Managing Database Users

By Ahmed Baraka

Objectives

In this lecture, you will learn how to perform the following:

- Describe database users and schemas
- Describe predefined accounts
- Create a database user with database authentication
- Convert a user to schema-only account
- Manage tablespace quotas for users
- Remove database users

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About Database Users (Accounts)

- Represents as person, device, application, or group of objects
- Each database user has:
  - A unique username: 30 bytes, no special character, start with a letter
  - An authentication method
  - A default tablespace
  - A temporary tablespace
  - A user profile
  - An initial consumer group
  - An account status: one or mix of **`OPEN`**, **`LOCKED`**, **`EXPIRED`**
- In CDB, application users are created in PDBs.

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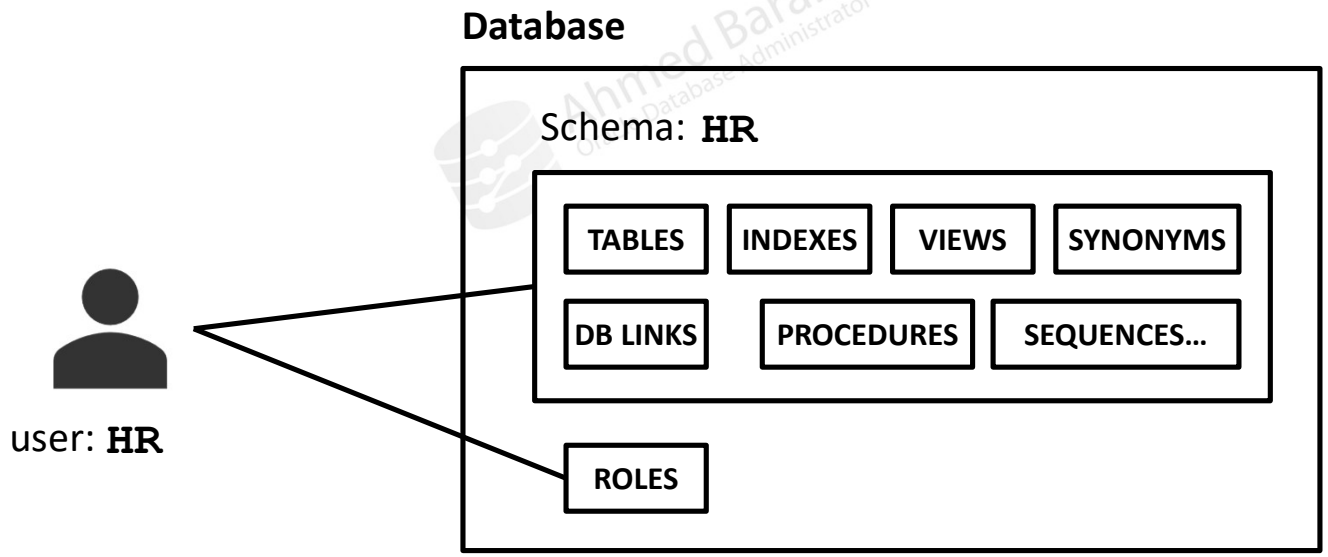
About a Database Schema

- Is a collection of database objects that are owned by a database user
- Has the same name as the user account



Authentication Methods

- **Oracle Database**: data dictionary authentication
- **Operating system**
- **Password file**: users with **`SYSDBA`** (and **`SYSDBA`**, **`SYSOPER`**, **`SYSBACKUP`**, **`SYSDG`**, or **`SYSKM`** privileges)
- **Network**
  - directory-based authentication service, such as Oracle Internet Directory and Windows Active Directory
  - SSL
  - Third-Party Services: Kerberos, Public Key Infrastructure (PKI), the Remote Authentication Dial-In User Service (RADIUS), and directory-based services

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Predefined Accounts

- **Administrative accounts**:
  - Used to manage specific feature or area in the database
  - Examples: **SYS**, SYSTEM, SYSBACKUP, SYSDG, SYSKM, SYSRAC, SYSMAN, and DBSNMP
- **Sample schema accounts**
  - Examples: HR, SH, and OE.
- **Internal accounts**
- To lists the predefined accounts:

```
SELECT * FROM DBA_USERS WHERE ORACLE_MAINTAINED='Y';
```

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Creating a Database User with Database Authentication

- To create a database user authenticated by the database)

```
CREATE USER <username> IDENTIFIED BY <user password>
[DEFAULT TABLESPACE <tablespace name>]
[PROFILE <profile name, default is DEFAULT >]
[TEMPORARY TABLESPACE <temporary tablespace name>]
[ACCOUNT LOCK|UNLOCK];
```

- Passwords are by default case-sensitive can be at most 30 bytes long
- Example:

```
CREATE USER hr DEFAULT TABLESPACE hrtbs IDENTIFIED BY ABcd##1234;
```

- The presented syntax does not present all the user attributes

Modifying User Attributes

- To lock/unlock a user:

```
ALTER USER hr ACCOUNT [ LOCK | UNLOCK ];
```

- To reset a user password:

```
ALTER USER hr IDENTIFIED BY Abcd##1234;
```

- To change the default tablespace:

```
ALTER USER hr DEFAULT TABLESPACE hrtbs2;
```

- To change the default temporary tablespace:

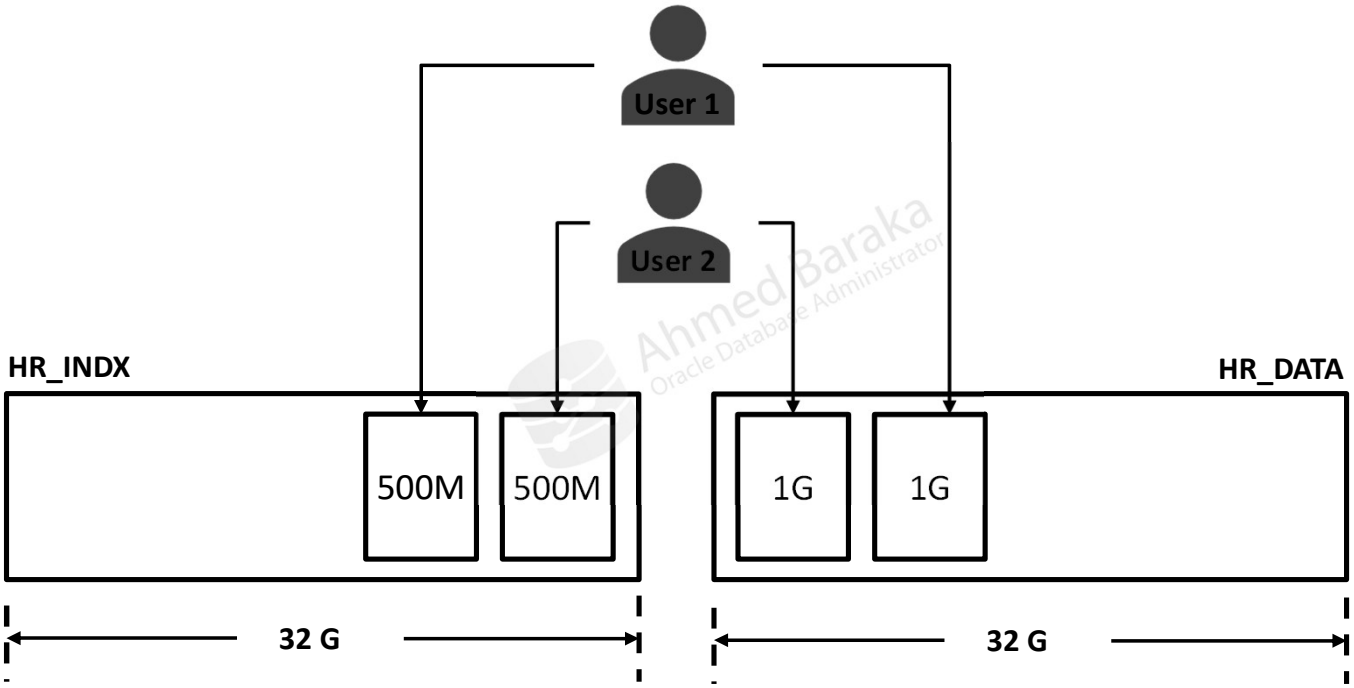
```
ALTER USER hr DEFAULT TABLESPACE hrtbstmp;
```

About Schema-Only Accounts

- A database schema with no password to login
- Can be granted system privileges, object privileges, and roles
- Useful to creating application owner accounts
- Schema-only account objects are managed via a DBA user or a proxy user or by temporarily converting the account to a password account
- The **`STATUS`** column of the **`DBA_USERS`** data is **`NONE`**
- To create/alter a schema-only account:

```
CREATE USER hr NO AUTHENTICATION ...;
ALTER USER hr NO AUTHENTICATION ...;
```

Tablespace Quotas for Users



Managing Tablespace Quotas for Users

- The tablespace quota defines how much space to provide for a user
- Assign users a quota for the default tablespace, and additional quotas for other tablespaces in which they can create objects
- Can be set at database user creation time:

```
CREATE USER scott
..
DEFAULT TABLESPACE data_ts
QUOTA 500M ON data_ts
QUOTA 100M ON index_ts
```

- Can be altered for existing users:

```
ALTER USER scott QUOTA 1000M ON data_tbs;
```

Managing Tablespace Quotas for Users

- If quota is exceeded, the following error returned:

```
ORA-1536 space quota exceeded for tablespace '...'
```

- To grant unlimited quota to a user in a tablespace:

```
ALTER USER scott QUOTA UNLIMITED ON data_tbs;
```

- **`UNLIMITED TABLESPACE`** system privilege

```
GRANT UNLIMITED TABLESPACE TO scott;
```

- To retrieve information about tablespace quotas for all/current users:

```
SEELECT * FROM DBA_TS_QUOTAS;
SEELECT * FROM USER_TS_QUOTAS;
```

Removing Database Users

- To remove a database user:

```
DROP USER <user-name> [CASCADE] ;
```

  - Without **CASCADE** option, the statement returns error if an object owned by the user exists in the database
  - The executer must have the **DROP USER** system privilege
  - If the user is connected to the database, it must be disconnected first
- Think twice before running **DROP** statements.

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Summary

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