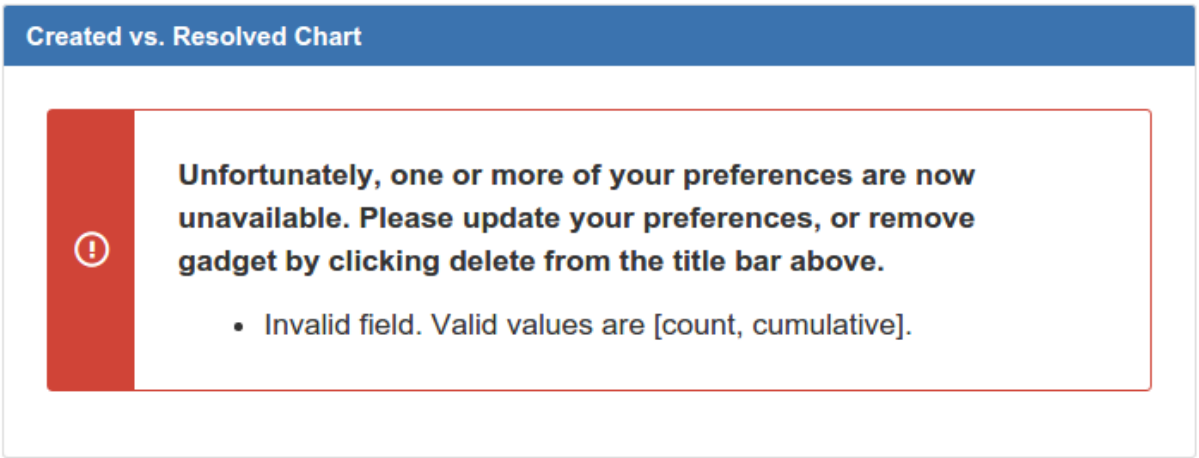
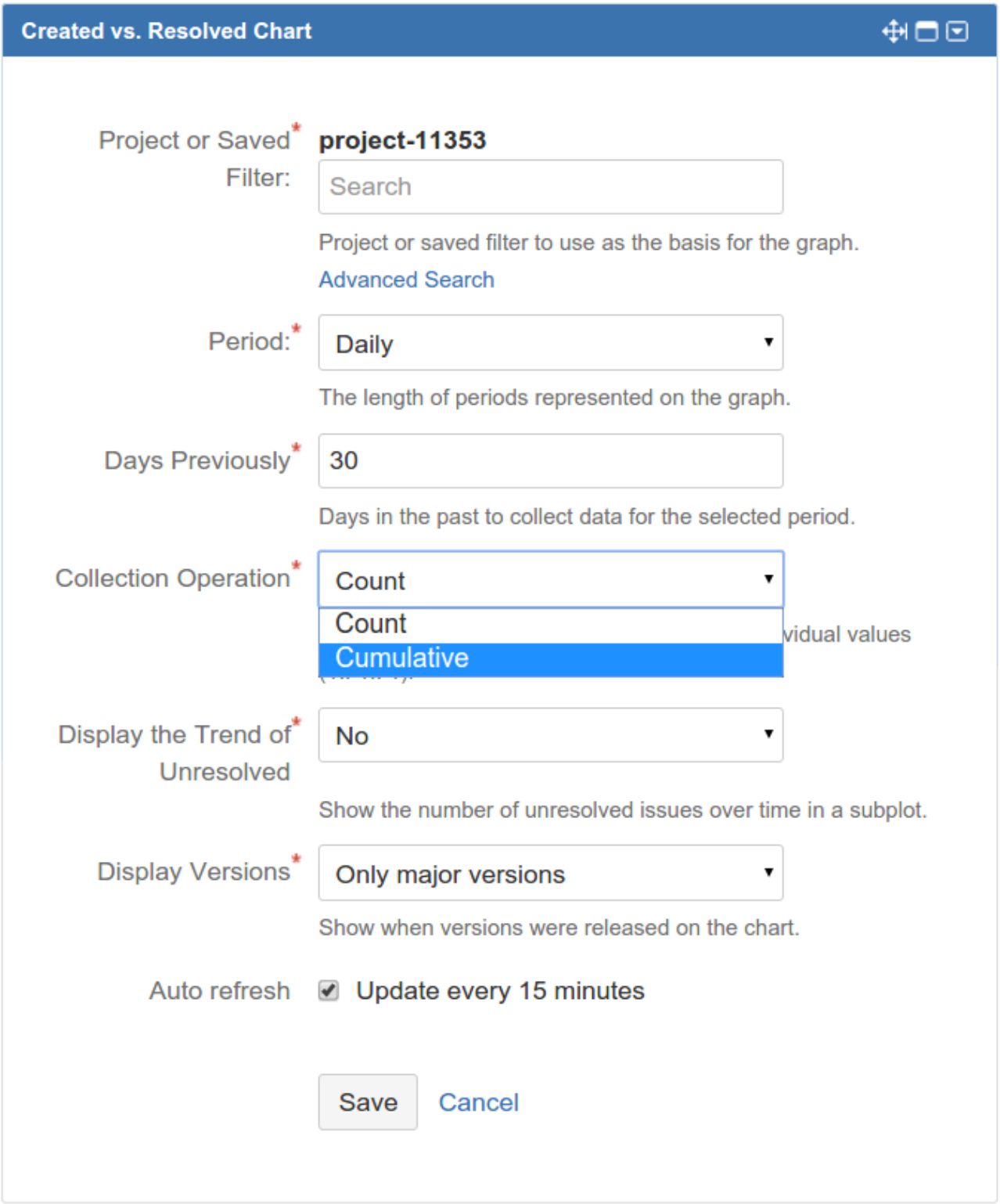
Fixing JIRA graph gadgets broken by JRA-59364

JIRA 7 bug ~~JRASERVER-59364~~ - Created vs. Resolved gadget should respect the Cumulative Totals option set before the upgrade CLOSED causes most 'Created vs. Resolved Chart' gadgets on dashboards to break with the error:

```
Invalid field. Valid values are [count, cumulative].
```



Broken portlets can be fixed individually by editing them and setting `Collection Operation` to either `Cumulative` (emulating the old default behaviour) or `Count`:



However only the dashboard owner can do this, and it's not exactly intuitive. This page describes a SQL fix to migrate all Created vs Resolved portlets to the new preference format.

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I haven't yet upgraded. Will I be affected?

If ~~JRASERVER-59364~~ - Created vs. Resolved gadget should respect the Cumulative Totals option set before the upgrade CLOSED isn't marked resolved, then probably, yes. Find out which dashboards will be affected by running the SQL:

```
jira=> SELECT DISTINCT portalpage.pagename AS "Dashboard",
        concat('http://jira.example.com/secure/Dashboard.jspa?selectPageId=', portalpage.id) AS URL,
        app_user.lower_user_name AS "Owner"
FROM portalpage JOIN portletconfiguration ON portalpage.id=portletconfiguration.portalpage
                JOIN cwd_user ON portalpage.username=cwd_user.user_name
                JOIN app_user ON cwd_user.user_name=app_user.user_key
WHERE portletconfiguration.gadget_xml ~'createdvsresolved-gadget.xml';

      Dashboard                                       url                                   Owner

 My Custom Dashboard  http://jira.example.com/secure/Dashboard.jspa?selectPageId=10200  jturner


(1 row)
```

How do I fix it?

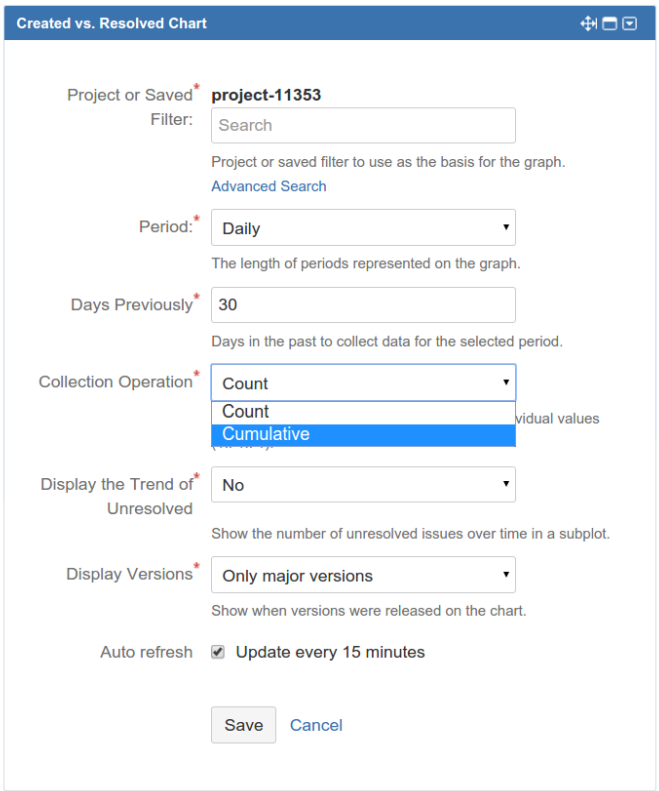
With JIRA shut down, ***BACK UP YOUR JIRA DATABASE***, and then run this SQL:

```
CREATE TEMP SEQUENCE prefid;
SELECT setval('prefid', max(id)::integer + 1) FROM gadgetuserpreference;
WITH gadgetprefs AS (select gup.* from gadgetuserpreference gup JOIN portletconfiguration pc ON gup.
portletconfiguration=pc.id WHERE pc.gadget_xml~'createdvsresolved-gadget.xml'),
        filterprefs AS (select * from gadgetprefs WHERE userprefkey='projectOrFilterId'),
        cumulativeprefs AS (select * from gadgetprefs WHERE userprefkey='isCumulative'),
        relevantprefs AS (select portletconfiguration, filterprefs.userprefvalue AS projectOrFilterId,
cumulativeprefs.userprefvalue AS isCumulative FROM filterprefs JOIN cumulativeprefs USING
(portletconfiguration)),
        prefs AS (select portletconfiguration, projectOrFilterId, regexp_replace(projectOrFilterId, '-\d+', '')
AS type, regexp_replace(projectOrFilterId, '(filter|project)-', '') AS id, iscumulative FROM relevantprefs),
                newvals AS (select nextval('prefid') AS ID,
                                                portletconfiguration,
                                                t.userprefkey,
                                                CASE t.userprefkey
                                                        WHEN 'operation' THEN (CASE prefs.isCumulative WHEN
'true' THEN 'cumulative' ELSE 'count' END)
                                                        WHEN 'id' THEN prefs.id
                                                        WHEN 'name' THEN CASE type WHEN 'project' THEN (SELECT
pname FROM project WHERE id=prefs.id::integer) WHEN 'filter' THEN prefs.projectOrFilterId END
                                                        WHEN 'type' THEN prefs.type
                                                END AS userprefvalue
                FROM prefs,
                (VALUES ('name'), ('operation'), ('id'), ('type')) AS t(userprefkey))
        INSERT INTO gadgetuserpreference SELECT * FROM newvals;
UPDATE sequence_value_item SET seq_id = (SELECT ceil(max(id)/100)*100 FROM gadgetuserpreference) WHERE
seq_name='GadgetUserPreference';
```

There may be Postgres'isms in this SQL. Proceed with caution.

What's going on?

Each gadget has a bunch of parameters:



These parameters are saved in the `gadgetuserpreferences` database table.

In JIRA 7.x, Atlassian reimplemented the Created vs Resolved gadget, and **changed the parameters**. Here is a before/after diff on the params for a filter-using portlet (see Using database diffs to see what JIRA is doing for details on the technique):

id	portletconfiguration	userprefkey	userprefvalue
12398	10801	daysprevious	600
12390	10801	isConfigured	true
12393	10801	isCumulative	true
12392	10801	isPopup	false
12396	10801	periodName	monthly
12397	10801	projectOrFilterId	filter-10601
12394	10801	refresh	false
12395	10801	showUnresolvedTrend	false
12391	10801	versionLabel	major

(9 rows)

id	portletconfiguration	userprefkey	userprefvalue
12625	10801	daysprevious	600
12626	10801	id	10601
12615	10801	isConfigured	true
12623	10801	isCumulative	true
12616	10801	isPopup	false
12624	10801	name	filter-10601
12627	10801	operation	cumulative
12619	10801	periodName	monthly
12620	10801	projectOrFilterId	filter-10601
12617	10801	refresh	false
12618	10801	showUnresolvedTrend	false
12621	10801	type	filter
12622	10801	versionLabel	major

(13 rows)

and a project-using portlet:

id	portletconfiguration	userprefkey	userprefvalue
12526	10900	daysprevious	500
12518	10900	isConfigured	true
12521	10900	isCumulative	true
12520	10900	isPopup	false
12524	10900	periodName	monthly
12525	10900	projectOrFilterId	project-10800
12522	10900	refresh	false
12523	10900	showUnresolvedTrend	false
12519	10900	versionLabel	major

(9 rows)

id	portletconfiguration	userprefkey	userprefvalue
12651	10900	daysprevious	500
12652	10900	id	10800
12641	10900	isConfigured	true
12649	10900	isCumulative	true
12642	10900	isPopup	false
12650	10900	name	IT Tasks
12653	10900	operation	cumulative
12645	10900	periodName	monthly
12646	10900	projectOrFilterId	project-10800
12643	10900	refresh	false
12644	10900	showUnresolvedTrend	false
12647	10900	type	project
12648	10900	versionLabel	major

(13 rows)

Specifically, they introduced 4 new parameters, `type, id, name and operation`, whose values are derived from the old parameters.

Atlassian **should** have written an 'upgrade task' to derive these new parameters from the old, and delete the old (to avoid confusing future generations). That is the topic of

~~JRASERVER-59364~~ - Created vs. Resolved gadget should respect the Cumulative Totals option set before the upgrade CLOSED

But we can derive the new params ourselves with a bit of SQL.

Deriving the SQL Fix

Background: database tables involved in JIRA portlets

In the JIRA database:

- The `portalpage` table stores user's dashboards, e.g. "My Custom Dashboard".
- The `portletconfiguration` table stores individual portlets on dashboards. E.g. it records that there are N gadgets on "My Custom Dashboard", as well as their position and type.
- The `gadgetuserpreference` table stores portlet configuration details. E.g. for a "Created vs Resolved" portlet it stores the filter ID the portlet displays data from.

Database table	Sample data

portalpage	`select * from portalpage where id=10200;`
	
	`  id  username  pagename  description  sequence  fav_count  layout  ppversion`
	
	`  10200  jturner  My Custom Dashboard  1  AA  11`
	
	`(1 row)`

portletconfiguration	`select * from portletconfiguration where portalpage=10200;`
	
	`  id  portalpage  portlet_id  column_number  positionseq`
	
	`gadget_xml  color  dashboard_module_complete_key`
	
	`  10801  10200  1  0  rest/gadgets/1.0/g/com.atlassian.jira.gadgets:created-vs-resolved-issues-chart-gadget/gadgets/createdvsresolved-gadget.xml  color1`
	`  10803  10200  0  0  rest/gadgets/1.0/g/com.atlassian.jira.gadgets:created-vs-resolved-issues-chart-gadget/gadgets/createdvsresolved-gadget.xml  color1`
	`  10802  10200  0  1  rest/gadgets/1.0/g/com.atlassian.jira.gadgets:pie-chart-gadget/gadgets/piechart-gadget.xml  color1`
	`  10800  10200  0  2  rest/gadgets/1.0/g/com.atlassian.jira.gadgets:assigned-to-me-gadget/gadgets/assigned-to-me-gadget.xml  color1`
	
	`(4 rows)`

gadgetuserpreference

Pre-JIRA 7.0.5

```
select * from gadgetuserpreference where
portletconfiguration=10801 order by
userprefkey;

  id    portletconfiguration
userprefkey      userprefvalue

 12398                 10801
daysprevious         600
 12390                 10801
isConfigured         true
 12393                 10801
isCumulative         true
 12392                 10801
isPopup              false
 12396                 10801
periodName           monthly
 12397                 10801
projectOrFilterId    filter-10601
 12394                 10801
refresh              false
 12395                 10801
showUnresolvedTrend  false
 12391                 10801
versionLabel         major

(9 rows)
```

JIRA 7.0.5+

```
select * from gadgetuserpreference where
portletconfiguration=10801 order by
userprefkey;

  id    portletconfiguration
userprefkey      userprefvalue

 12525                 10801
daysprevious         600
 12526                 10801
id                   10601
 12515                 10801
isConfigured         true
 12523                 10801
isCumulative         true
 12516                 10801
isPopup              false
 12524                 10801
name                 filter-10601
 12527                 10801
operation            cumulative
 12519                 10801
periodName           monthly
 12520                 10801
projectOrFilterId    filter-10601
 12517                 10801
refresh              false
 12518                 10801
showUnresolvedTrend  false
 12521                 10801
type                 filter
 12522                 10801
versionLabel         major

(13 rows)
```

SQL part 1: collecting relevant old-portlet data

Let us look at the newly introduced preferences in more detail:

id	portletconfiguration	userprefkey	userprefvalue
12398	10801	daysprevious	600
12390	10801	isConfigured	true
12393	10801	isCumulative	true
12392	10801	isPopup	false
12396	10801	periodName	monthly
12397	10801	projectOrFilterId	filter-10601
12394	10801	refresh	false
12395	10801	showUnresolvedTrend	false
12391	10801	versionLabel	major

(9 rows)

id	portletconfiguration	userprefkey	userprefvalue
12625	10801	daysprevious	600
12626	10801	id	10601
12615	10801	isConfigured	true
12623	10801	isCumulative	true
12616	10801	isPopup	false
12624	10801	name	filter-10601
12627	10801	operation	cumulative
12619	10801	periodName	monthly
12620	10801	projectOrFilterId	filter-10601
12617	10801	refresh	false
12618	10801	showUnresolvedTrend	false
12621	10801	type	filter
12622	10801	versionLabel	major

(13 rows)

The new prefs are:

- **`type`** is `project` or `filter`, depending on the portlet's data source
- **`id`** is the ID of the filter or project
- **`name`** is a human-readable project or filter name, where:
  - if **type** is a project, then **name** should be the project name, and is actually displayed in the portlet.
  - if **type** is a filter, it doesn't really matter what **name** is – JIRA set it to `filter-xxxxx` and doesn't use it.
- **`operation`** has value `cumulative` or `count`

Recreating the missing parameters

Notice that all of the 4 new parameter values can be derived just by looking at the old **projectOrFilterId** and **isCumulative** parameters.

So first we write some SQL to print the `projectOrFilterId` and `isCumulative` parameters for each Created vs Resolved portlet:

```
WITH gadgetprefs AS (select gup.* from gadgetuserpreference gup JOIN portletconfiguration pc ON gup.
portletconfiguration=pc.id WHERE pc.gadget_xml~'createdvsresolved-gadget.xml'),
        filterprefs AS (select * from gadgetprefs WHERE userprefkey='projectOrFilterId'),
        cumulativeprefs AS (select * from gadgetprefs WHERE userprefkey='isCumulative'),
        relevantprefs AS (select portletconfiguration, filterprefs.userprefvalue AS projectOrFilterId,
cumulativeprefs.userprefvalue AS isCumulative FROM filterprefs JOIN cumulativeprefs USING
(portletconfiguration))
        SELECT * From relevantprefs;

 portletconfiguration  projectorfilterid  iscumulative

                10801  filter-10601       true
                10803  filter-10601       false
                10900  project-10800      true

(3 rows)
```

The same, but using `regexp_replace()` to break `projectorfilterid` into its constituent parts:

```
jira=> WITH gadgetprefs AS (select gup.* from gadgetuserpreference gup JOIN portletconfiguration pc ON gup.
portletconfiguration=pc.id WHERE pc.gadget_xml~'createdvsresolved-gadget.xml'),
        filterprefs AS (select * from gadgetprefs WHERE userprefkey='projectOrFilterId'),
        cumulativeprefs AS (select * from gadgetprefs WHERE userprefkey='isCumulative'),
        relevantprefs AS (select portletconfiguration, filterprefs.userprefvalue AS projectOrFilterId,
cumulativeprefs.userprefvalue AS isCumulative FROM filterprefs JOIN cumulativeprefs USING
(portletconfiguration)),
        prefs AS (select portletconfiguration, projectOrFilterId, regexp_replace(projectOrFilterId, '-\d+', '')
AS type, regexp_replace(projectOrFilterId, '(filter|project)-', '') AS id, iscumulative FROM relevantprefs)
   SELECT * from prefs;

 portletconfiguration  projectorfilterid   type     id    iscumulative

                10801  filter-10601       filter   10601  true
                10803  filter-10601       filter   10601  false
                10900  project-10800      project  10800  true

(3 rows)
```

SQL part 2: inserting new rows

The trick here is generating 4 *new* rows for each matching row above. We can create a 'fake' table to cross-join with our `relevantprefs` using a VALUES clause:

```
jira=> select * from (VALUES ('name'), ('operation'), ('id'), ('type')) AS t(userprefkey);

 userprefkey

 name
 operation
 id
 type

(4 rows)
```

Then 4 new rows for each of our portlets yields:

```
WITH gadgetprefs AS (select gup.* from gadgetuserpreference gup JOIN portletconfiguration pc ON gup.
portletconfiguration=pc.id WHERE pc.gadget_xml~'createdvsresolved-gadget.xml'),
        filterprefs AS (select * from gadgetprefs WHERE userprefkey='projectOrFilterId'),
        cumulativeprefs AS (select * from gadgetprefs WHERE userprefkey='isCumulative'),
        relevantprefs AS (select portletconfiguration, filterprefs.userprefvalue AS projectOrFilterId,
cumulativeprefs.userprefvalue AS isCumulative FROM filterprefs JOIN cumulativeprefs USING
(portletconfiguration)),
        prefs AS (select portletconfiguration, projectOrFilterId, regexp_replace(projectOrFilterId, '-\d+', '')
AS type, regexp_replace(projectOrFilterId, '(filter|project)-', '') AS id, iscumulative FROM relevantprefs)
   SELECT * from prefs,
                (VALUES ('name'), ('operation'), ('id'), ('type')) AS t(userprefkey);

 portletconfiguration  projectorfilterid   type     id    iscumulative  userprefkey

                10801  filter-10601       filter   10601  true          name
                10801  filter-10601       filter   10601  true          operation
                10801  filter-10601       filter   10601  true          id
                10801  filter-10601       filter   10601  true          type
                10803  filter-10601       filter   10601  false         name
                10803  filter-10601       filter   10601  false         operation
                10803  filter-10601       filter   10601  false         id
                10803  filter-10601       filter   10601  false         type
                10900  project-10800      project  10800  true          name
                10900  project-10800      project  10800  true          operation
                10900  project-10800      project  10800  true          id
                10900  project-10800      project  10800  true          type

(12 rows)
```

We now have a row containing all relevant old params, plus the new parameter name (`name, operation, id and type`). Now we just insert a SELECT clause to derive the new `userprefvalue` from the old params:

```
WITH gadgetprefs AS (select gup.* from gadgetuserpreference gup JOIN portletconfiguration pc ON gup.
portletconfiguration=pc.id WHERE pc.gadget_xml~'createdvsresolved-gadget.xml'),
        filterprefs AS (select * from gadgetprefs WHERE userprefkey='projectOrFilterId'),
        cumulativeprefs AS (select * from gadgetprefs WHERE userprefkey='isCumulative'),
        relevantprefs AS (select portletconfiguration, filterprefs.userprefvalue AS projectOrFilterId,
cumulativeprefs.userprefvalue AS isCumulative FROM filterprefs JOIN cumulativeprefs USING
(portletconfiguration)),
        prefs AS (select portletconfiguration, projectOrFilterId, regexp_replace(projectOrFilterId, '-\d+', '')
AS type, regexp_replace(projectOrFilterId, '(filter|project)-', '') AS id, iscumulative FROM relevantprefs)
   SELECT *, CASE t.userprefkey
                                                        WHEN 'operation' THEN (CASE prefs.isCumulative WHEN
'true' THEN 'cumulative' ELSE 'count' END)
                                                        WHEN 'id' THEN prefs.id
                                                        WHEN 'name' THEN CASE type WHEN 'project' THEN (SELECT
pname FROM project WHERE id=prefs.id::integer) WHEN 'filter' THEN prefs.projectOrFilterId END
                                                        WHEN 'type' THEN prefs.type
                                                END AS userprefvalue
                FROM prefs,
                (VALUES ('name'), ('operation'), ('id'), ('type')) AS t(userprefkey);

 portletconfiguration  projectorfilterid   type     id    iscumulative  userprefkey  userprefvalue

                10801  filter-10601       filter   10601  true          name         filter-10601
                10801  filter-10601       filter   10601  true          operation    cumulative
                10801  filter-10601       filter   10601  true          id           10601
                10801  filter-10601       filter   10601  true          type         filter
                10803  filter-10601       filter   10601  false         name         filter-10601
                10803  filter-10601       filter   10601  false         operation    count
                10803  filter-10601       filter   10601  false         id           10601
                10803  filter-10601       filter   10601  false         type         filter
                10900  project-10800      project  10800  true          name         CrowdFlower
                10900  project-10800      project  10800  true          operation    cumulative
                10900  project-10800      project  10800  true          id           10800
                10900  project-10800      project  10800  true          type         project

(12 rows)
```

Inserting data: dealing with IDs

We've successfully derived the new preferences needed. Now we just need to insert it into the `gadgetuserpreferences` table.

The `gadgetuserpreferences` table has an ID field which must be unique:

```
redradish_jira=> \d gadgetuserpreference
             Table "public.gadgetuserpreference"

        Column                  Type           Modifiers

 id                    numeric(18,0)           not null
 portletconfiguration  numeric(18,0)
 userprefkey           character varying(255)
 userprefvalue         text

Indexes:
    "pk_gadgetuserpreference" PRIMARY KEY, btree (id)
    "userpref_portletconfiguration" btree (portletconfiguration)
```

So we need to generate a sequence of IDs, starting at 1 more than the current max. This is done with a Postgres sequence:

```
CREATE TEMP SEQUENCE prefid;
SELECT setval('prefid', max(id)::integer + 1) FROM gadgetuserpreference;

 setval

  12712

(1 row)
```

Now we add a `nextval('prefid')` SELECT clause to our SQL, and trim down the results to match the `gadgetuserprefs` columns:

```
WITH gadgetprefs AS (select gup.* from gadgetuserpreference gup JOIN portletconfiguration pc ON gup.
portletconfiguration=pc.id WHERE pc.gadget_xml~'createdvsresolved-gadget.xml'),
        filterprefs AS (select * from gadgetprefs WHERE userprefkey='projectOrFilterId'),
        cumulativeprefs AS (select * from gadgetprefs WHERE userprefkey='isCumulative'),
        relevantprefs AS (select portletconfiguration, filterprefs.userprefvalue AS projectOrFilterId,
cumulativeprefs.userprefvalue AS isCumulative FROM filterprefs JOIN cumulativeprefs USING
(portletconfiguration)),
        prefs AS (select portletconfiguration, projectOrFilterId, regexp_replace(projectOrFilterId, '-\d+', '')
AS type, regexp_replace(projectOrFilterId, '(filter|project)-', '') AS id, iscumulative FROM relevantprefs),
                newvals AS (select nextval('prefid') AS ID,
                                                portletconfiguration,
                                                t.userprefkey,
                                                CASE t.userprefkey
                                                        WHEN 'operation' THEN (CASE prefs.isCumulative WHEN
'true' THEN 'cumulative' ELSE 'count' END)
                                                        WHEN 'id' THEN prefs.id
                                                        WHEN 'name' THEN CASE type WHEN 'project' THEN (SELECT
pname FROM project WHERE id=prefs.id::integer) WHEN 'filter' THEN prefs.projectOrFilterId END
                                                        WHEN 'type' THEN prefs.type
                                                END AS userprefvalue
                FROM prefs,
                (VALUES ('name'), ('operation'), ('id'), ('type')) AS t(userprefkey))
        SELECT * FROM newvals;

  id    portletconfiguration  userprefkey  userprefvalue

 12725                 10801  name         filter-10601
 12726                 10801  operation    cumulative
 12727                 10801  id           10601
 12728                 10801  type         filter
 12729                 10803  name         filter-10601
 12730                 10803  operation    count
 12731                 10803  id           10601
 12732                 10803  type         filter
 12733                 10900  name         CrowdFlower
 12734                 10900  operation    cumulative
 12735                 10900  id           10800
 12736                 10900  type         project

(12 rows)
```

And there we have exactly what we want to INSERT:

```
WITH gadgetprefs AS (select gup.* from gadgetuserpreference gup JOIN portletconfiguration pc ON gup.
portletconfiguration=pc.id WHERE pc.gadget_xml~'createdvsresolved-gadget.xml'),
        filterprefs AS (select * from gadgetprefs WHERE userprefkey='projectOrFilterId'),
        cumulativeprefs AS (select * from gadgetprefs WHERE userprefkey='isCumulative'),
        relevantprefs AS (select portletconfiguration, filterprefs.userprefvalue AS projectOrFilterId,
cumulativeprefs.userprefvalue AS isCumulative FROM filterprefs JOIN cumulativeprefs USING
(portletconfiguration)),
        prefs AS (select portletconfiguration, projectOrFilterId, regexp_replace(projectOrFilterId, '-\d+', '')
AS type, regexp_replace(projectOrFilterId, '(filter|project)-', '') AS id, iscumulative FROM relevantprefs),
                newvals AS (select nextval('prefid') AS ID,
                                                portletconfiguration,
                                                t.userprefkey,
                                                CASE t.userprefkey
                                                        WHEN 'operation' THEN (CASE prefs.isCumulative WHEN
'true' THEN 'cumulative' ELSE 'count' END)
                                                        WHEN 'id' THEN prefs.id
                                                        WHEN 'name' THEN CASE type WHEN 'project' THEN (SELECT
pname FROM project WHERE id=prefs.id::integer) WHEN 'filter' THEN prefs.projectOrFilterId END
                                                        WHEN 'type' THEN prefs.type
                                                END AS userprefvalue
                FROM prefs,
                (VALUES ('name'), ('operation'), ('id'), ('type')) AS t(userprefkey))
        INSERT INTO gadgetuserpreference SELECT * FROM newvals;

INSERT 0 12
Time: 30.402 ms
```

Updating the sequence_value_item table

JIRA's database library (Ofbiz) has an odd way of tracking the maximum ID of a table. It has a table called `sequence_value_item` which stores the max ID of each table, rounded up to the nearest 100:

```
SELECT max(id) FROM gadgetuserpreference;

  max

 12711

(1 row)

SELECT * from sequence_value_item WHERE seq_name='GadgetUserPreference';

       seq_name        seq_id

 GadgetUserPreference   12800

(1 row)
```

So after manually inserting rows in a JIRA table, one must always update `sequence_value_item`. The new value can be derived from max(id) by a divide-then-round-up-then-multiple trick:

```
UPDATE sequence_value_item SET seq_id = (SELECT ceil(max(id)/100)*100 FROM gadgetuserpreference) WHERE
seq_name='GadgetUserPreference' RETURNING seq_id;

 seq_id

  12800

(1 row)
```

Shameless Plug

My business, Red Radish Consulting, offers a quarterly JIRA/Confluence upgrade service. The fix described here was derived on-the-fly for a client. Save yourself the hassle of dealing with exciting bugs like this, and contact us for a quote!