成套性检查方法

工具

- 1. sqldeveloper;
- 2. neo4j

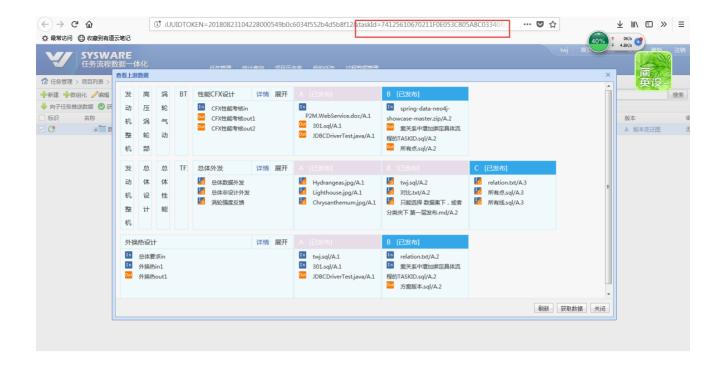
简介

- 1. 真实开发环境,一个项目下可能有5000+以上任务,无法用肉眼观看哪些数据集是否成套。
- 2. 借用neo4j , cypher 语言查询 数据集之间是否关联。

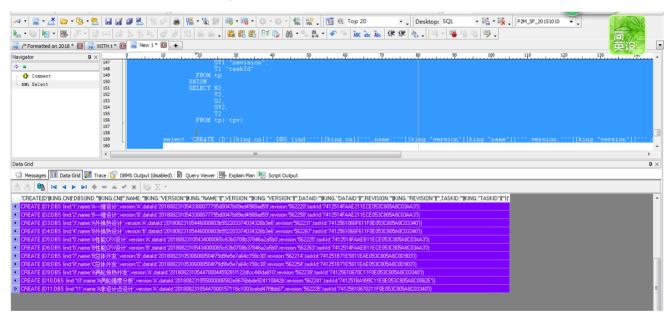
实验素材

步骤

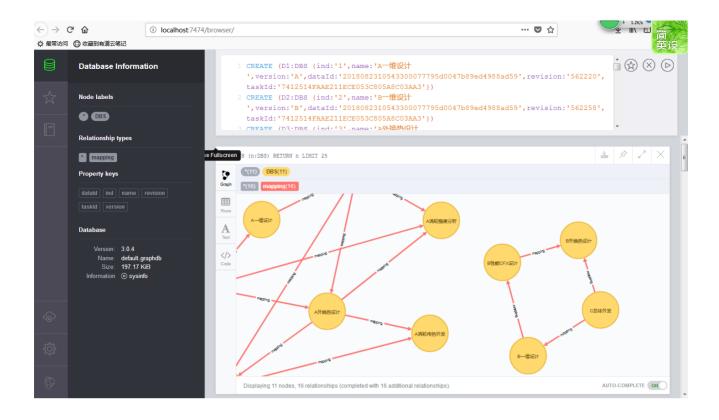
1 判断哪个任务节点,成套性有问题,记录有问题的taskld。



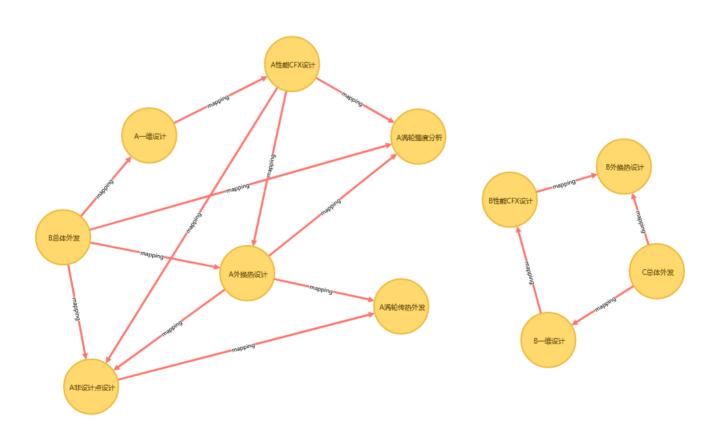
2 执行 成套性检查,核心脚本 sql,在 192.168.5.200:1521/sysware P2M_SF_20151010/P2M_SF_20151010 数据库中,抓取数据集历史关系数据。将sql 执行结果在下一步执行



3 生成 neo4j 脚本,在Neo4j 执行生成数据集传递关系图。



成套性实例



如上图,可以看出一维设计的B版本与总体外发的B版本不存在关系

核心脚本

```
/* 获取项目内所有节点 */
    /* Formatted on 2018/8/23 13:43:27 (OP5 v5.227.12220.39754) */
 2
 3
         AS (SELECT tag.id AS id
 4
 5
               FROM pm Task object tag
              WHERE tag.projectId IN
 6
                        (SELECT et.projectid
 7
 8
                           FROM pm_task_object et
                          WHERE et.id = :taskId
 9
                         UNION
10
11
                         SELECT eb.projectid
                           FROM pm task object eb
12
13
                          WHERE eb.subprocessid IN
14
                                   (SELECT a.process_id
15
                                      FROM engine activity a
16
                                     WHERE a.activity id = :taskId))),
17
18
         AS (SELECT r.activity data relation id AS rid,
                     fac.action id AS srcId,
19
20
                     fac.action name AS srcName,
                     ta.activity_id AS targetId,
21
22
                     ta.activity name AS targetName
                FROM engine activity data relation r
                     LEFT JOIN engine_activity fa
24
25
                        ON r.from_activity_id = fa.activity_id
                     LEFT JOIN engine activity action fac
26
27
                       ON fa.activity id = fac.activity id
                     LEFT JOIN engine_activity ta
28
29
                        ON r.to_activity_id = ta.activity_id
30
              WHERE
                        r.relationtype = 'DATA'
                     AND fa.activity type = 'TASK ACTIVITY'
31
                     AND Ta.activity type <> 'TASK ACTIVITY'
32
33
                     AND Ta.activity_type <> 'END_ACTIVITY'
                     AND fac.action id IN (SELECT t.id FROM t)
34
              UNION
35
36
              SELECT r.activity_data_relation_id AS rid,
                     fa.activity id AS srcId,
37
38
                     fa.activity_name AS srcName,
                     tac.action_id AS targetId,
39
                     tac.action_name AS targetName
40
               FROM engine_activity_data_relation r
41
42
                     LEFT JOIN engine activity fa
43
                        ON r.from activity id = fa.activity id
                     LEFT JOIN engine_activity ta
44
                        ON r.to_activity_id = ta.activity_id
45
                     LEFT JOIN engine_activity_action tac
46
47
                        ON ta.activity_id = tac.activity_id
```

```
48
               WHERE r.relationtype = 'DATA'
49
                      AND fa.activity type <> 'TASK ACTIVITY'
                     AND Ta.activity_type = 'TASK_ACTIVITY'
 50
51
                      AND tac.action id IN (SELECT t.id FROM t)
52
              UNTON
              SELECT r.activity_data_relation_id AS rid,
53
                      fac.action id AS srcId,
54
                      fac.action name AS srcName,
55
                      tac.action id AS targetId,
56
57
                      tac.action name AS targetName
58
                FROM engine activity data relation r
59
                      LEFT JOIN engine activity fa
                         ON r.from activity id = fa.activity id
60
                     LEFT JOIN engine_activity_action fac
61
                         ON fa.activity id = fac.activity_id
63
                      LEFT JOIN engine activity ta
                         ON r.to activity id = ta.activity id
64
                      LEFT JOIN engine_activity_action tac
65
66
                         ON ta.activity id = tac.activity id
               WHERE
                          NVL (fac.action id, '0') <> '0'
67
68
                      AND NVL (tac.action id, '0') <> '0'
                      AND r.relationtype = 'DATA'
69
                      AND fa.activity_type = 'TASK_ACTIVITY'
70
71
                      AND Ta.activity type = 'TASK ACTIVITY'
72
                      AND tac.action id IN (SELECT t.id FROM t)
73
              UNION
74
              SELECT aso.relationid AS rid,
75
                      aso.srctaskid AS srcId,
76
                      ftc.name AS srcName,
77
                      aso.targettaskid AS targetId,
78
                     ttc.name AS targetName
 79
                FROM pm task association aso
                      LEFT JOIN pm task object ftc ON aso.srctaskid = ftc.id
80
81
                      LEFT JOIN pm_task_object ttc ON aso.targettaskid = ttc.id
               WHERE aso.targettaskid IN (SELECT t.id FROM t)
82
83
              UNION
              SELECT r.activity data relation id AS rid,
84
                     ta.id AS srcId,
85
                      ta.name AS srcName,
86
                      fac.action id AS targetId,
87
88
                     fac.action_name AS targetName
                FROM engine activity data relation r
89
90
                      LEFT JOIN engine_process pb
                         ON R.FROM ACTIVITY ID = Pb.start NODE ID
91
                      LEFT JOIN engine_activity_action fac
92
93
                         ON R.to ACTIVITY ID = fac.activity id
94
                      LEFT JOIN pm task object ta
95
                        ON TA.SUBPROCESSID = pb.process id
                          NVL (pb.process id, '0') <> '0'
96
               WHERE
                      AND r.relationtype = 'DATA'
97
98
                      AND ta.id IN (SELECT t.id FROM t)),
99
          AIP
          AS (SELECT evt.srcid id
100
```

```
101
                 FROM (SELECT v.*,
102
                              (SELECT COUNT (*)
103
                                 FROM v v3
                                WHERE v3.targetid = v.srcid)
104
105
                                 cn
106
                         FROM v) evt
107
               UNION
108
               SELECT evt.targetid id
                 FROM (SELECT v.*,
109
110
                              (SELECT COUNT (*)
111
                                 FROM v v3
                                WHERE v3.targetid = v.srcid)
112
113
                                 cn
                         FROM v) evt),
114
115
           РΤ
116
          AS (SELECT D.ID
117
                 FROM PM DATA OBJECT D
                WHERE D.DEFAULTSET = 1 AND (d.taskId IN (SELECT AIP.ID FROM AIP))),
118
119
120
          AS (SELECT TA.NAME N1,
121
                      AD. VERSIONNAME V1,
                      A.SRCID S1,
122
                      A.Srcrevision SV1,
123
124
                      AD. TASKID T1,
                      TB.NAME N2,
125
126
                      BD. VERSIONNAME V2,
127
                      A. TARGETID S2,
                      A. TARGETREVISION SV2,
128
129
                      BD.TASKID T2
130
                 FROM pm association relation old a
131
                      LEFT JOIN pm Data object old ad
                         ON a.srcid = ad.id AND a.srcrevision = ad.revision
132
                      LEFT JOIN PM_TASK_OBJECT_TA_ON_AD.TASKID = TA.ID
133
134
                      LEFT JOIN pm_Data_object_old bd
135
                         ON a.targetid = bd.id AND a.targetrevision = bd.revision
136
                      LEFT JOIN PM TASK OBJECT TB ON BD.TASKID = TB.ID
137
                WHERE
                          a.description IN ('1', '3')
                      AND a.srcid IN (SELECT ID FROM PT)
138
                      AND a.targetid IN (SELECT ID FROM PT)
139
                      AND ( ad.statusid IN ('published')
140
141
                           OR ad.sharestatusid IN ('shared')
142
                           OR (ad.statusid IN ('confirmed')))),
143
           king
           AS (SELECT ROWNUM cn, tpv.*
144
                 FROM (SELECT N1 "name",
145
146
                              V1 "version",
                              S1 "dataId",
147
148
                              SV1 "revision",
                              T1 "taskId"
149
150
                         FROM tp
151
                       UNION
                       SELECT N2,
152
153
                              V2,
```

```
154
                              S2,
155
                              SV2.
156
                              T2
157
                         FROM tp) tpv)
158
159
               select 'CREATE (D'||king.cn||':DBS
160
     {ind:'''|king.cn||''',name:'''|king."version"|king."name"|''',version:'''|king."versio
     n"||''',dataId:'''||king."dataId"||''',revision:'''||king."revision"||''',taskId:'''||king.
     "taskId"||'''})' from king;
161
```

```
/* 项目内所有节点关系 */
 2
    /* Formatted on 2018/8/23 13:43:27 (QP5 v5.227.12220.39754) */
 3
    WITH t
         AS (SELECT tag.id AS id
 4
 5
               FROM pm_Task_object tag
 6
               WHERE tag.projectId IN
 7
                        (SELECT et.projectid
 8
                           FROM pm_task_object et
 9
                          WHERE et.id = :taskId
10
                         UNION
11
                         SELECT eb.projectid
12
                           FROM pm_task_object eb
13
                          WHERE eb.subprocessid IN
                                   (SELECT a.process id
14
15
                                      FROM engine_activity a
16
                                     WHERE a.activity_id = :taskId))),
17
18
         AS (SELECT r.activity data relation id AS rid,
                     fac.action id AS srcId,
19
20
                     fac.action_name AS srcName,
21
                     ta.activity_id AS targetId,
22
                     ta.activity name AS targetName
23
                FROM engine activity data relation r
                     LEFT JOIN engine_activity fa
24
25
                        ON r.from_activity_id = fa.activity_id
26
                     LEFT JOIN engine_activity_action fac
27
                        ON fa.activity_id = fac.activity_id
                     LEFT JOIN engine_activity ta
28
29
                        ON r.to_activity_id = ta.activity_id
                         r.relationtype = 'DATA'
30
              WHERE
                     AND fa.activity_type = 'TASK_ACTIVITY'
31
32
                     AND Ta.activity_type <> 'TASK_ACTIVITY'
                     AND Ta.activity_type <> 'END_ACTIVITY'
33
34
                     AND fac.action id IN (SELECT t.id FROM t)
35
              UNION
              SELECT r.activity_data_relation_id AS rid,
36
37
                     fa.activity_id AS srcId,
38
                     fa.activity_name AS srcName,
39
                     tac.action_id AS targetId,
40
                     tac.action_name AS targetName
```

```
41
                FROM engine activity data relation r
42
                     LEFT JOIN engine activity fa
                        ON r.from activity id = fa.activity id
43
44
                     LEFT JOIN engine activity ta
                        ON r.to activity id = ta.activity id
45
                     LEFT JOIN engine_activity_action tac
46
                        ON ta.activity_id = tac.activity_id
47
              WHERE
                         r.relationtype = 'DATA'
48
                     AND fa.activity type <> 'TASK ACTIVITY'
49
                     AND Ta.activity type = 'TASK ACTIVITY'
50
51
                     AND tac.action_id IN (SELECT t.id FROM t)
              UNION
52
             SELECT r.activity_data_relation_id AS rid,
53
54
                     fac.action id AS srcId,
                     fac.action name AS srcName,
55
56
                     tac.action_id AS targetId,
57
                     tac.action name AS targetName
                FROM engine_activity_data_relation r
58
59
                     LEFT JOIN engine activity fa
                        ON r.from activity id = fa.activity id
60
                     LEFT JOIN engine activity action fac
61
                        ON fa.activity id = fac.activity id
62
                     LEFT JOIN engine_activity ta
63
                        ON r.to activity id = ta.activity id
64
65
                     LEFT JOIN engine activity action tac
                        ON ta.activity id = tac.activity_id
66
                         NVL (fac.action id, '0') <> '0'
67
              WHERE
                     AND NVL (tac.action id, '0') <> '0'
68
                     AND r.relationtype = 'DATA'
69
70
                     AND fa.activity type = 'TASK ACTIVITY'
71
                     AND Ta.activity type = 'TASK ACTIVITY'
72
                     AND tac.action id IN (SELECT t.id FROM t)
              UNTON
73
74
              SELECT aso.relationid AS rid,
75
                     aso.srctaskid AS srcId,
76
                     ftc.name AS srcName,
                     aso.targettaskid AS targetId,
77
                     ttc.name AS targetName
78
79
                FROM pm_task_association aso
                     LEFT JOIN pm task object ftc ON aso.srctaskid = ftc.id
80
81
                     LEFT JOIN pm task object ttc ON aso.targettaskid = ttc.id
              WHERE aso.targettaskid IN (SELECT t.id FROM t)
82
83
              UNION
84
              SELECT r.activity data relation id AS rid,
                     ta.id AS srcId,
85
86
                     ta.name AS srcName,
                     fac.action id AS targetId,
87
88
                     fac.action name AS targetName
89
                FROM engine_activity_data_relation r
                     LEFT JOIN engine_process pb
90
91
                        ON R.FROM_ACTIVITY_ID = Pb.start_NODE_ID
92
                     LEFT JOIN engine activity action fac
93
                        ON R.to ACTIVITY ID = fac.activity id
```

```
94
                      LEFT JOIN pm_task_object ta
95
                         ON TA.SUBPROCESSID = pb.process id
                WHERE
                          NVL (pb.process_id, '0') <> '0'
 96
97
                      AND r.relationtype = 'DATA'
                      AND ta.id IN (SELECT t.id FROM t)),
98
99
          AIP
          AS (SELECT evt.srcid id
100
101
                 FROM (SELECT v.*,
                              (SELECT COUNT (*)
102
103
                                 FROM v v3
104
                                WHERE v3.targetid = v.srcid)
105
106
                         FROM v) evt
               UNION
107
108
               SELECT evt.targetid id
109
                 FROM (SELECT v.*,
                              (SELECT COUNT (*)
110
111
                                 FROM v v3
112
                                WHERE v3.targetid = v.srcid)
113
                                 cn
114
                         FROM v) evt),
          DТ
115
          AS (SELECT D.ID
116
117
                 FROM PM DATA OBJECT D
                WHERE D.DEFAULTSET = 1 AND (d.taskId IN (SELECT AIP.ID FROM AIP))),
118
119
          ΤP
          AS (SELECT TA.NAME N1,
120
                      AD. VERSIONNAME V1,
121
122
                      A.SRCID S1,
123
                      A.Srcrevision SV1,
124
                      AD. TASKID T1,
125
                      TB.NAME N2,
                      BD. VERSIONNAME V2,
126
127
                      A. TARGETID S2,
128
                      A. TARGETREVISION SV2,
129
                      BD.TASKID T2
130
                 FROM pm association relation old a
                      LEFT JOIN pm_Data_object_old ad
131
                         ON a.srcid = ad.id AND a.srcrevision = ad.revision
132
                      LEFT JOIN PM TASK OBJECT TA ON AD. TASKID = TA.ID
133
134
                      LEFT JOIN pm Data object old bd
135
                         ON a.targetid = bd.id AND a.targetrevision = bd.revision
                      LEFT JOIN PM_TASK_OBJECT TB ON BD.TASKID = TB.ID
136
                          a.description IN ('1', '3')
137
                WHERE
                      AND a.srcid IN (SELECT ID FROM PT)
138
139
                      AND a.targetid IN (SELECT ID FROM PT)
                      AND ( ad.statusid IN ('published')
140
141
                           OR ad.sharestatusid IN ('shared')
142
                           OR (ad.statusid IN ('confirmed')))),
143
           king
144
           AS (SELECT ROWNUM cn, tpv.*
145
                 FROM (SELECT N1 "name",
146
                              V1 "version",
```

```
147
                              S1 "dataId",
148
                              SV1 "revision",
                              T1 "taskId"
149
150
                         FROM tp
151
                       UNTON
                       SELECT N2,
152
153
                              V2,
                              S2,
154
155
                              SV2,
156
                              T2
157
                         FROM tp) tpv)
158
159
           -- select 'CREATE (D'||king.cn||':DBS
160
     {ind:'||king.cn||',name:'||king."version"||king."name"||',version:'||king."version"||',data
     Id:'||king."dataId"||',revision:'||king."revision"||',taskId:'||king."taskId"||'})' from
     king;
161
162
      , keaf as (SELECT (SELECT king.cn
                FROM king
163
164
              WHERE king. "dataId" = tp.s1 AND king. "revision" = tp.sv1)
165
            (SELECT king.cn
166
               FROM king
167
               WHERE king. "dataId" = tp.s2 AND king. "revision" = tp.sv2)
168
169
       FROM tp )
170
171
       select 'CREATE (D'||keaf.s||')-[:mapping]->(D'||keaf.e||')' from keaf;
172
```

实例生成neo4j脚本

```
CREATE (D1:DBS {ind:'1',name:'A一维设
   it',version:'A',dataId:'2018082310543300077795d0047b89ed4988ad59',revision:'562220',taskId:'
   7412514FAAE211ECE053C805A8C03AA3'})
2 CREATE (D2:DBS {ind:'2',name:'B—维设
   计',version:'B',dataId:'2018082310543300077795d0047b89ed4988ad59',revision:'562258',taskId:'
   7412514FAAE211ECE053C805A8C03AA3'})
3 CREATE (D3:DBS {ind:'3',name:'A外换热设
   计',version:'A',dataId:'20180823105446000803b552203374034326b3e6',revision:'562231',taskId:'
   7412561066F611F0E053C805A8C03340'})
4 CREATE (D4:DBS {ind:'4',name:'B外换热设
   计',version:'B',dataId:'20180823105446000803b552203374034326b3e6',revision:'562267',taskId:'
   7412561066F611F0E053C805A8C03340'})
  CREATE (D5:DBS {ind:'5',name:'A性能CFX设
   计',version:'A',dataId:'20180823105434000065c63b0708b37846a2a5b0',revision:'562225',taskId:'
   7412514FAAEB11ECE053C805A8C03AA3'})
  CREATE (D6:DBS {ind:'6',name:'B性能CFX设
   计',version:'B',dataId:'20180823105434000065c63b0708b37846a2a5b0',revision:'562263',taskId:'
   7412514FAAEB11ECE053C805A8C03AA3'})
```

```
CREATE (D7:DBS {ind:'7',name:'B总体外
    发',version:'B',dataId:'20180823105306000504f79d9fe5e7a64c158c30',revision:'562214',taskId:'
    741251B71E5811EAE053C805A8C0D903'})
 8 CREATE (D8:DBS {ind:'8',name:'C总体外
    发',version:'C',dataId:'20180823105306000504f79d9fe5e7a64c158c30',revision:'562254',taskId:'
    741251B71E5811EAE053C805A8C0D903'})
   CREATE (D9:DBS {ind:'9',name:'A涡轮传热外
    发',version:'A',dataId:'201808231054470004459281f122dfcc44fda810',revision:'562238',taskId:'
    74125610670C11F0E053C805A8C03340'})
   CREATE (D10:DBS {ind:'10',name:'A涡轮强度分
    析',version:'A',dataId:'201808231055000006582e8676bbde924110842b',revision:'562241',taskId:'
    741251BA999C11E8E053C805A8C0062E'})
   CREATE (D11:DBS {ind:'11',name:'A非设计点设
11
    计',version:'A',dataId:'20180823105447000157118c1003cebd47f9bb67',revision:'562235',taskId:'
    74125610670211F0E053C805A8C03340'})
12
13
   CREATE (D3)-[:mapping]->(D9)
   CREATE (D11)-[:mapping]->(D9)
14
15
   CREATE (D7)-[:mapping]->(D10)
    CREATE (D5)-[:mapping]->(D10)
16
17
   CREATE (D3)-[:mapping]->(D10)
   CREATE (D2)-[:mapping]->(D6)
   CREATE (D7)-[:mapping]->(D1)
19
   CREATE (D1)-[:mapping]->(D5)
20
    CREATE (D8)-[:mapping]->(D2)
21
   CREATE (D8)-[:mapping]->(D4)
   CREATE (D6)-[:mapping]->(D4)
   CREATE (D7)-[:mapping]->(D3)
24
   CREATE (D5)-[:mapping]->(D3)
25
26
   CREATE (D7)-[:mapping]->(D11)
27
   CREATE (D5)-[:mapping]->(D11)
   CREATE (D3)-[:mapping]->(D11)
```