

Transction Commands

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Controlling User access

Controlling User Access

Database administrator



Username and password
Privileges



Users



Privileges

- **Database security:**
 - **System security**
 - **Data security**
- **System privileges: Gaining access to the database**
- **Object privileges: Manipulating the content of the database objects**
- **Schemas: Collections of objects, such as tables, views, and sequences**

System Privileges

- **More than 100 privileges are available.**
- **The database administrator has high-level system privileges for tasks such as:**
 - **Creating new users**
 - **Removing users**
 - **Removing tables**
 - **Backing up tables**

Creating Users

The DBA creates users by using the `CREATE USER` statement.

```
CREATE USER user  
IDENTIFIED BY password;
```

```
CREATE USER scott  
IDENTIFIED BY tiger;  
User created.
```

User System Privileges

- **Once a user is created, the DBA can grant specific system privileges to a user.**

```
GRANT privilege [, privilege...]  
TO user [, user| role, PUBLIC...];
```

- **An application developer, for example, may have the following system privileges:**
 - **CREATE SESSION**
 - **CREATE TABLE**
 - **CREATE SEQUENCE**
 - **CREATE VIEW**
 - **CREATE PROCEDURE**

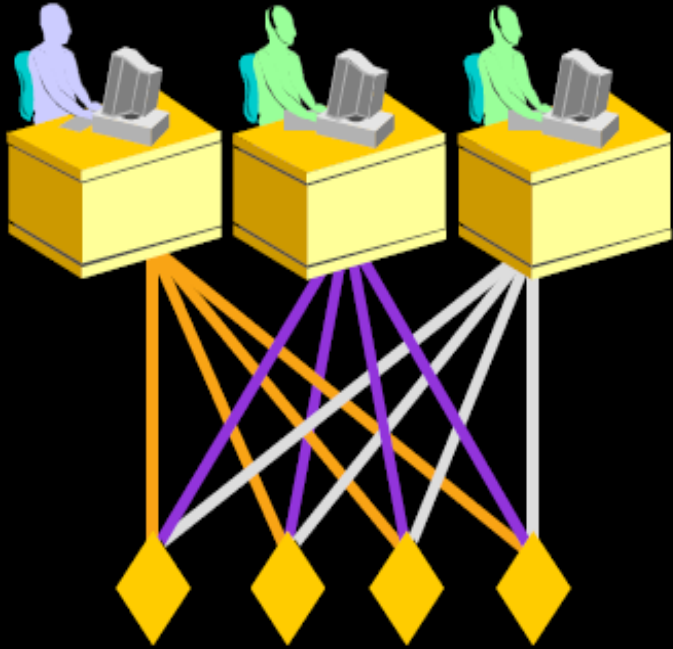
Granting System Privileges

The DBA can grant a user specific system privileges.

```
GRANT  create session, create table,  
       create sequence, create view  
TO     scott;
```

Grant succeeded.

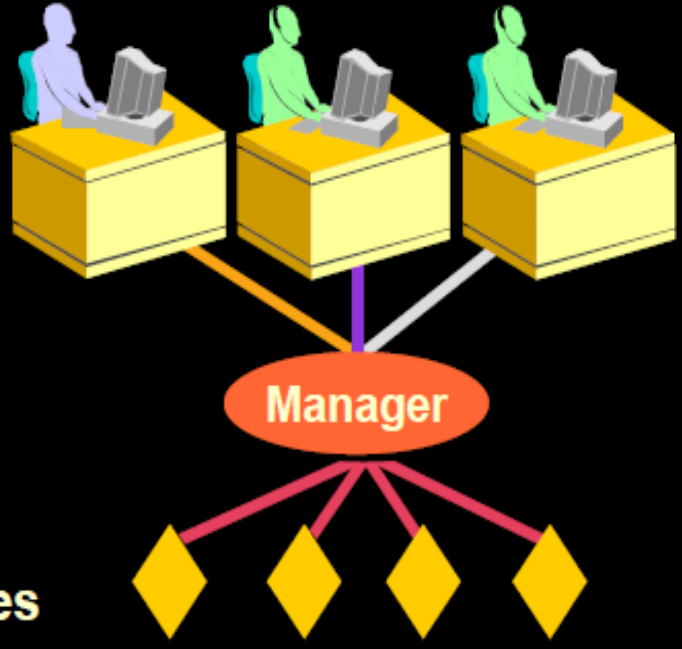
What is a Role?



**Allocating privileges
without a role**

Users

Privileges



**Allocating privileges
with a role**

Creating and Granting Privileges to a Role

- **Create a role**

```
CREATE ROLE manager;  
Role created.
```

- **Grant privileges to a role**

```
GRANT create table, create view  
TO manager;  
Grant succeeded.
```

- **Grant a role to users**

```
GRANT manager TO DEHAAN, KOCHHAR;  
Grant succeeded.
```

Changing Your Password

- The DBA creates your user account and initializes your password.
- You can change your password by using the `ALTER USER` statement.

```
ALTER USER scott  
IDENTIFIED BY lion;  
User altered.
```

Object Privileges

Object Privilege	Table	View	Sequence	Procedure
ALTER	√		√	
DELETE	√	√		
EXECUTE				√
INDEX	√			
INSERT	√	√		
REFERENCES	√	√		
SELECT	√	√	√	
UPDATE	√	√		

Object Privileges

- **Object privileges vary from object to object.**
- **An owner has all the privileges on the object.**
- **An owner can give specific privileges on that owner's object.**

```
GRANT      object_priv [(columns)]  
ON         object  
TO        {user|role|PUBLIC}  
[WITH GRANT OPTION];
```

Granting Object Privileges

- **Grant query privileges on the EMPLOYEES table.**

```
GRANT  select
ON     employees
TO     sue, rich;
Grant succeeded.
```

- **Grant privileges to update specific columns to users and roles.**

```
GRANT  update (department_name, location_id)
ON     departments
TO     scott, manager;
Grant succeeded.
```

How to Revoke Object Privileges

- You use the **REVOKE** statement to revoke privileges granted to other users.
- Privileges granted to others through the **WITH GRANT OPTION** clause are also revoked.

```
REVOKE {privilege [, privilege...]|ALL}  
ON      object  
FROM    {user[, user...]|role|PUBLIC}  
[CASCADE CONSTRAINTS];
```

Revoking Object Privileges

As user Alice, revoke the **SELECT** and **INSERT** privileges given to user **Scott** on the **DEPARTMENTS** table.

```
REVOKE select, insert  
ON departments  
FROM scott;
```

Revoke succeeded.

Commit & Rollback

- Commit ends the current transaction and makes any permanent change made during transaction.
- syntax: SQL>commit;
commit complete.

Rollback: it is totally opposite of commit. It ends the transaction but undoes any changes made during transaction.

Syntax: SQL>Rollback;
rollback complete.

Savepoint

- Savepoint marks and save the current point in the processing of transaction. Savepoint is used with the rollback statement.

syntax: SQL>savepoint A;
Savepoint created.

With rollback command.

example : Rollback to A.

Controlling Transactions

Time

COMMIT

Transaction

DELETE

SAVEPOINT A

INSERT

UPDATE

SAVEPOINT B

INSERT

ROLLBACK to SAVEPOINT B ROLLBACK to SAVEPOINT A ROLLBACK

