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Oracle APEX Developing Database Web Applications

30 Maggio 2023







Chi Siamo

Ing. Roberto Capancioni

-Sviluppo Oracle APEX



-Board Member ITOUG





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Linkedin: https://www.linkedin.com/in/robertocapancioni

ITOUG: https://itoug.it





Chi Siamo

- Dott.ssa Nicoletta Bindi
- in Tema dal 2001
- Analista sviluppatrice java e web
- Apex dal 2020







documento

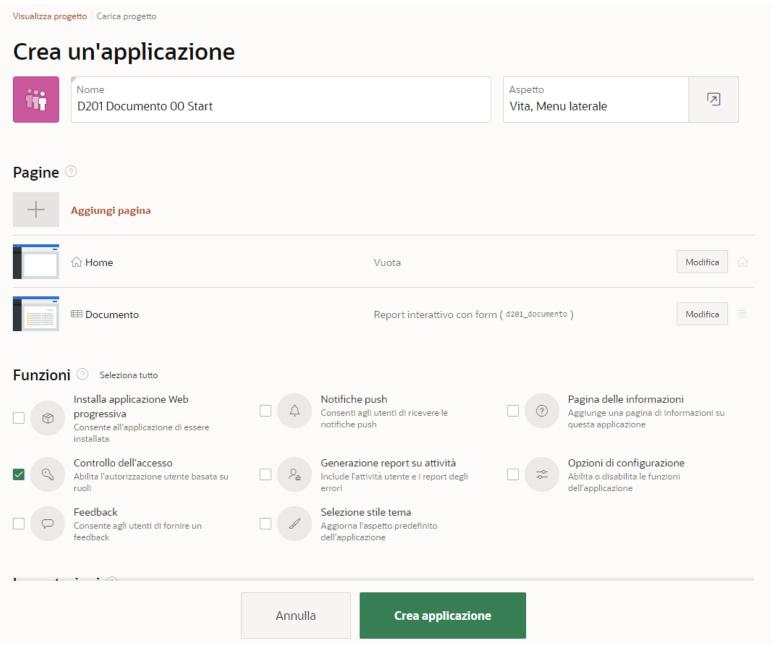
```
codice vc20 /nn /unique
descrizione vc50 /nn
data d /nn
richiedente vc50 /nn
stato /nn /default RESPONSABILE
```

```
# settings = {prefix:d201}
```

```
■ APEX App Builder ✓ SQL Workshop ✓ Team Development ✓ Galleria
                                                                                                                                                                                                              AT at0
1 Utility \ Quick SQL
Quick SQL
                                                                   Cancella Carica Guida Salva modello Genera SQL SQL
                                                                                                                                                                                 Impostazioni Scarica Salva script SQL Riesamina ed esegui
    codice vc20 /nn /unique
                                                                                                                       create table d201_documento (
    descrizione vc50 /nn
                                                                                                                          id
                                                                                                                                                       number generated by default on null as identity
 4 data d /nn
                                                                                                                                                       constraint d201_documento_id_pk primary key,
    richiedente vc50 /nn
                                                                                                                           codice
                                                                                                                                                       varchar2(20 char)
                                                                                                                                                       constraint d201_documento_codice_unq unique not null,
     stato vc20 /nn /default 10-RESP
                                                                                                                           descrizione
                                                                                                                                                       varchar2(50 char) not null,
 8 # settings = { prefix: "D201"}
                                                                                                                                                       date not null,
                                                                                                                           richiedente
                                                                                                                                                       varchar2(50 char) not null,
                                                                                                                                                       varchar2(20 char) default on null '10-RESP' not null
                                                                                                                          stato
                                                                                                                  11
                                                                                                                  12 ;
                                                                                                                  14 -- load data
                                                                                                                  16 -- Generated by Quick SQL Sabato Maggio 27, 2023 11:47:36
                                                                                                                  18 /*
                                                                                                                  19 documento
                                                                                                                  20 codice vc20 /nn /unique
                                                                                                                        descrizione vc50 /nn
                                                                                                                        data d /nn
                                                                                                                        richiedente vc50 /nn
                                                                                                                      stato vc20 /nn /default 10-RESP
                                                                                                                  26 # settings = { prefix: "D201", semantics: "CHAR", language: "EN", APEX: true }
```

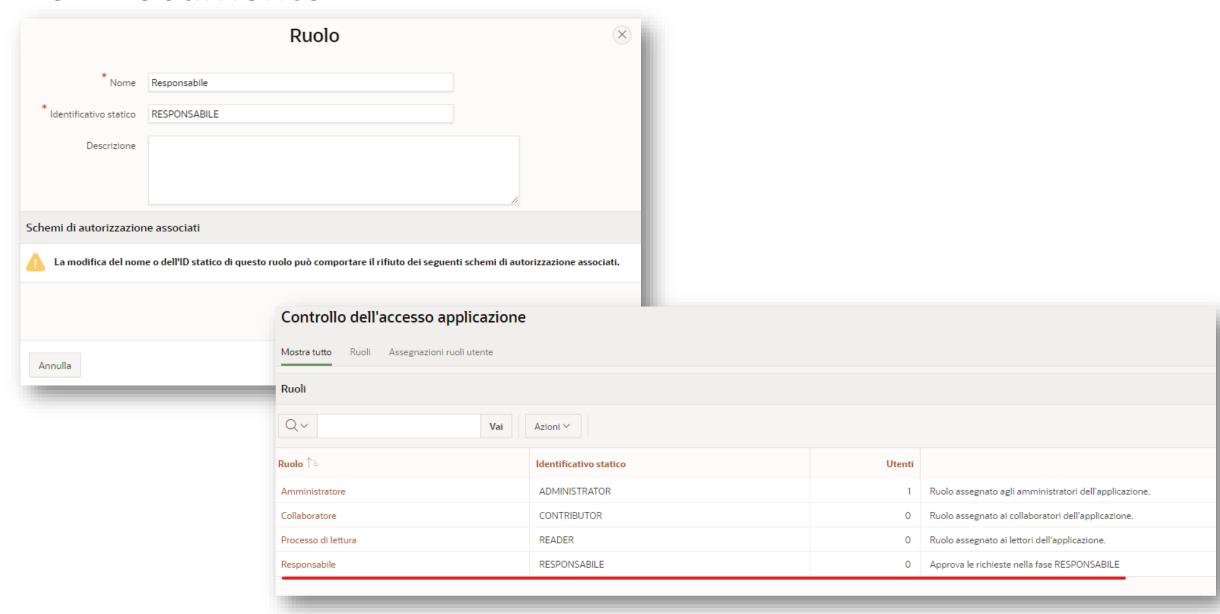






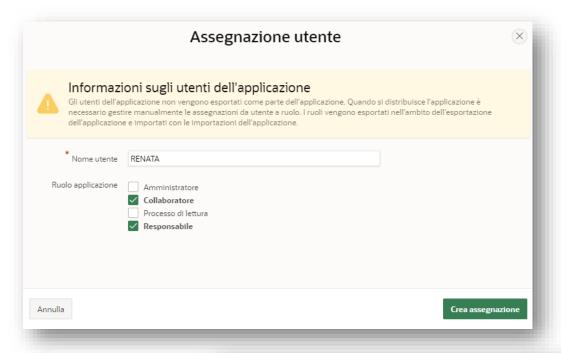


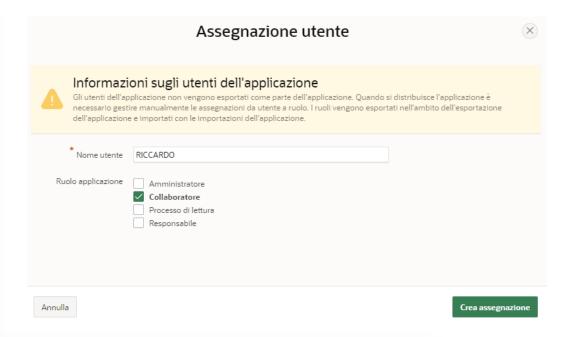


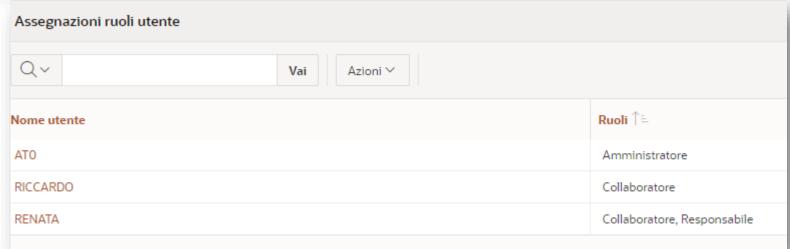














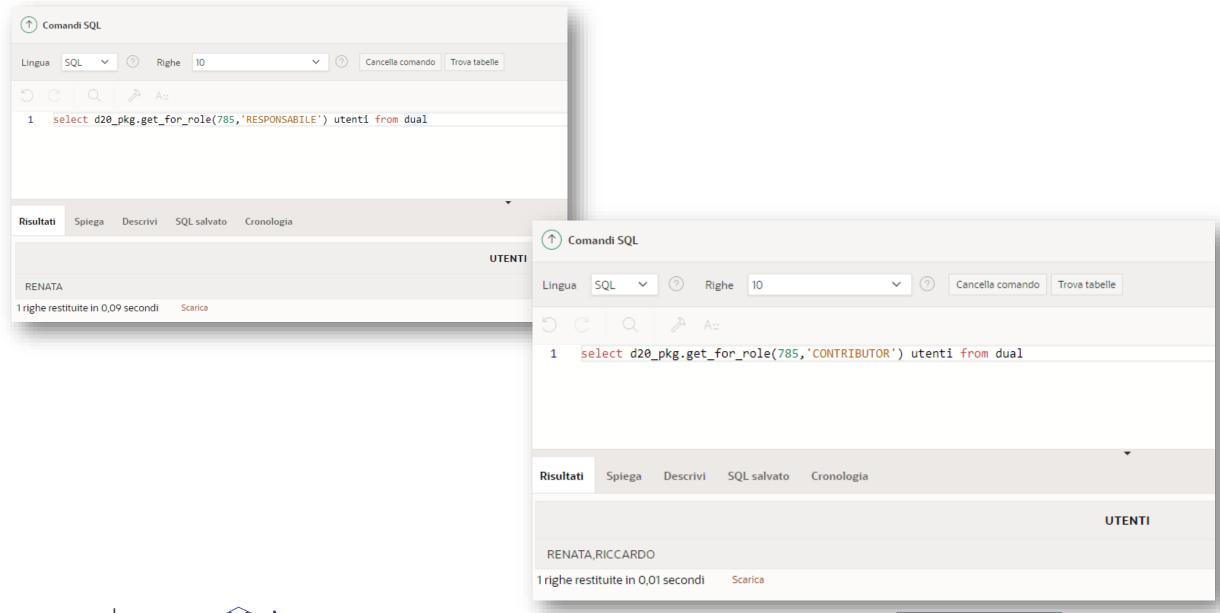


```
create or replace package d20_pkg as
         function get_for_role(p_app_id number, p_role varchar2) return varchar2;
     end;
     create or replace package body d20 pkg as
         function get_for_role(p_app_id number, p_role varchar2) return varchar2
         is
         l utenti varchar2(100);
         begin
10
           select listagg(user_name,',') within group (order by user_name) utenti into l_utenti
11
             from apex appl acl user roles
12
            where application_id = p_app_id
13
              and role static id = p role;
14
15
16
              return l utenti;
17
         end get for role;
     end d20_pkg;
18
19
```

```
select listagg(user_name,',')
within group (order by user_name) utenti into l_utenti
  from apex_appl_acl_user_roles
where application_id = p_app_id
  and role_static_id = p_role;
```

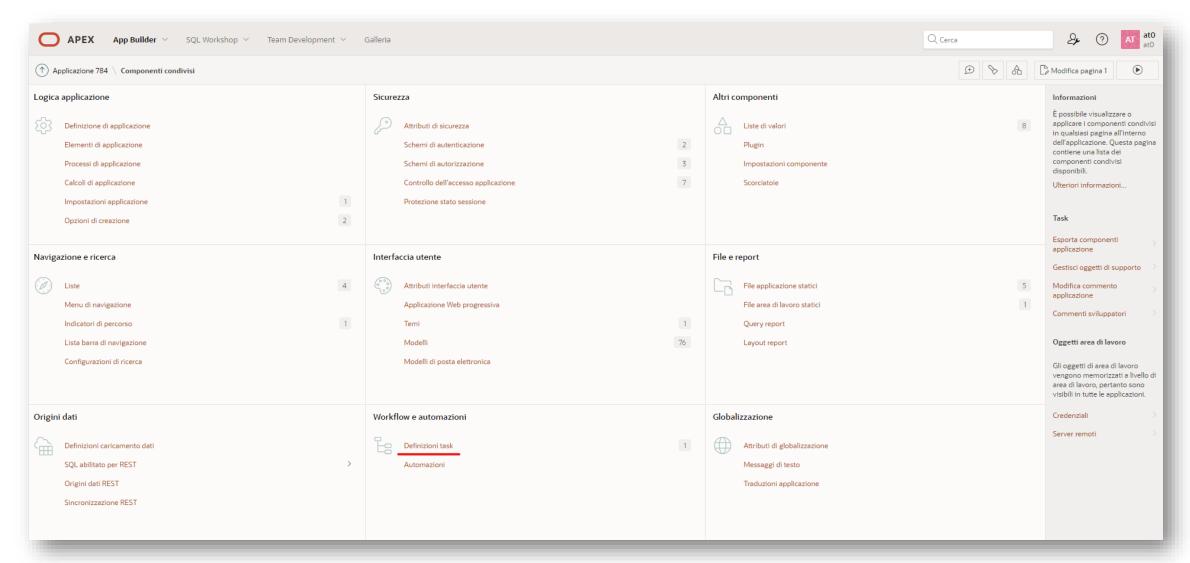






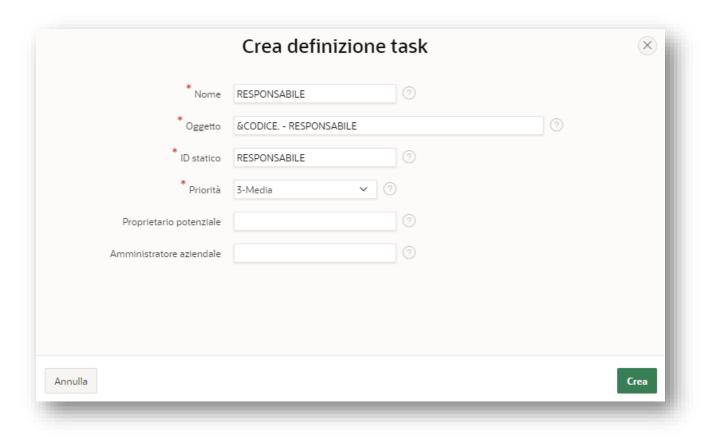








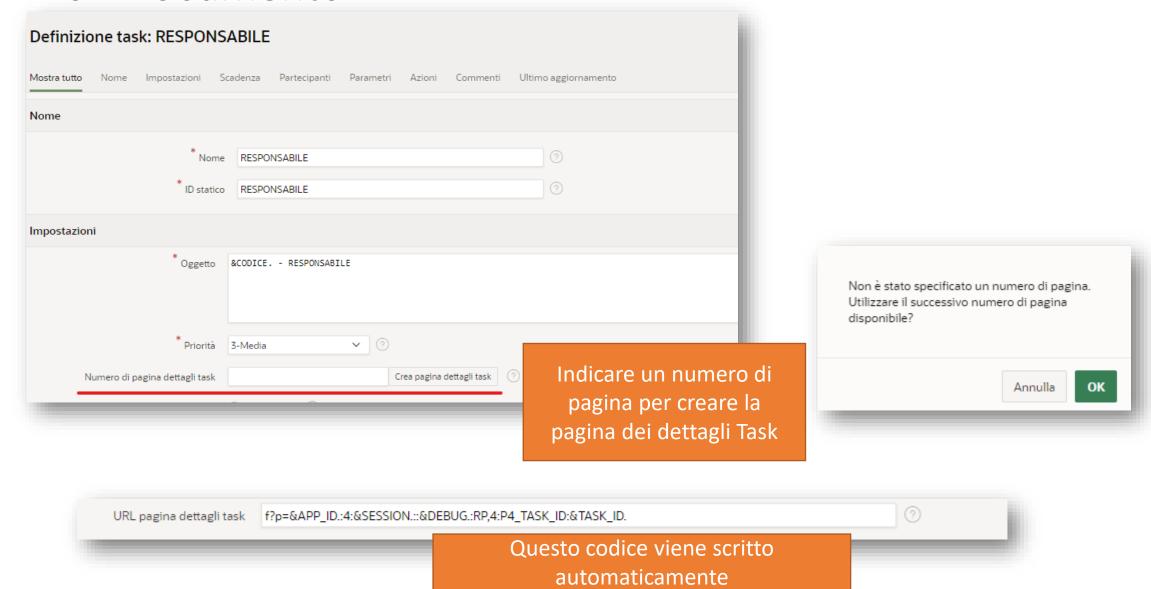




&CODICE. È un parametro che assoceremo dopo

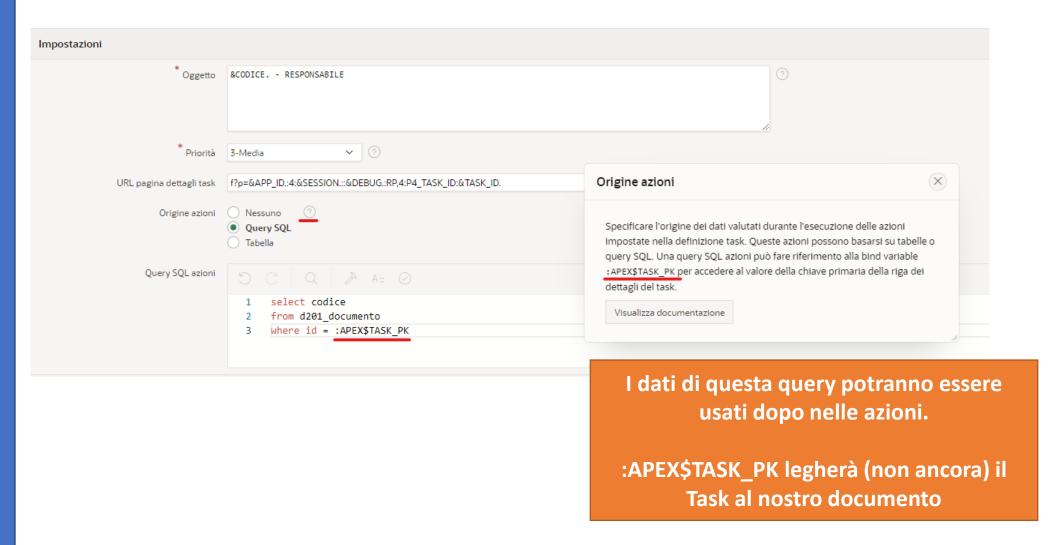






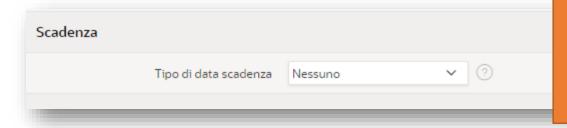






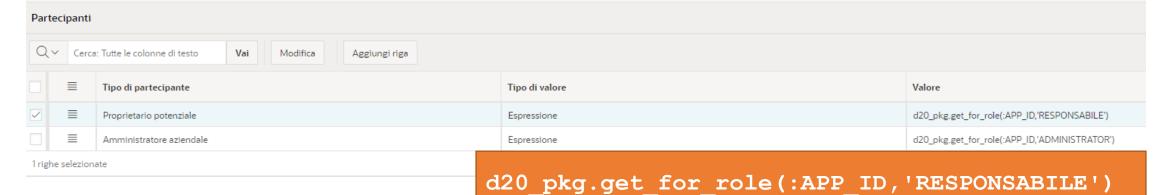


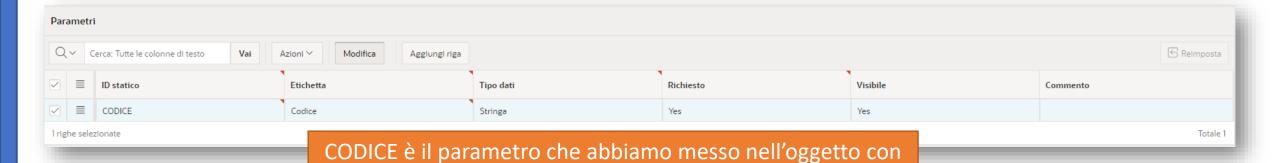




Posso definire se il task deve SCADERE (esiste un job di sistema ORACLE_APEX_TASKS_EXPIRE)

d20 pkg.get for role(:APP ID, 'ADMINISTRATOR')

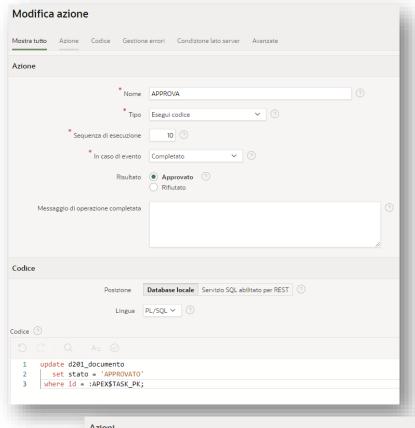


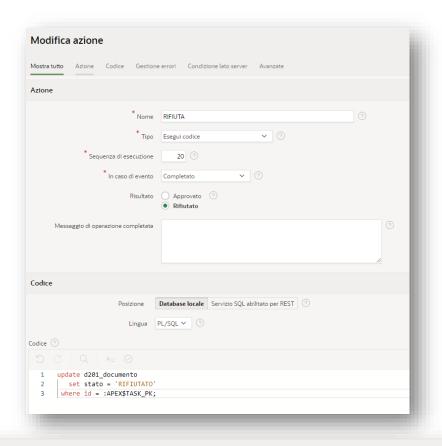


&CODICE (e popoleremo dopo).



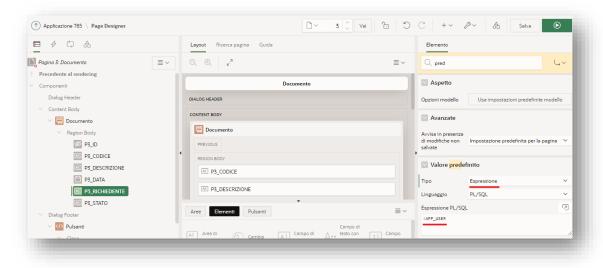


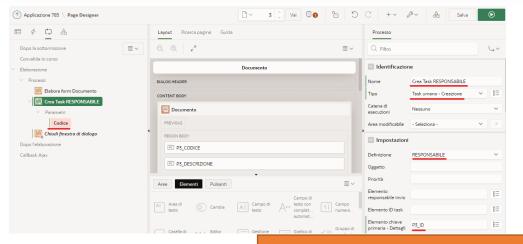




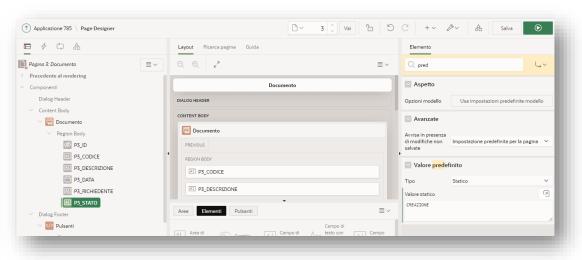
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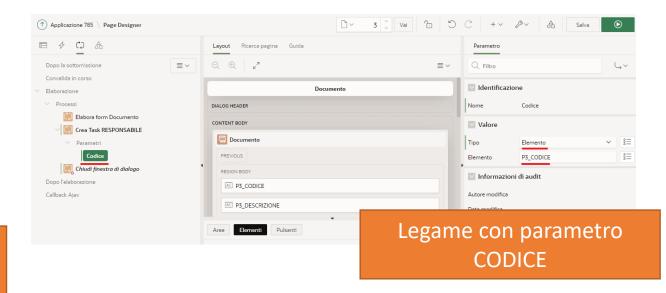
Az	ioni	ni en				
С	Q Cerca: Tutte le colonne di testo Vai Azioni V Modifica					
•	✓	In caso di evento	×			
	≡		Nome	Risultato	Sequenza di esecuzione ↑=	Tipo di azione
▼ In caso di evento: Completato						
~	≡	P	APPROVA	Approvato	10	Esegui codice
	≡	1	RIFIUTA	Rifiutato	20	Esegui codice
	1 Mary and references					





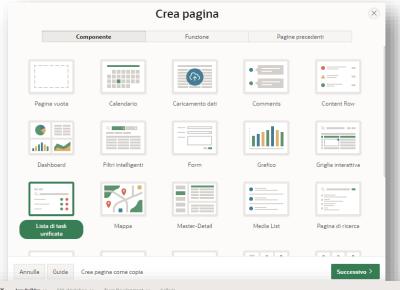
Legame con APEX\$TASK_PK

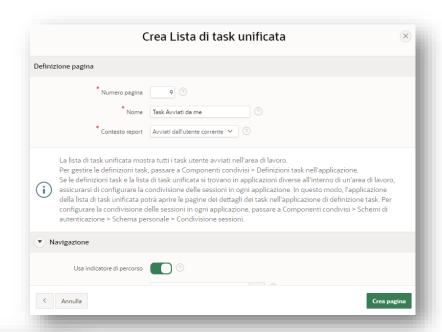


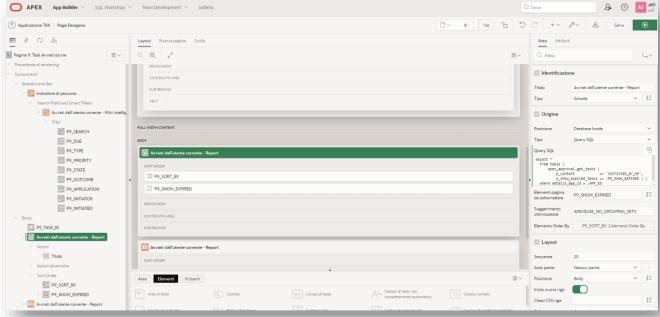








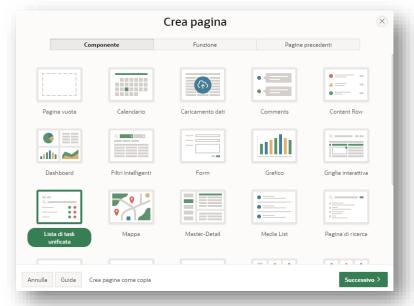


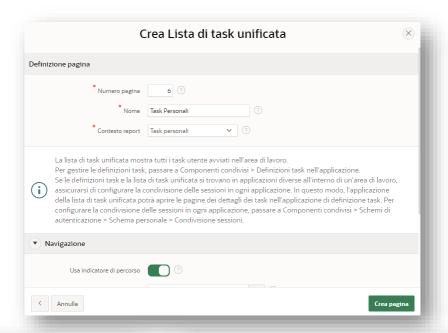


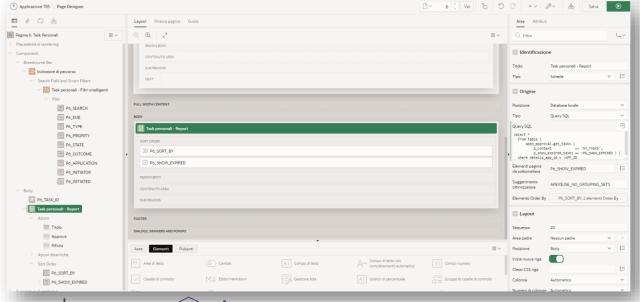
Il WHERE lo aggiungiamo noi

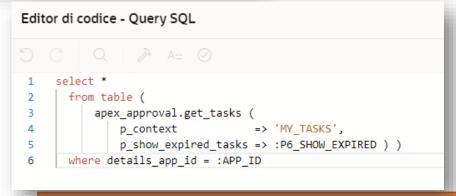








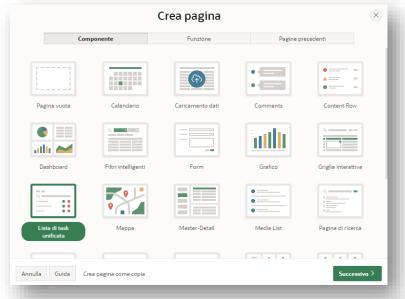


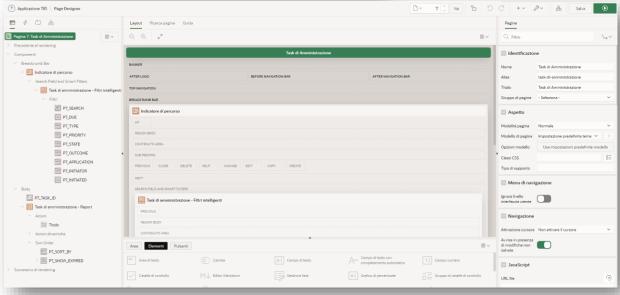


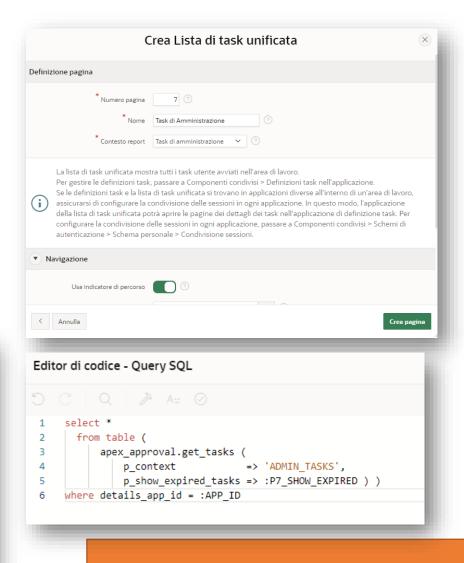
Il WHERE lo aggiungiamo noi

ORACLE





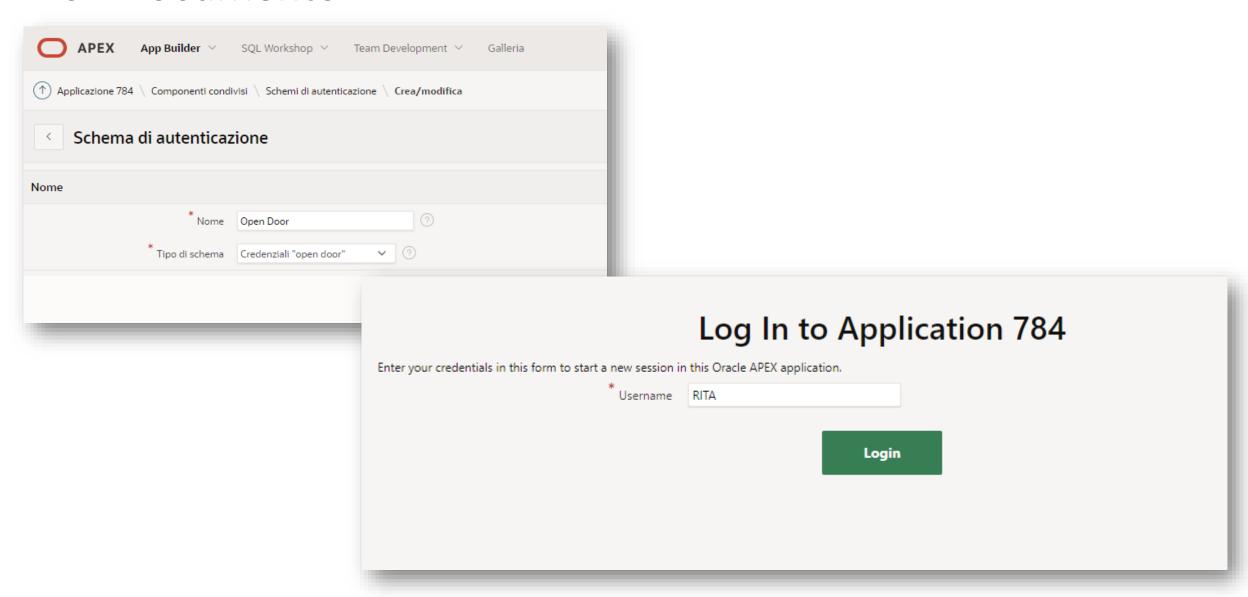




Il WHERE lo aggiungiamo noi







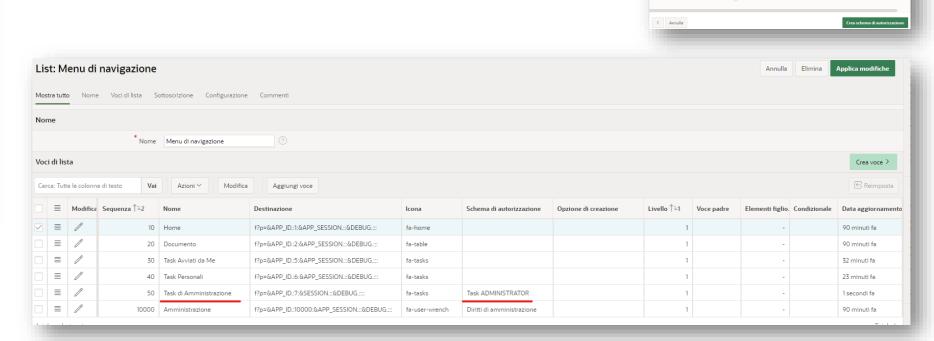




return d20_pkg.has_user_role(:APP_ID,:APP_USER,'RESPONSABILE');

return d20_pkg.has_user_role(:APP_ID,:APP_USER,'ADMINISTRATOR');









Crea schema di autorizzazione

proteggere applicazioni, pagine e componenti di applicazione e di estendere la sicurezza fornita dallo schema di autenticazione dell'applicazione. È possibile utilizzare gli schemi di autorizzazione per identificare altri parametri di sicurezza oltre alla normale autenticazione degli utenti. Ad esempio, un utente con diritti di amministrazione potrebbe avere la necessità di accedere a un numero maggiore di icone della barra di narigazione, pagine e schede rispetto ad

Applications: 785 D201 Documento 00 Start

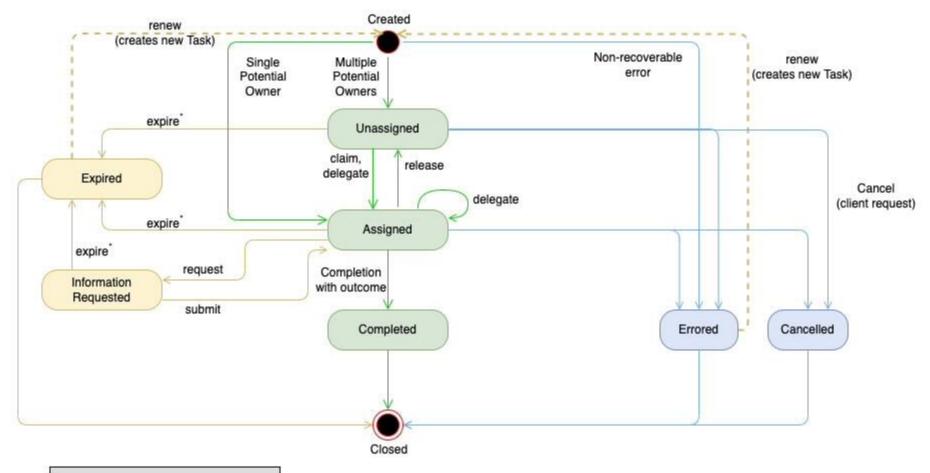
*Nome Task ADMINISTRATOR

*Tipo di schema Funzione PL/SQL che restituisce un risultato booleano

*Corpo funzione PL/SQL | CESUM 438 prig. has _user_role (:APP_10, :APP_1568, 'ADMINISTRATOR');

Convalida schema di autorizzazione:

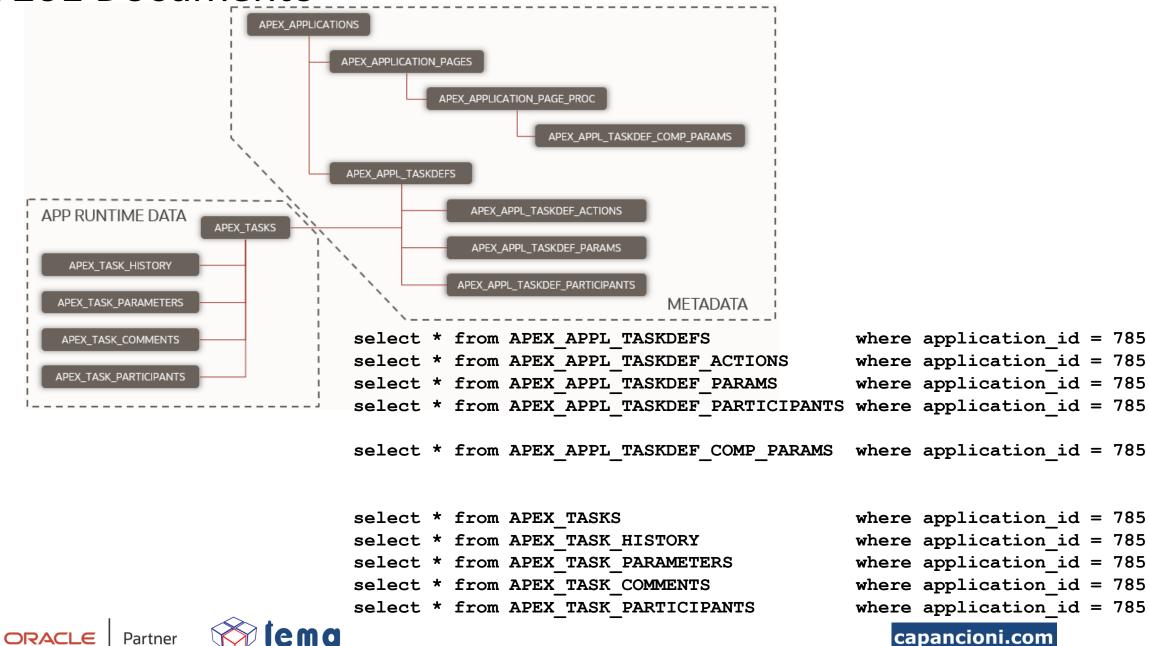
Una volta per sessione



*Tasks are expired by a background job ORACLE_APEX_TASKS_EXPIRE







▼ 7 APEX APPROVAL

7.1 ADD_TASK_COMMENT Procedure

7.2 ADD_TASK_POTENTIAL_OWNER Procedure

7.3 ADD_TO_HISTORY Procedure

7.4 APPROVE_TASK Procedure

7.5 CANCEL_TASK Procedure

7.6 CLAIM_TASK Procedure

7.7 COMPLETE_TASK Procedure

7.8 CREATE_TASK Function

7.9 DELEGATE_TASK Procedure

7.10 GET_LOV_PRIORITY Function

7.11 GET_LOV_STATE Function

7.12 GET_TASK_DELEGATES Function

7.13 GET_TASK_HISTORY Function

7.14 GET_TASK_PARAMETER_VALUE Function

7.15 GET_TASK_PRIORITIES Function

7.16 GET_TASKS Function

7.17 HANDLE_TASK_DEADLINES Procedure

7.18 IS_ALLOWED Function

7.19 IS_BUSINESS_ADMIN Function

7.20 IS_OF_PARTICIPANT_TYPE Function

7.21 REJECT_TASK Procedure

7.22 RELEASE_TASK Procedure

7.23 RENEW_TASK Function

7.24 REQUEST_MORE_INFORMATION

Procedure

7.25 SET_TASK_DUE Procedure

7.26 SET_TASK_PRIORITY Procedure

7.27 SUBMIT_INFORMATION Procedure

7 APEX_APPROVAL



The APEX_APPROVAL package provides APIs for the management of approvals and Human Tasks. This package includes functionality to create new Human Tasks for a user to approve as well as operations dealing with the lifecycle management and state handling of Human Tasks. This package is part of the Oracle APEX Workflow functionality.

ADD_TASK_COMMENT Procedure

ADD_TASK_POTENTIAL_OWNER Procedure

ADD TO HISTORY Procedure

APPROVE_TASK Procedure

CANCEL_TASK Procedure

CLAIM_TASK Procedure

COMPLETE_TASK Procedure

CREATE_TASK Function

DELEGATE_TASK Procedure

GET_LOV_PRIORITY Function

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GET TASK DELEGATES Function

GET_TASK_HISTORY Function

GET TASK PARAMETER VALUE Function

GET_TASK_PRIORITIES Function

GET_TASKS Function

HANDLE_TASK_DEADLINES Procedure

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GET_TASKS Function

HANDLE_TASK_DEADLINES Procedure

IS_ALLOWED Function

IS_BUSINESS_ADMIN Function

IS_OF_PARTICIPANT_TYPE Function





7.16 GET_TASKS Function



This function gets the tasks of a user depending on the given context.

Context can be one of the following:

- MY_TASKS Returns all tasks where the user calling the function is either the Owner or one of the Potential Owners of the task.
- ADMIN_TASKS Returns all tasks for which the user calling the function is a Business Administrator.
- INITIATED_BY_ME Returns all tasks where the user calling the function is the Initiator.
- $SINGLE_TASK$ Returns the task identified by the P_TASK_ID input parameter.

This function only returns data in the context of a valid Oracle APEX session. It returns no data in SQL Workshop.

Syntax

```
APEX_APPROVAL.GET_TASKS (

p_context IN VARCHAR2 DEFAULT wwv_flow_approval_api.c_context_my_tasks,

p_user IN VARCHAR2 DEFAULT wwv_flow_security.g_user,

p_task_id IN NUMBER DEFAULT NULL,

p_application_id IN NUMBER DEFAULT NULL,

p_show_expired_tasks IN VARCHAR2 DEFAULT 'N' )

RETURN wwv_flow_t_approval_tasks pipelined;
```





```
select app_id,
                                                   MY_TASKS
       task id,
       task_def_id,
       task def name,
       subject,
       initiator,
       actual_owner,
       state,
       is completed,
       outcome,
       badge css classes,
       badge_text
  from table (apex_approval.get_tasks ('INITIATED_BY_ME'))
 where app_id = :APP_ID
```

- ADMIN_TASKS
- INITIATED_BY_ME
- SINGLE TASK



- MY_TASKS
- ADMIN_TASKS
- INITIATED_BY_ME
- SINGLE_TASK

```
select d.*,
    a.*
from apex_tasks t
    join table (apex_approval.get_tasks ('INITIATED_BY_ME'))a
    on t.task_id = a.task_id and t.application_id = a.app_id
    join d20_documento d
    on t.detail_pk = d.id
where a.app_id = :APP_ID
```



7.18 IS_ALLOWED Function

This function checks whether the given user is permitted to perform a certain operation on a Task.

Syntax

```
apex approval.c task op delegate
apex approval.c task op set priority
apex approval.c task op set due date
apex approval.c task op request info
apex approval.c task op submit info
apex approval.c task op add owner
apex_approval.c_task_op_cancel
apex approval.c task op claim
apex approval.c task op reject
apex approval.c task op approve
apex approval.c task op release
apex_approval.c_task_op_delegate
apex approval.c task op set priority
apex approval.c task op set due date
apex_approval.c task op request info
apex approval.c task op submit info
apex_approval.c_task_op_add_owner
apex approval.c task op cancel
apex approval.c task op renew
```



apex_approval.c_task_potential_owner
apex_approval.c_task_business_admin









documento

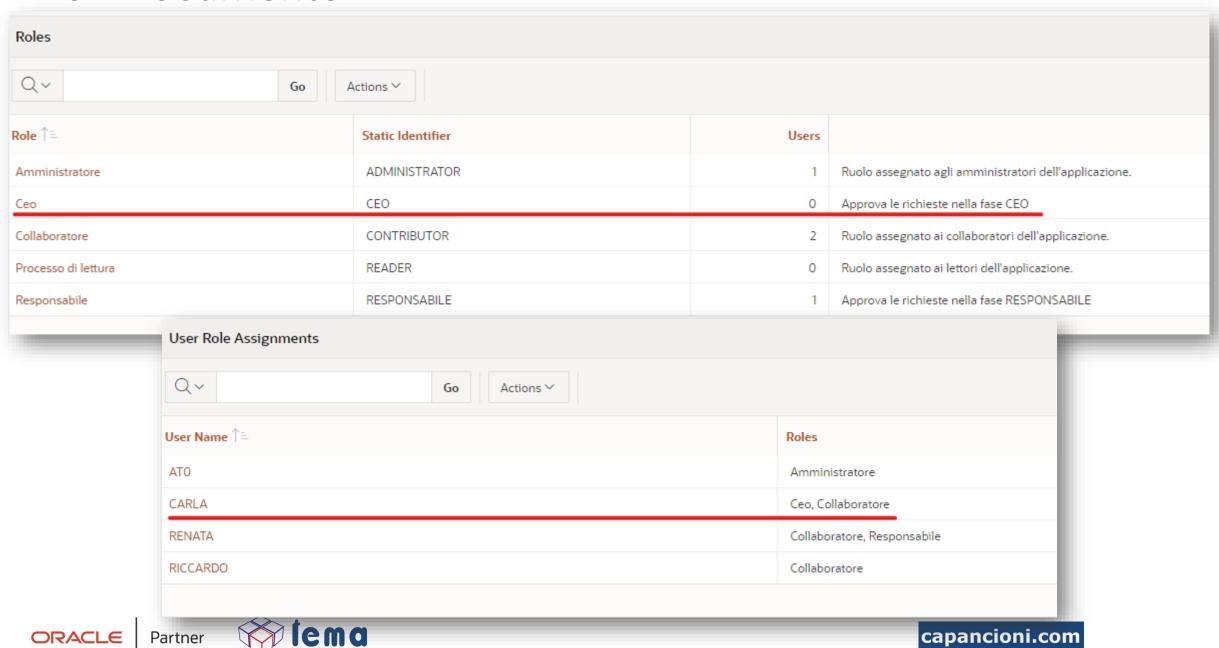
```
codice vc20 /nn /unique
descrizione vc50 /nn
data d /nn
richiedente vc50 /nn
stato /nn /default RESPONSABILE
```

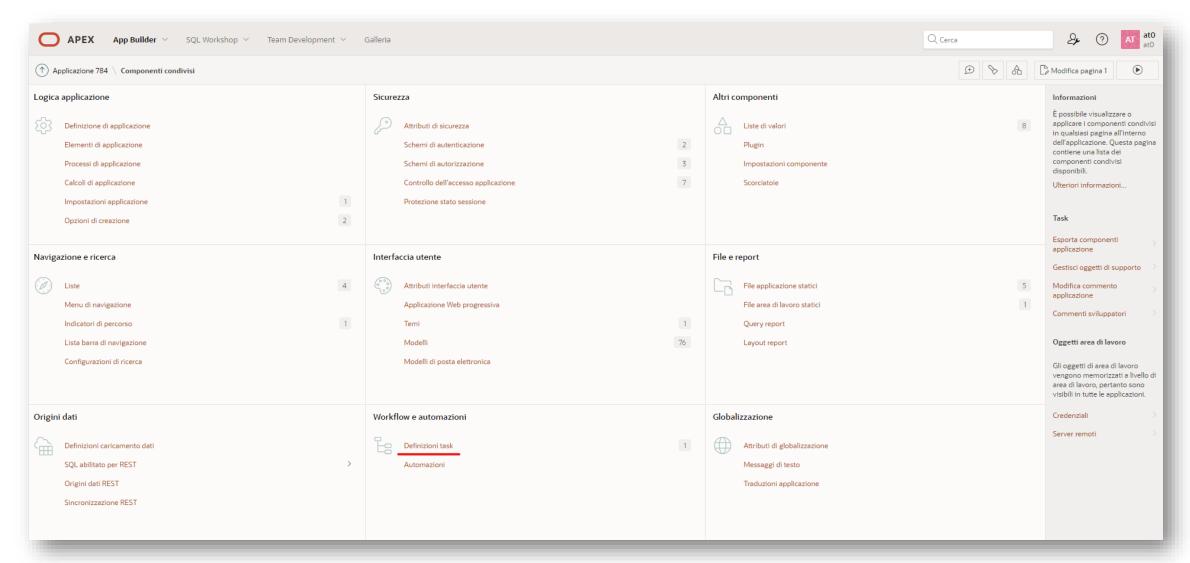
```
# settings = {prefix:d202}
```

```
APEX App Builder V SQL Workshop V Team Development V Gallery
                                                                                                                                                                                  Q Search
                                                                                                                                                                                                              AT at0
1 Utilities \ Quick SQL
                                                                                                                                                                                     Settings Download Save SQL Script Review and Run
Ouick SOL
                                                                      Clear Load Help Save Model Generate SQL
                                                                                                                       -- create tables
      codice vc20 /nn /unique
                                                                                                                       create table d202_documento (
      descrizione vc50 /nn
                                                                                                                          id
                                                                                                                                                       number generated by default on null as identity
                                                                                                                                                      constraint d202_documento_id_pk primary key,
      data d /nn
      richiedente vc50 /nn
                                                                                                                           codice
                                                                                                                                                       varchar2(20 char)
      stato vc20 /nn /default 10-RESP
                                                                                                                                                       constraint d202_documento_codice_unq unique not null,
                                                                                                                                                       varchar2(50 char) not null,
                                                                                                                           descrizione
 8  # settings = { prefix: "D202" ]
                                                                                                                                                       date not null.
                                                                                                                           richiedente
                                                                                                                                                       varchar2(50 char) not null,
                                                                                                                                                      varchar2(20 char) default on null '10-RESP' not null
                                                                                                                           stato
                                                                                                                      -- load data
                                                                                                                  16 -- Generated by Quick SQL Sunday May 28, 2023 09:06:58
                                                                                                                  18 /*
                                                                                                                  20 codice vc20 /nn /unique
                                                                                                                  21 descrizione vc50 /nn
                                                                                                                  22 data d /nn
                                                                                                                  23 richiedente vc50 /nn
                                                                                                                      stato vc20 /nn /default 10-RESP
                                                                                                                      # settings = { prefix: "D202", semantics: "CHAR", language: "EN", APEX: true }
```



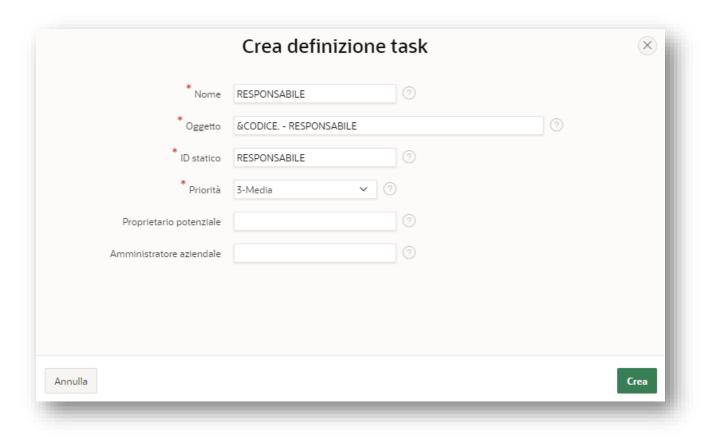








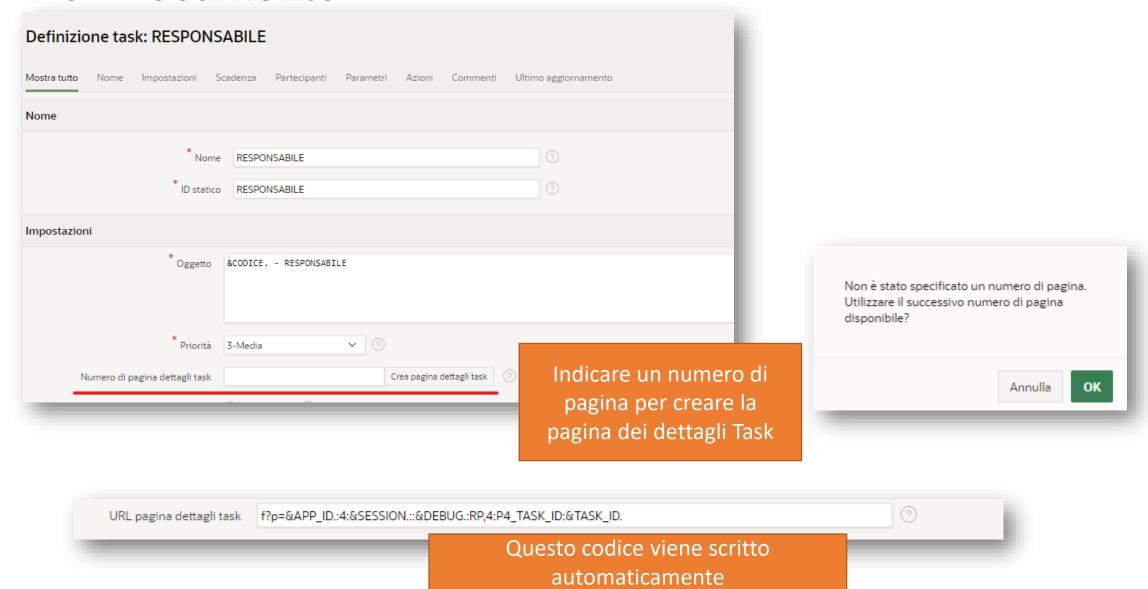




&CODICE. È un parametro che assoceremo dopo

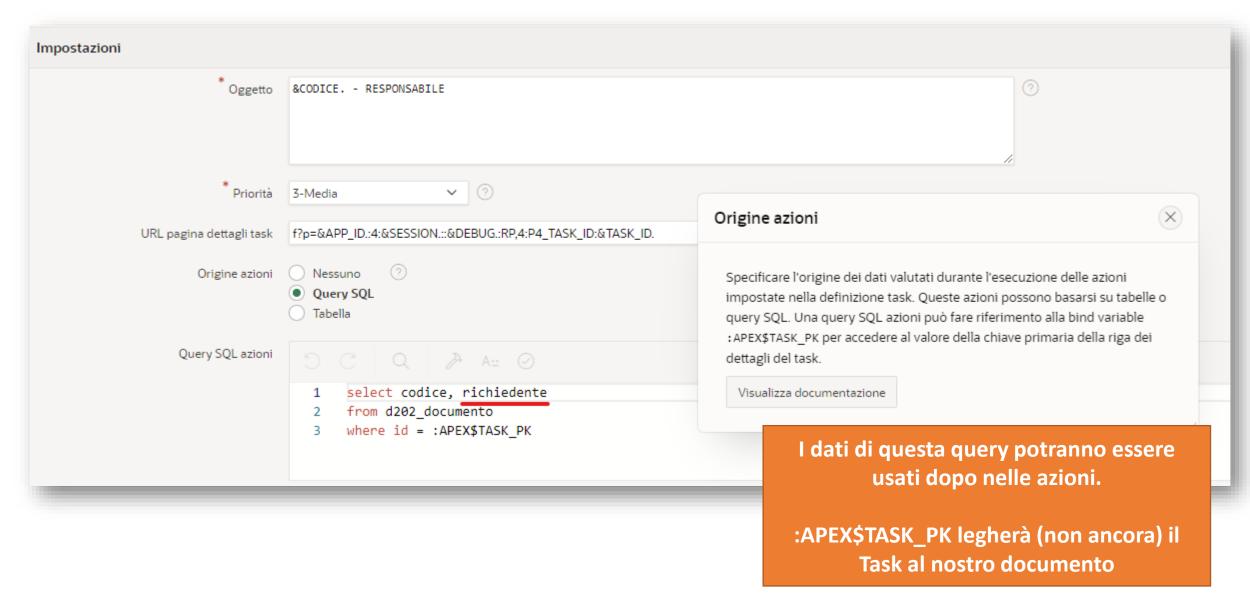






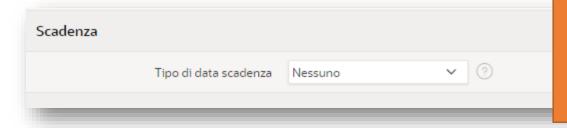






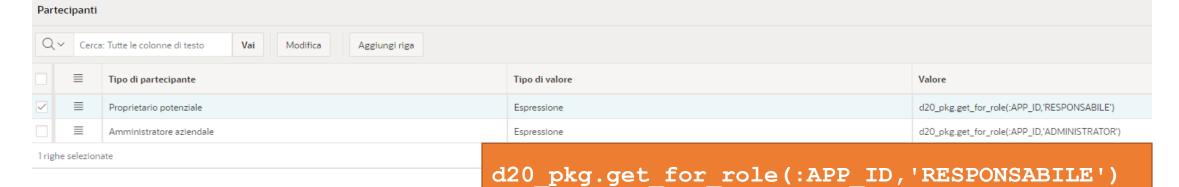


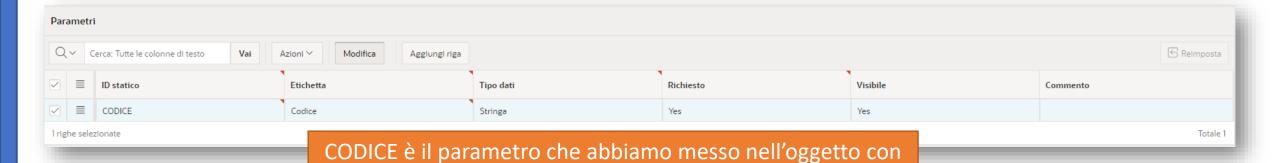




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d20 pkg.get for role(:APP ID, 'ADMINISTRATOR')

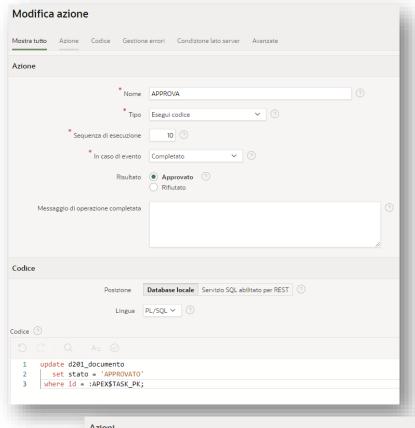




&CODICE (e popoleremo dopo).



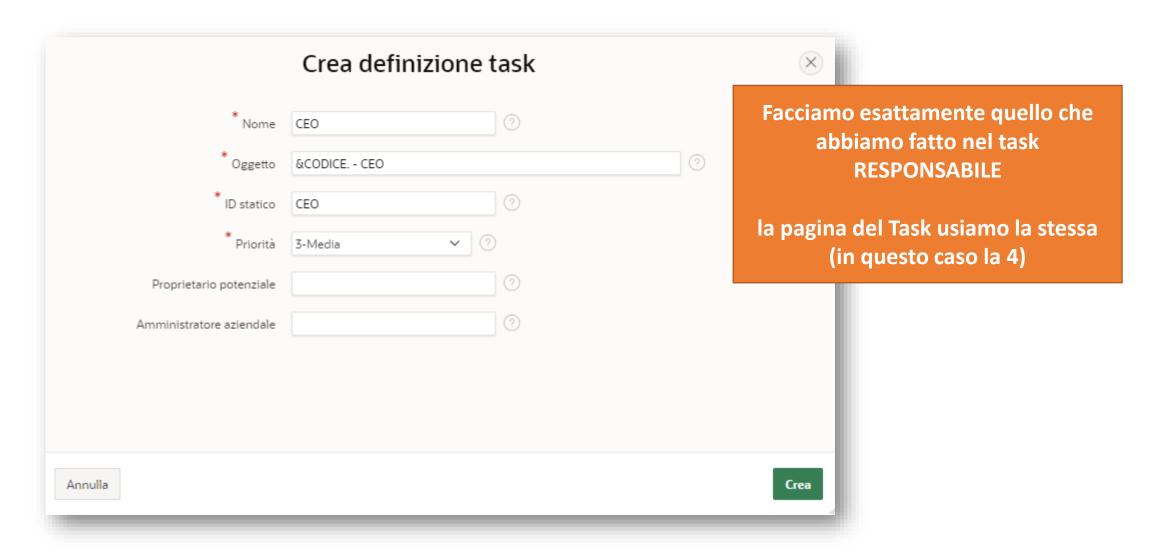




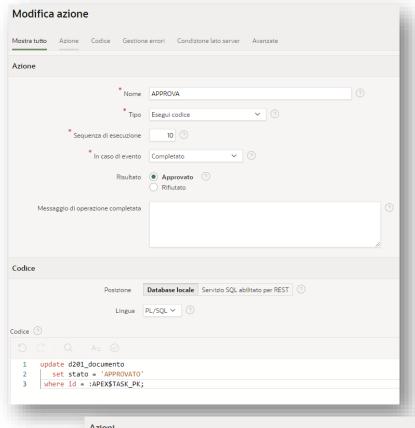


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Azior	zioni										
Q	Q ∨ Cerca: Tutte le colonne di testo Vai Azioni ∨ Modifica										
•	▼										
	≡		Nome	Risultato	Sequenza di esecuzione ↑=	Tipo di azione					
▼ In caso di evento: Completato											
~	≡	0	APPROVA	Approvato	10	Esegui codice					
	≡	0	RIFIUTA	Rifiutato	20	Esegui codice					



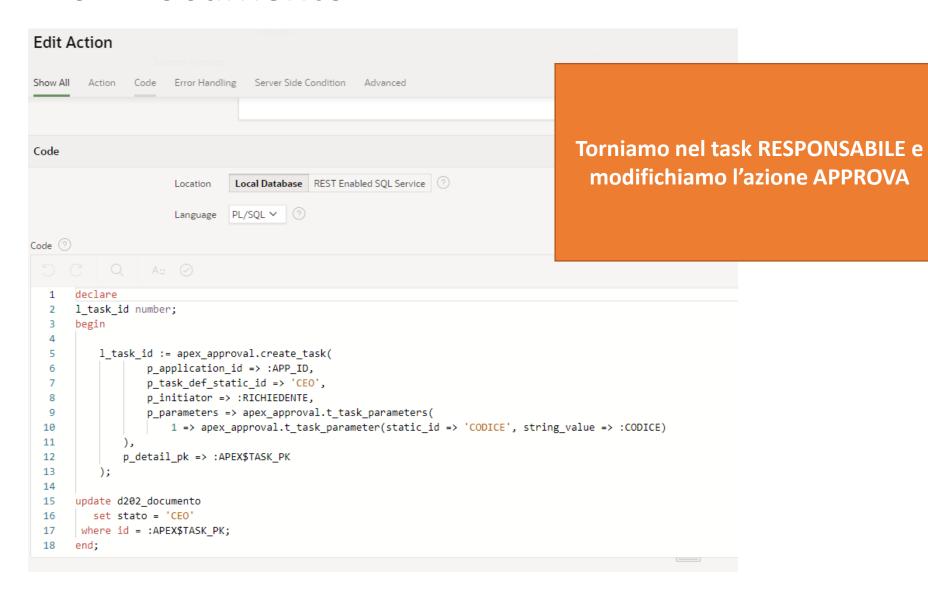






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Azior	zioni										
Q	Q ∨ Cerca: Tutte le colonne di testo Vai Azioni ∨ Modifica										
•	▼										
	≡		Nome	Risultato	Sequenza di esecuzione ↑=	Tipo di azione					
▼ In caso di evento: Completato											
~	≡	0	APPROVA	Approvato	10	Esegui codice					
	≡	0	RIFIUTA	Rifiutato	20	Esegui codice					







```
select
```

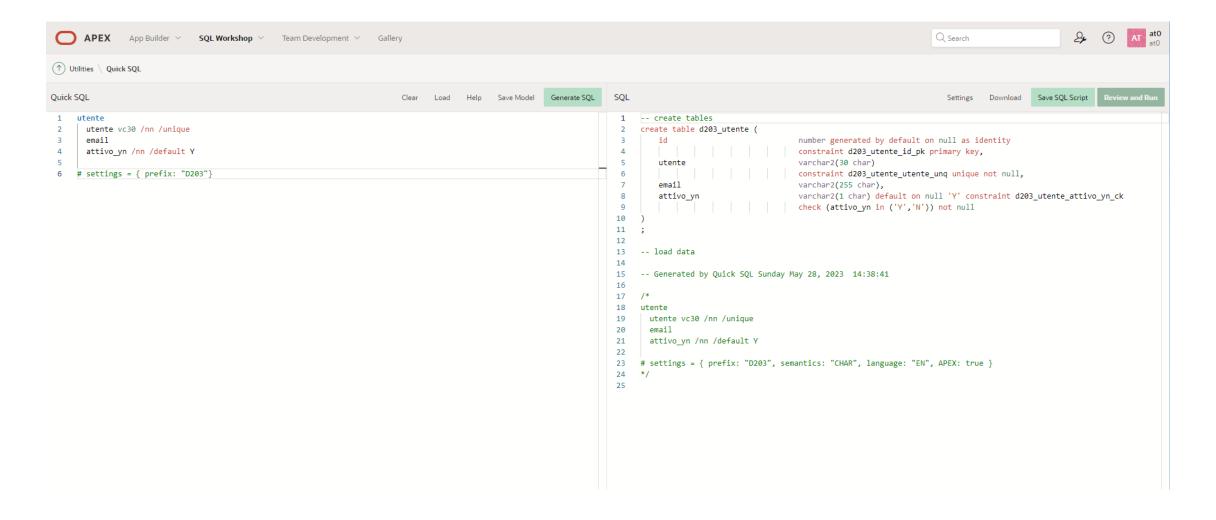
```
t.task id,
       t.application id,
       t.task def name,
       t.task def static id,
                                  HISTORY
       t.detail pk,
       t.subject,
       t.initiator,
       t.actual owner,
       t.state,
       t.outcome,
       h.event type,
       h.event creator,
       h.old state,
       h.new state,
       h.old actual owner,
       h.new actual owner,
       h.outcome history outcome,
       h.event timestamp
  from APEX TASK HISTORY h
  join APEX TASKS t on h.task_id = t.task_id
                   and h.application id =
t.application id
 where t.application id = 786 and t.detail pk = 1
   and h.event type code = 'COMPLETE'
order by h.event timestamp
```

COMMENTS

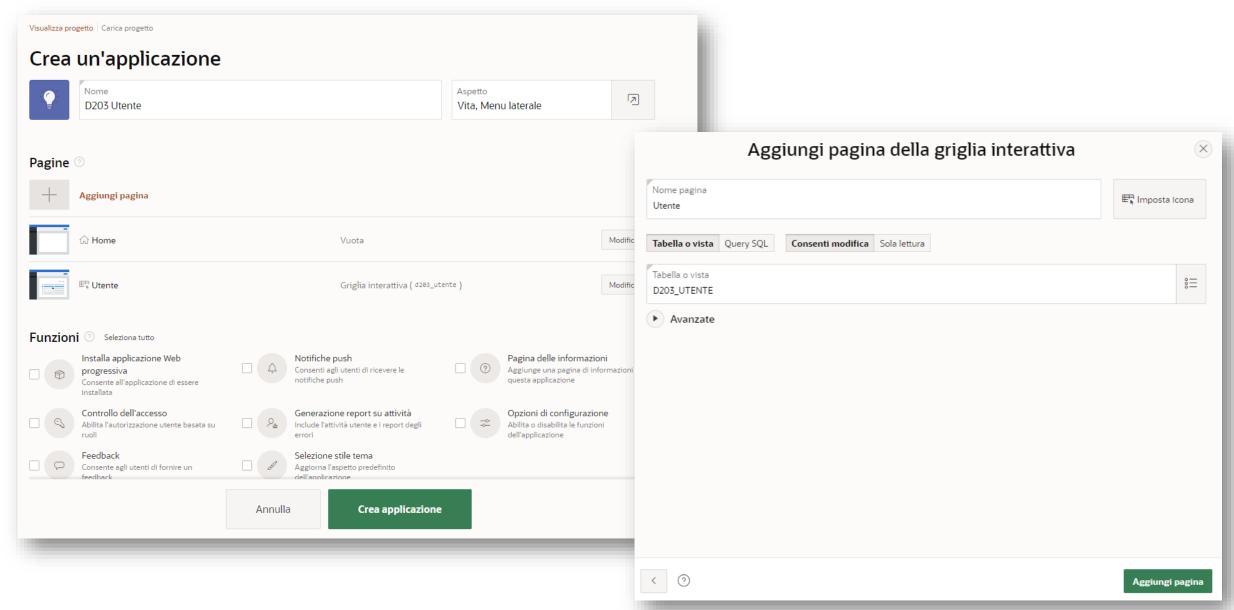
```
select t.task id,
       t.application id,
       t.task def name,
       t.task def static id,
       t.detail pk,
       t.subject,
       t.initiator,
       t.actual owner,
       t.state,
       t.outcome,
       c.text,
       c.created on
  from APEX TASK COMMENTS c
  join APEX TASKS t on c.task id = t.task id
                   and c.application id =
t.application id
 where t.application id = 786 and t.detail pk = 1
 order by c.created on
```





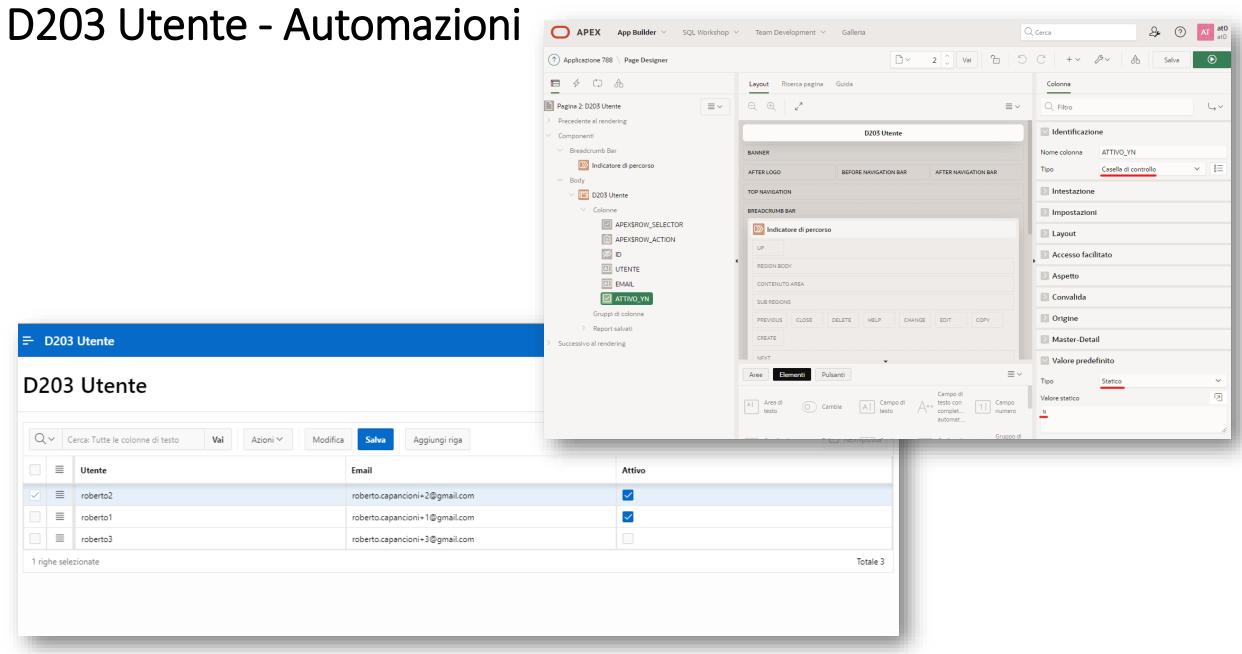






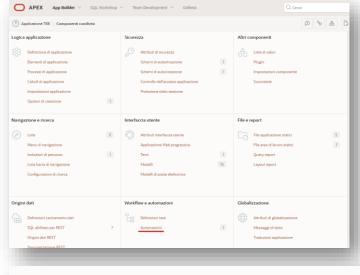


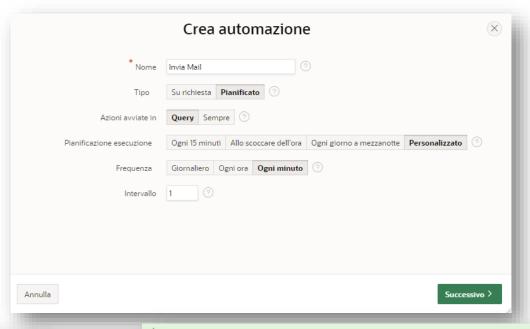


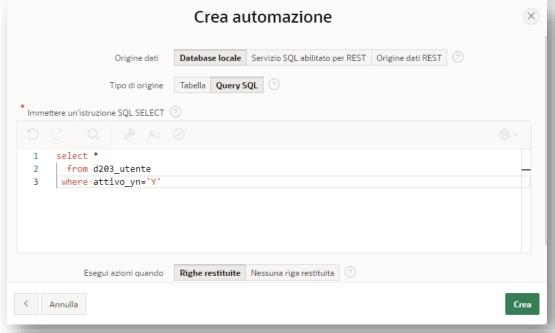


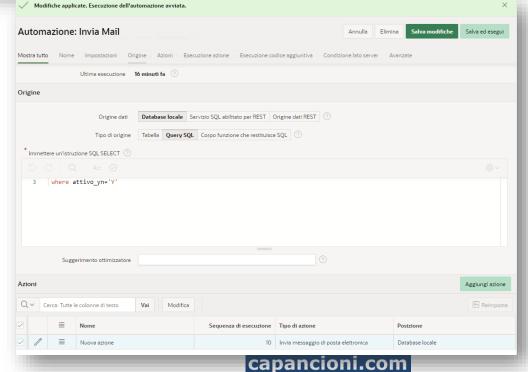


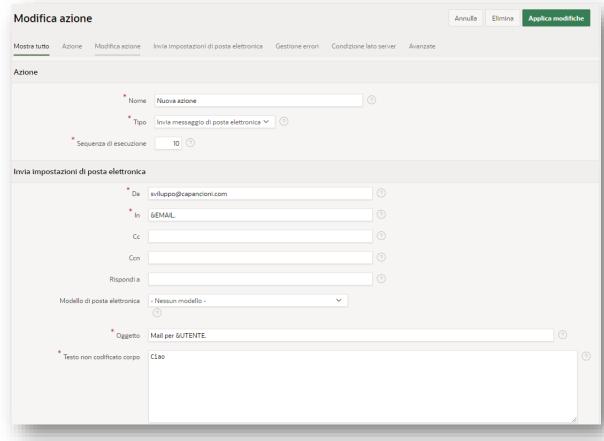


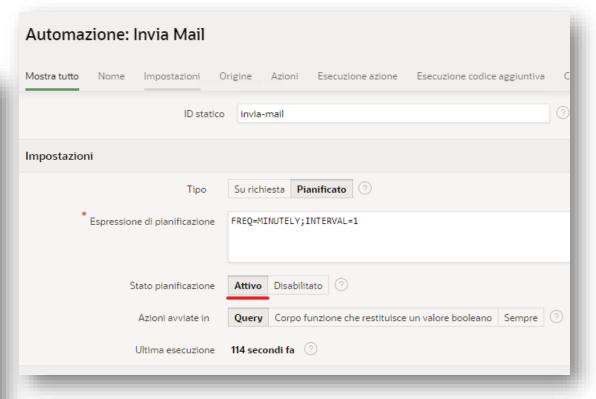


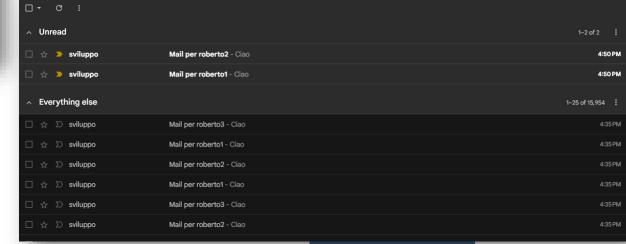






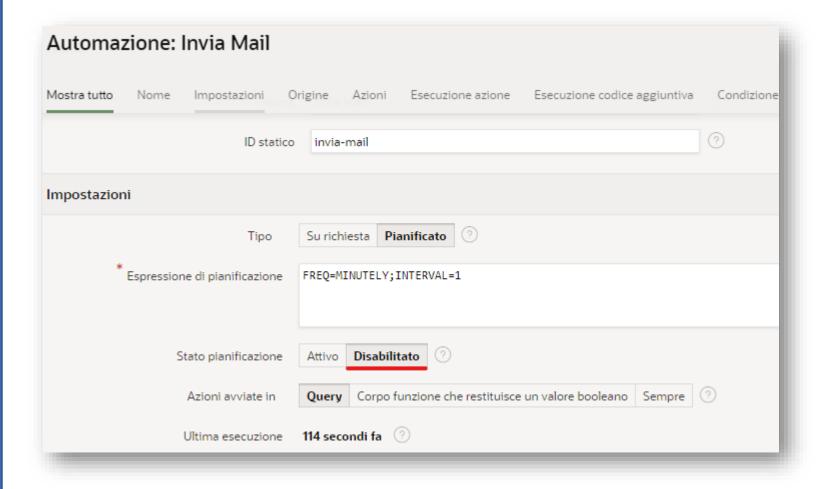




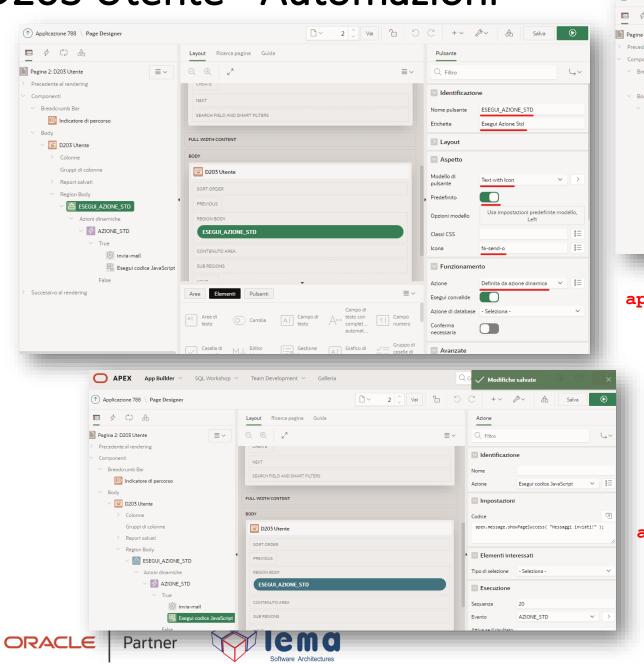


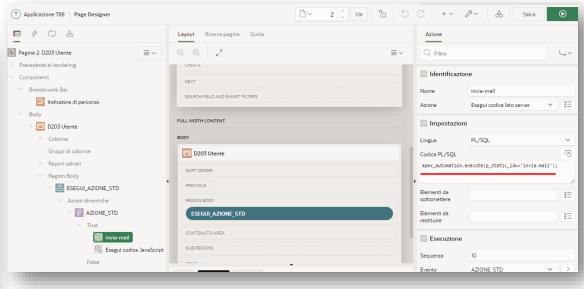










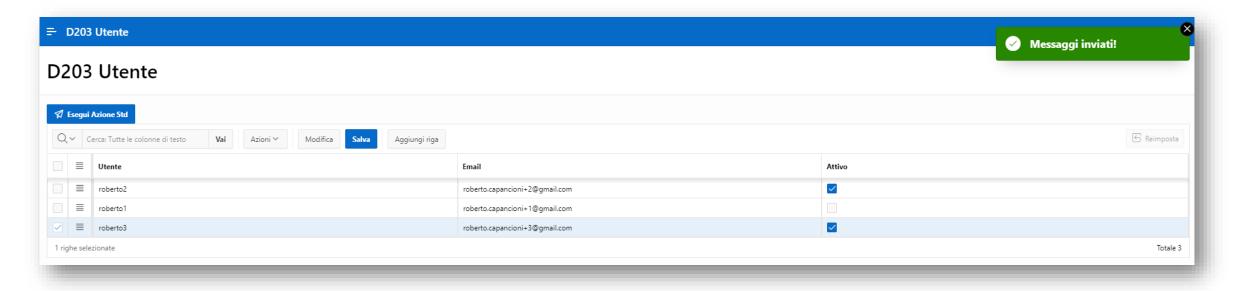


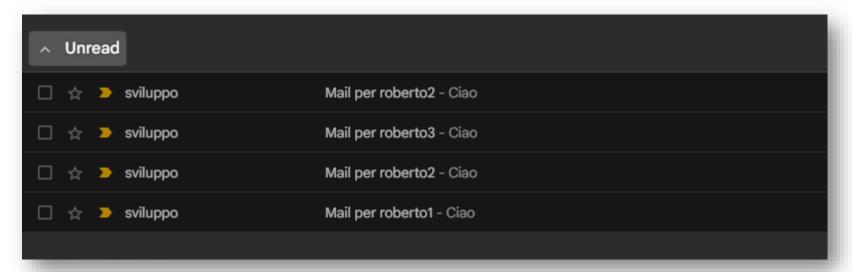
apex_automation.execute(p_static_id=>'invia-mail');

Nome statico dell'automazione

apex.message.showPageSuccess("Messaggi inviati!");

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