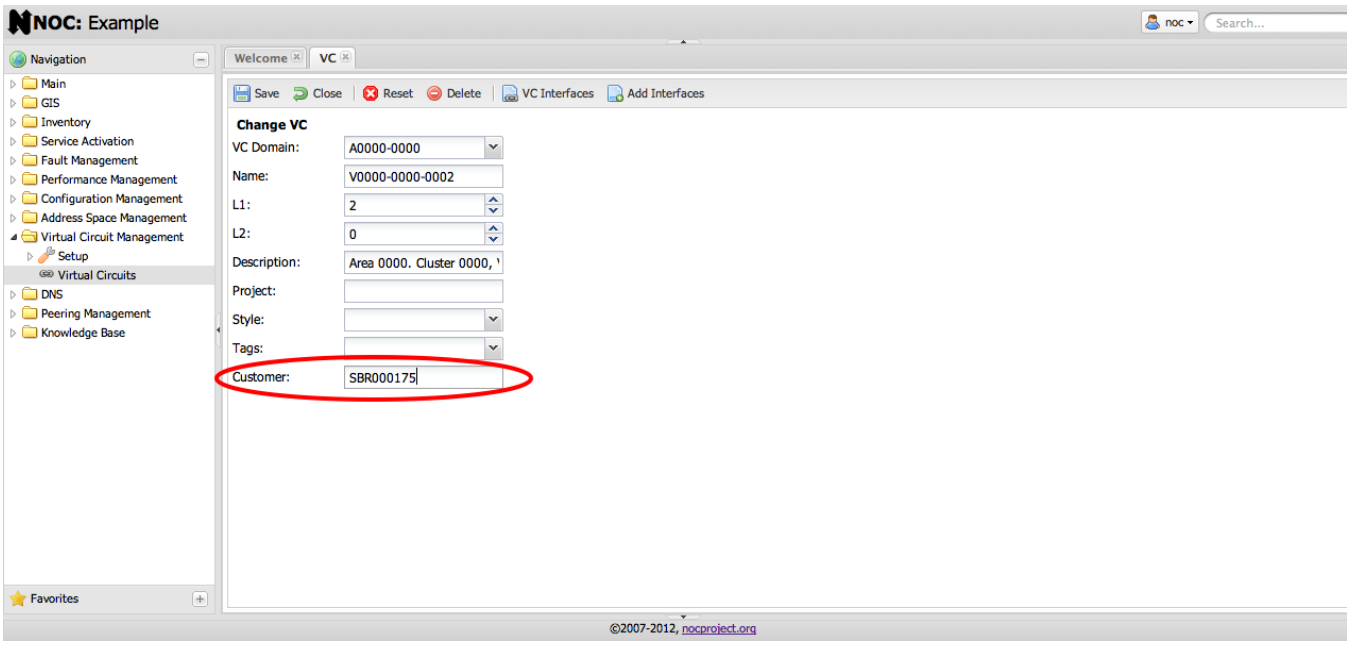
Note the *cust_customer* field has been created in *vc_vc* table, so the Custom Field is first-class citizen in PostgreSQL tables and can be referred as *cust_<name>* in any SQL statement.

Next, restart NOC processes to apply changes.

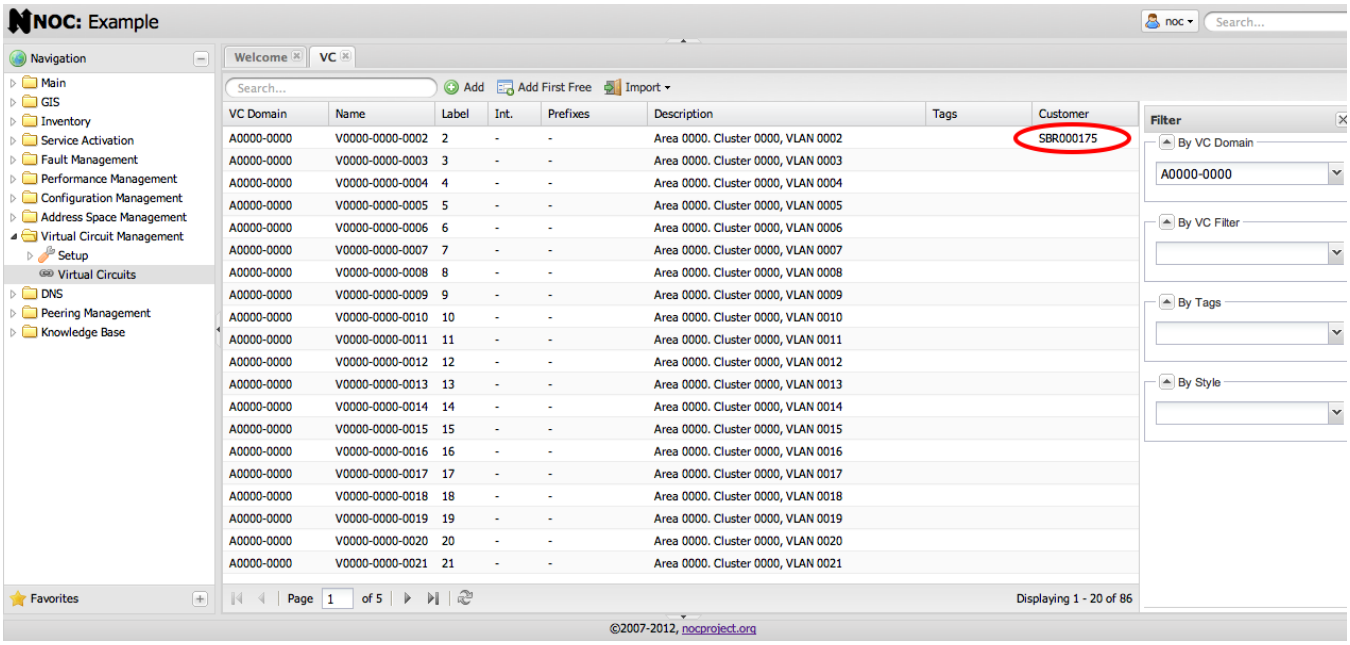
Lets check our *Virtual Circuits* form:



Click on arrow at the column header, and in Columns menu check *Customer*. You will see new *Customer* column in grid. Lets change customer for VLAN.



Note the *Customer* field is first-class citizen in the form. Press *"Save"* button



We can see the customer ID in the grid. Lets check on database level:

```
/opt/noc$ psql noc
noc=# SELECT * FROM vc_vc WHERE cust_customer = 'SBR000175';
 id | vc_domain_id | l1 | l2 |           description            |      name       | tags | style_id | project
| cust_customer
----+--------------+----+----+----------------------------------+-----------------+------+----------+---------
+---------------
 22 |            4 |  2 |  0 | Area 0000. Cluster 0000, VLAN 0002 | V0000-0000-0002 |      |          |
| SBR000175
(1 row)
```

Next, lets check JSON interface

```
/opt/noc$ http -a noc:noc GET 'http://127.0.0.1:8000/vc/vc/?customer=SBR000175'
HTTP/1.1 200 OK
Content-Language: en-us
Expires: 0
Vary: Accept-Language, Cookie
Pragme: no-cache
Cache-Control: no-cache
Content-Type: text/json; charset=utf-8
Content-Length: 306
Server: TornadoServer/2.2
[
    {
        "customer": "SBR000175",
        "description": "Area 0000. Cluster 0000, VLAN 0002",
        "id": 22,
        "interfaces_count": "-",
        "l1": 2,
        "l2": 0,
        "name": "V0000-0000-0002",
        "prefixes": "-",
        "project": "",
        "row_class": "",
        "style": null,
        "style__label": "",
        "tags": [],
        "vc_domain": 4,
        "vc_domain__label": "A0000-0000"
    }
]
```

So the custom fields are first-class citizens in JSON interface too opening clean way for third-party systems integration.

Finally, lets check ORM level

```
/opt/noc$  ./noc shell
Python 2.7.3 (default, May  5 2012, 17:19:28)
[GCC 4.2.1 (Apple Inc. build 5666) (dot 3)] on darwin
Type "help", "copyright", "credits" or "license" for more information.
(InteractiveConsole)
>>> from noc.vc.models import VC
>>> vc = VC.objects.get(customer="SBR000175")
>>> vc
<VC: A0000-0000 2: V0000-0000-0002>
>>> vc.customer
u'SBR000175'
```

So the custom fields can be used in pyRules, scripts and triggers just like built-in fields.