Administering Users and Managing Schema Objects

SUPINFO OFFICIAL SOC CURRICULUM

THE INTERNATIONAL INSTITUTE OF SUPINFO INFORMATION TECHNOLOGY

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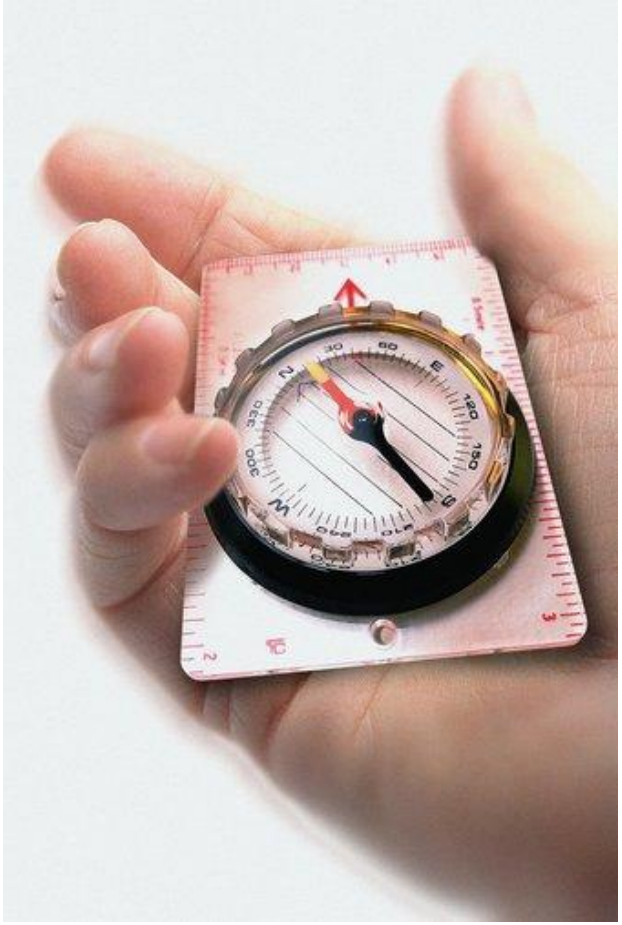
Course objectives

After completing this lesson, you should be able to do the following:



- Create and manage database user accounts
- Create and manage roles
- Grant and revoke privileges
- Control resource usage by users
- Create and modify tables
- Define constraints
- Create indexes and views

Course topics

Course's plan:

- Administering Users
- Managing Schema Objects

Administering Users

Preview

- Creating a User
- Profiles and Users
- Authenticating Users
- Privileges
- Assigning Quota to Users
- Roles

Creating a user

Database User Accounts

Each database user account has a:

- Unique username
- Authentication method
- Default tablespace
- Temporary tablespace
- User profile

Creating a user

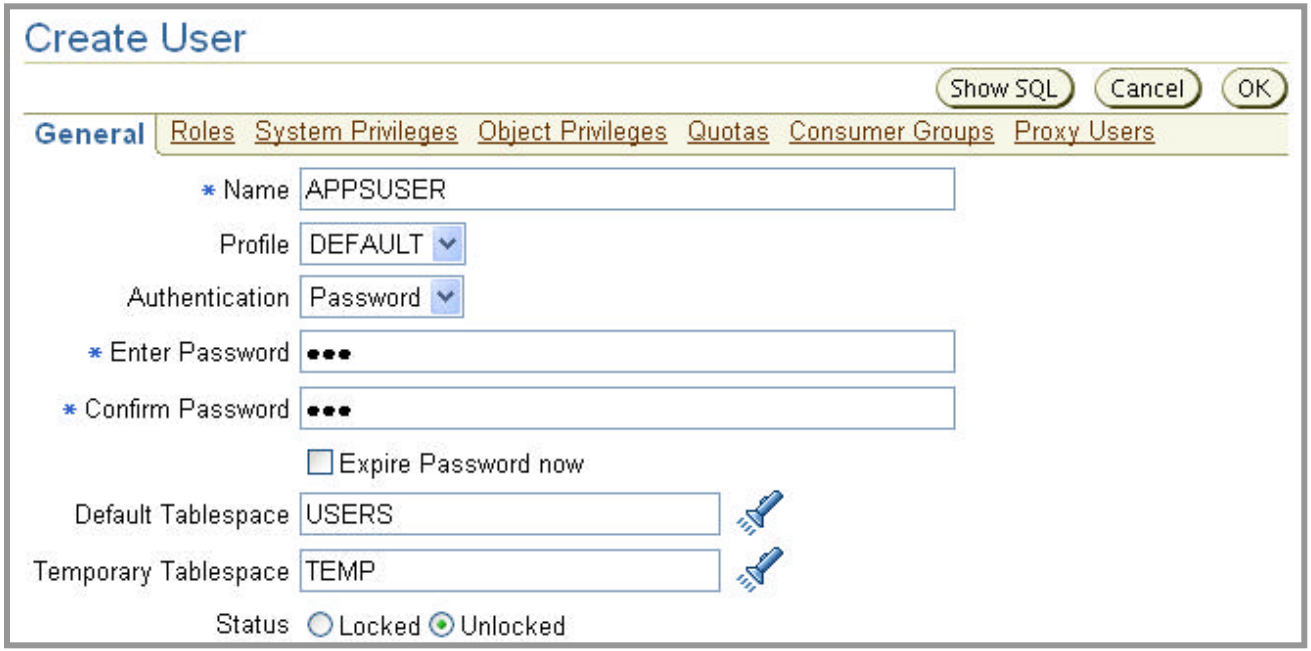
Checklist for Creating Users

- Select a profile.
- Select an authentication technique.
- Assign a default tablespace and temporary tablespace.
- Grant privileges and roles to the user.
- Decide on quotas for each tablespace.

Creating a user

Creating User with database control

- Select Users from the Administration properties page.
- Click the Create button:



Creating a user

Default and Temporary Tablespaces and Locking

- **Default**: Default location of database objects
- **Temporary**: Used for sorting

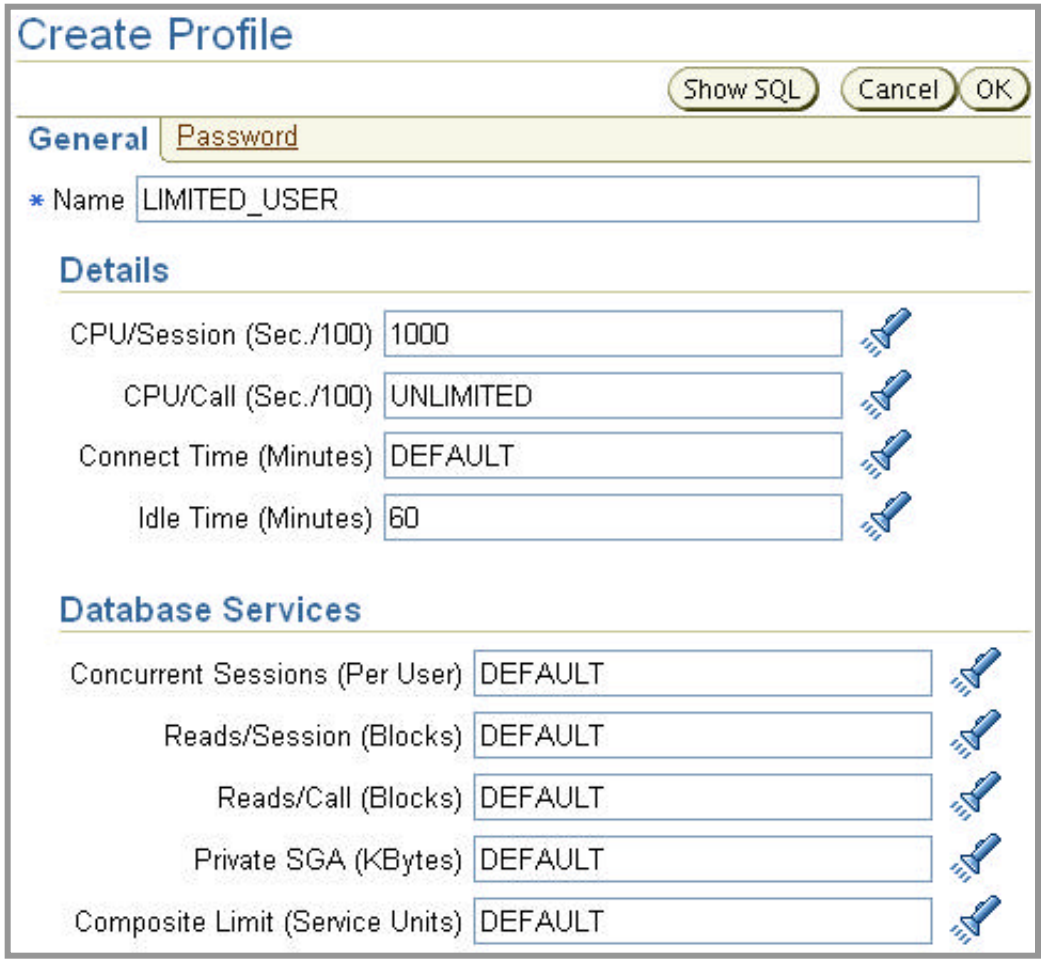
Profiles and users

Creating Profile with database control

Users are assigned only one profile at any given time.

Profiles:

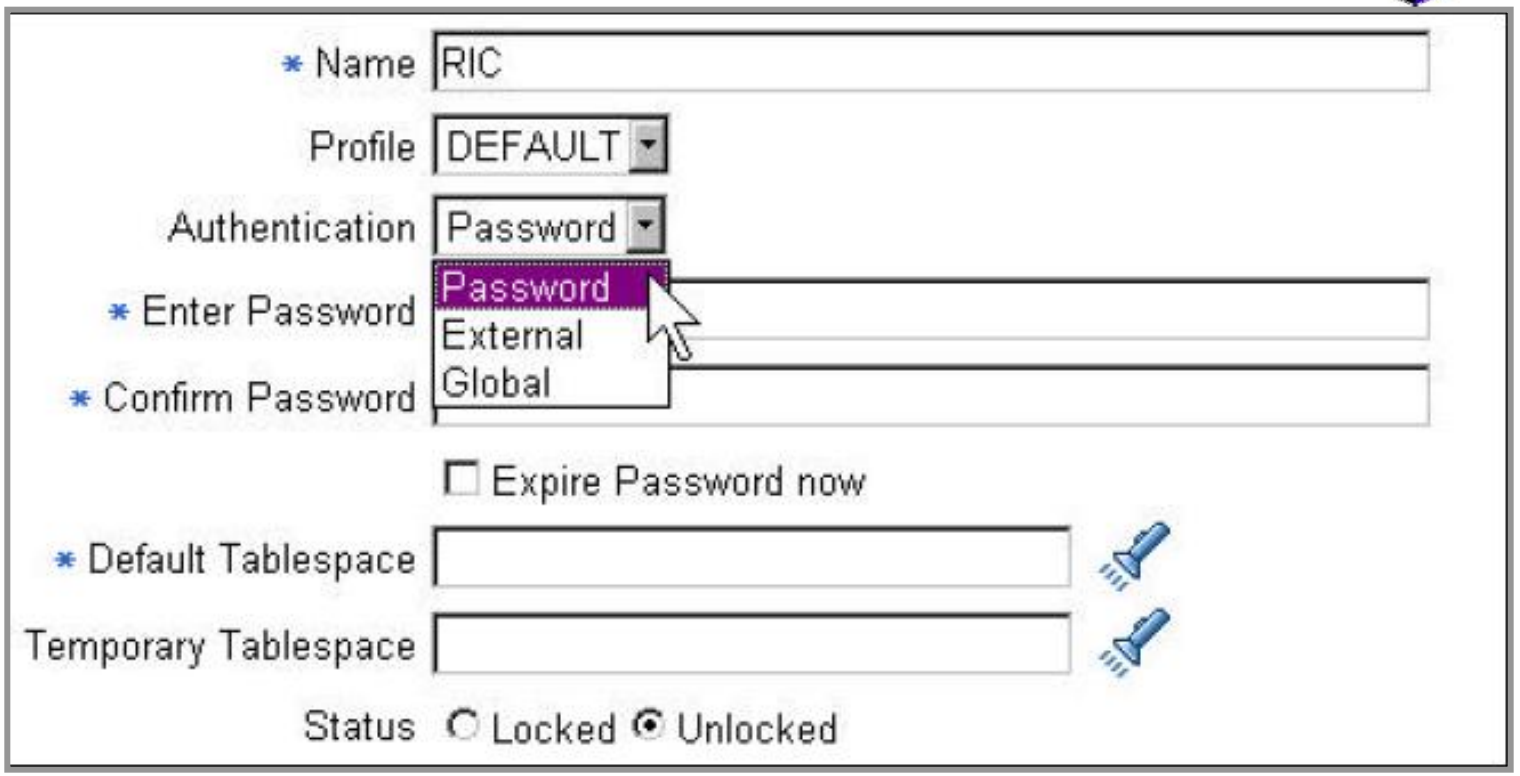
- Control resource consumption
- Manage passwords



Authenticating users

Three type of authentication

- Password
- External
- Global



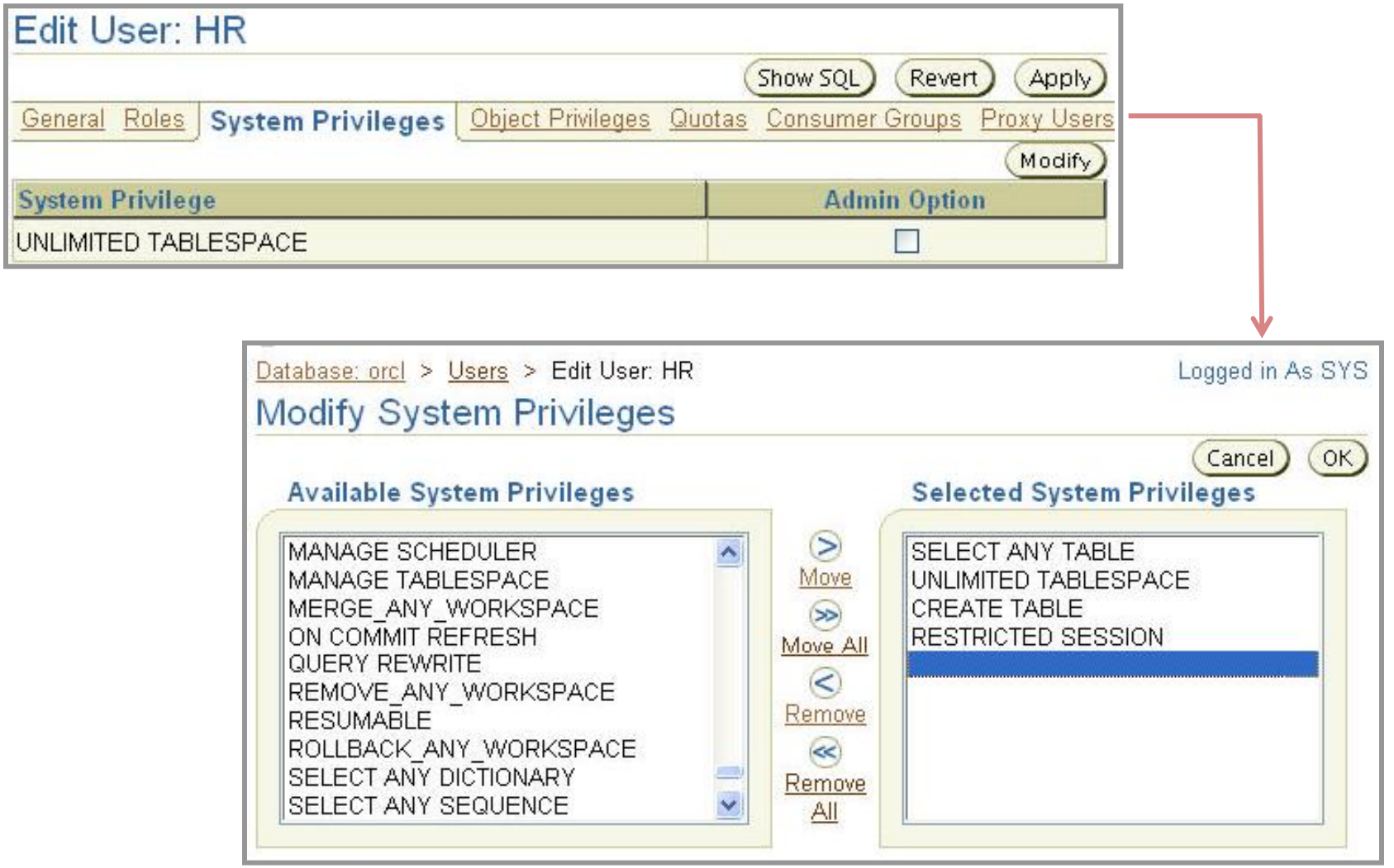
Privileges

The two types of user privileges

- **System**: Enables users to perform particular actions in the database
- **Object**: Enables users to access and manipulate a specific object

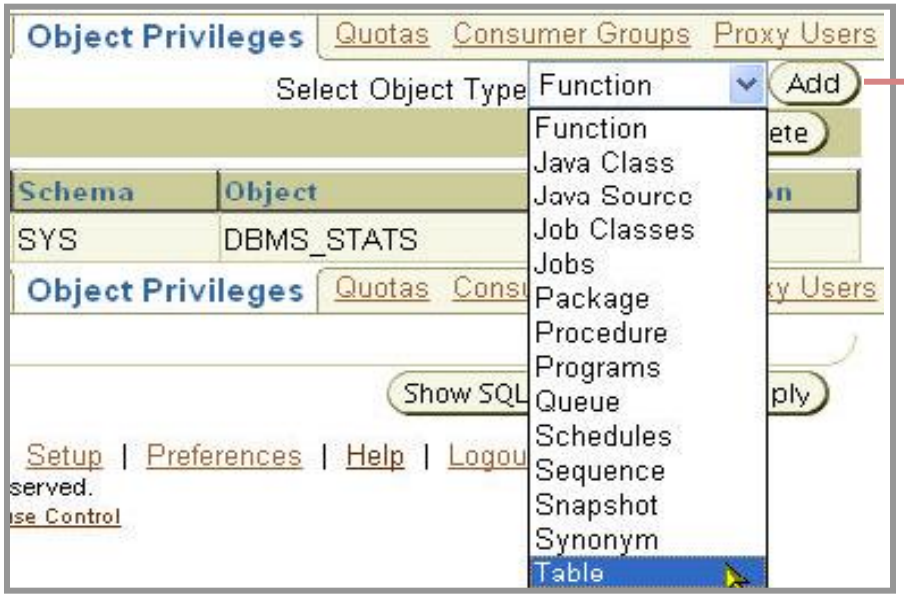
Privileges

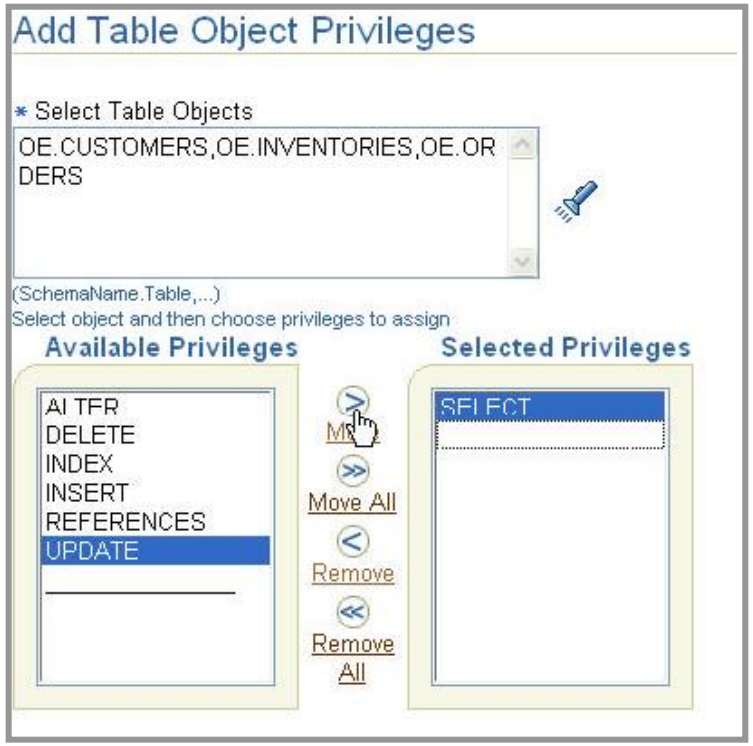
System Privileges



Privileges

Object Privileges





To grant object privileges:

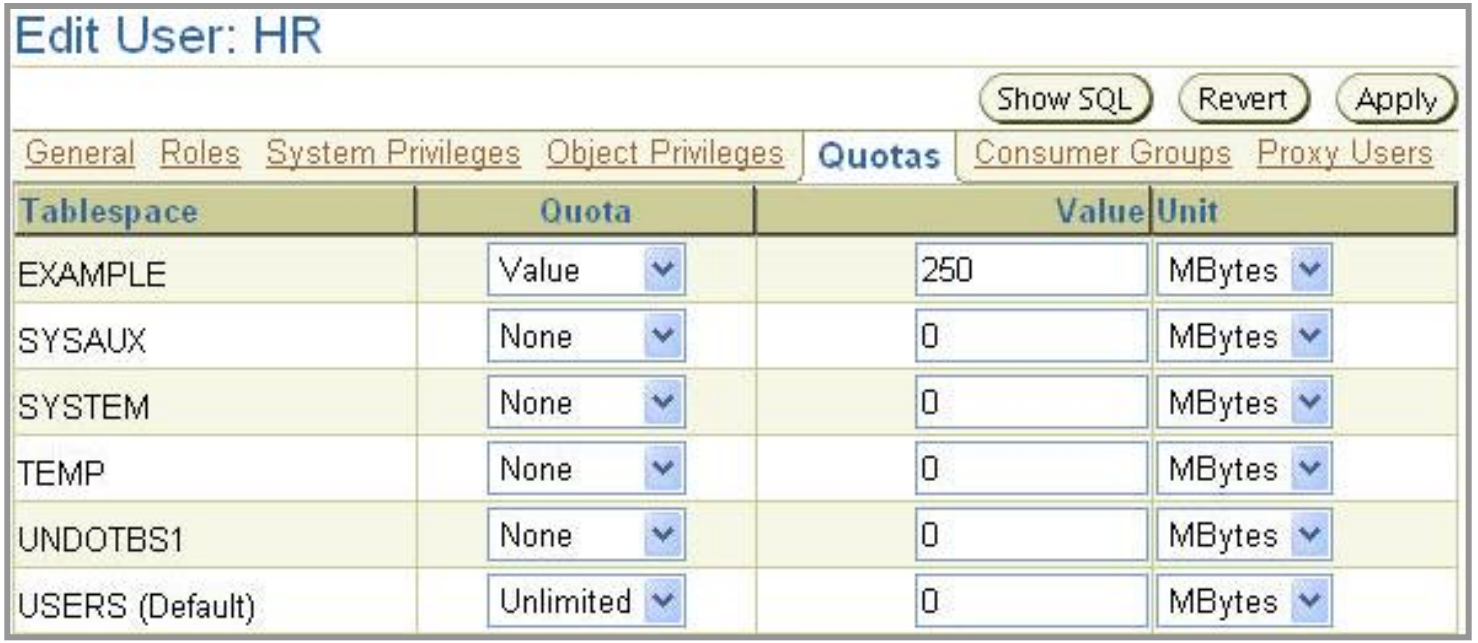
- Choose the object type
- Select objects
- Select privileges Profiles

Assigning quota to users

Users who do not have the unlimited tablespace system privilege must be given a quota before they can create objects in a tablespace.

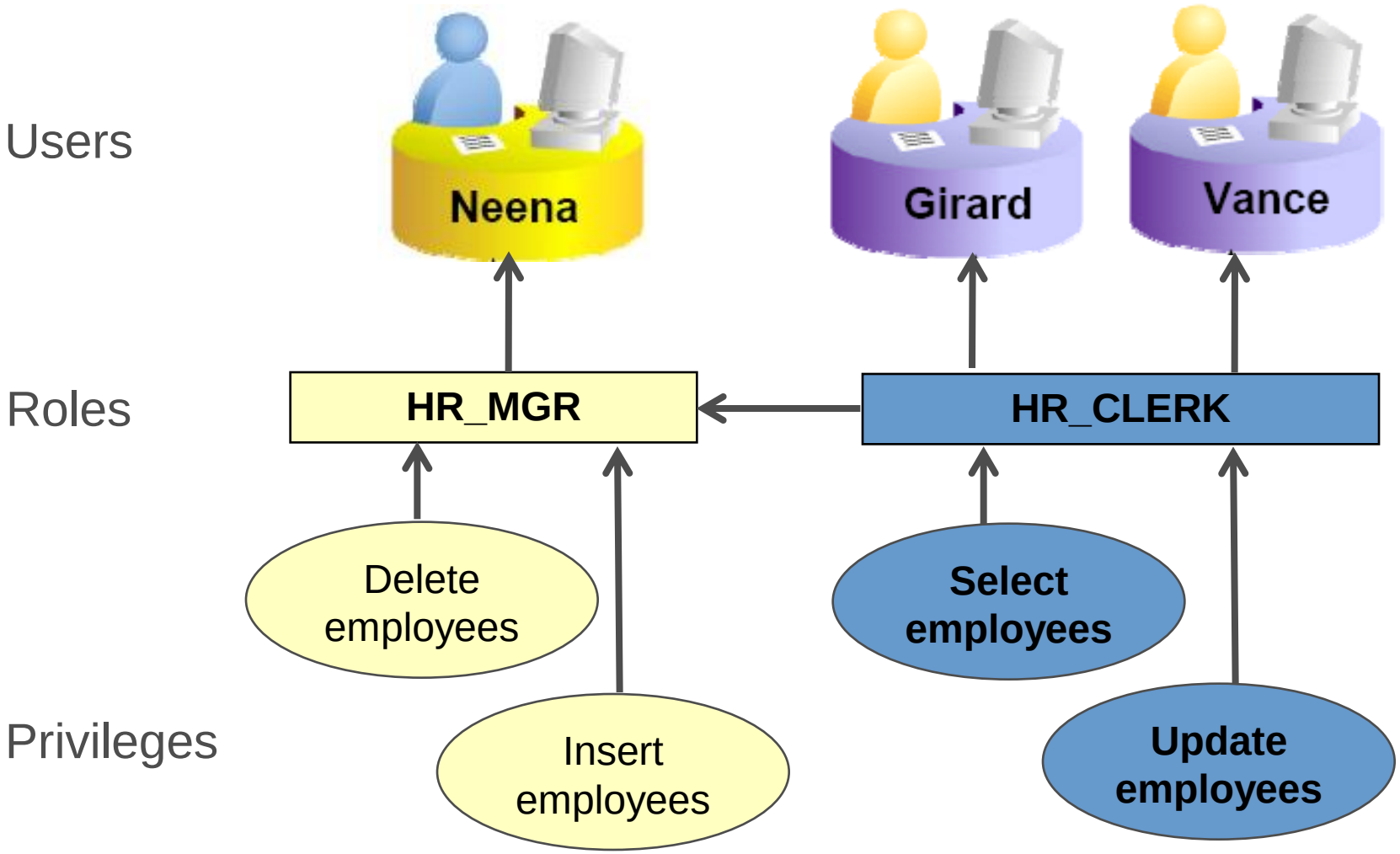
Quotas can be:

- Unlimited
- A specific value in megabytes or kilobytes



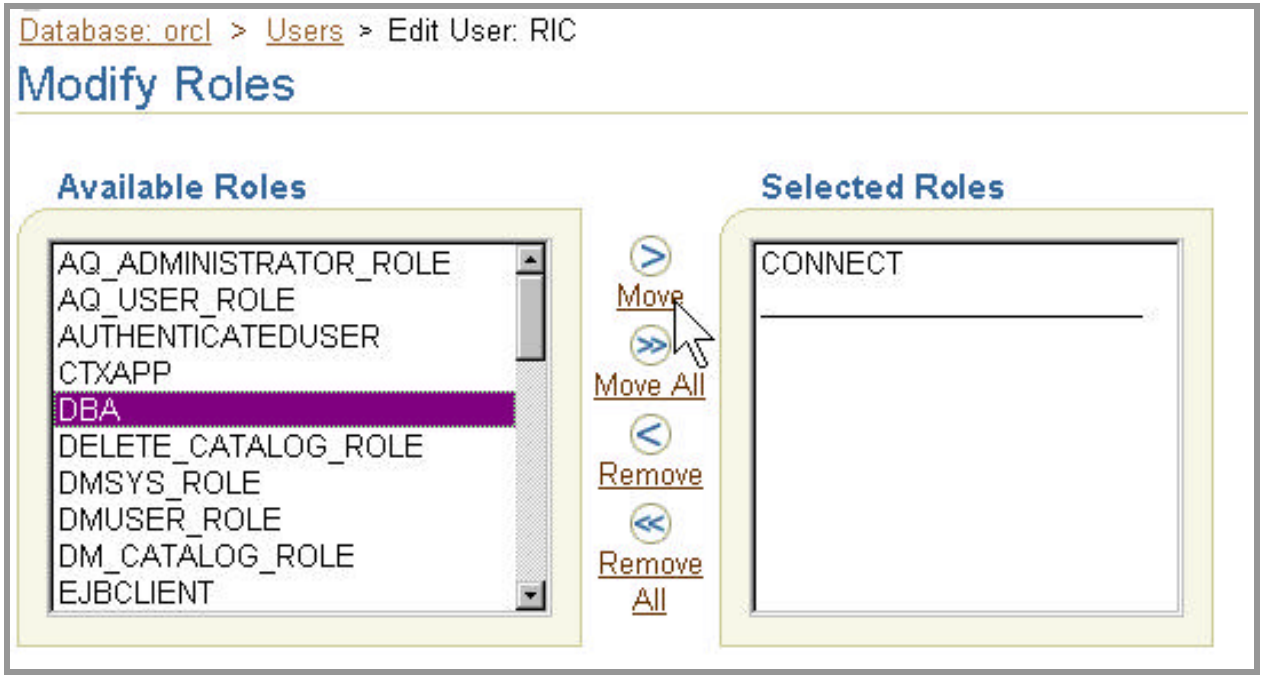
Roles

Presentation



Roles

Assigning Roles to Users



Roles

Benefits of Roles

- Easier privilege management
- Dynamic privilege management
- Selective availability of privileges
- Can be granted through the operating system

Roles

Predefined Roles

Roles	Privileges
CONNECT	CREATE SESSION, CREATE TABLE, CREATE VIEW, CREATE SYNONYM, CREATE SEQUENCE, CREATE DATABASE LINK, CREATE CLUSTER, ALTER SESSION
RESOURCE	CREATE TABLE, CREATE PROCEDURE, CREATE SEQUENCE, CREATE TRIGGER, CREATE TYPE, CREATE CLUSTER, CREATE INDEXTYPE, CREATE OPERATOR

Roles

Predefined Roles (continued)

Roles	Privileges
SCHEDULER_ADMIN	CREATE ANY JOB, CREATE JOB, EXECUTE ANY CLASS, EXECUTE ANY PROGRAM, MANAGE SCHEDULER
DBA	Most system privileges, several other roles. Do not grant to nonadministrators.
SELECT_CATALOG_ROLE	No system privileges but over 1600 object privileges on the data dictionary

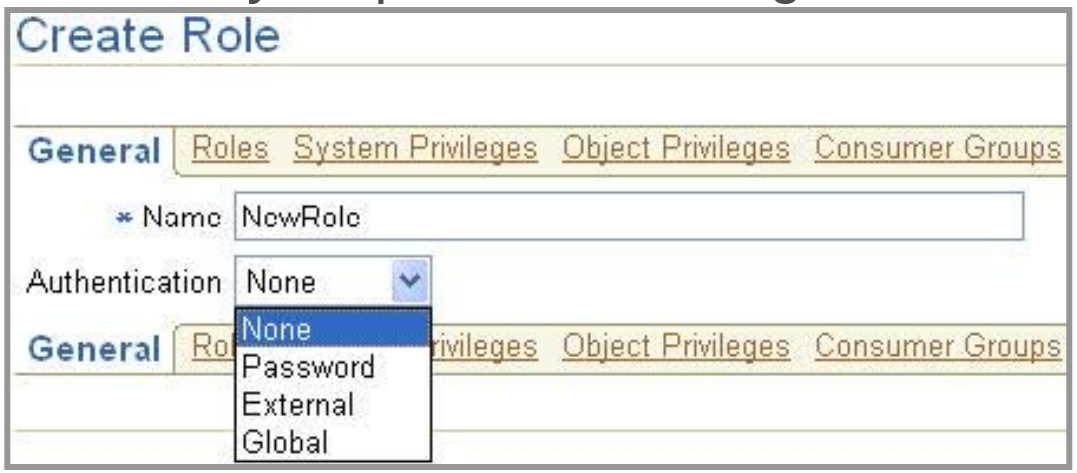
Roles

Secure Roles

- Roles may be nondefault :

```
SET ROLE vacationdba;
```

- Roles may be protected through authentication:



- Roles may also be secured programmatically:

```
CREATE ROLE secure_application_role
IDENTIFIED USING <security_procedure_name>;
```

Part 1 Summary

- Creating a User
- Profiles and Users
- Authenticating Users
- Privileges
- Assigning Quota to Users
- Roles

Part 1 Stop-and-think

Do you have any questions?

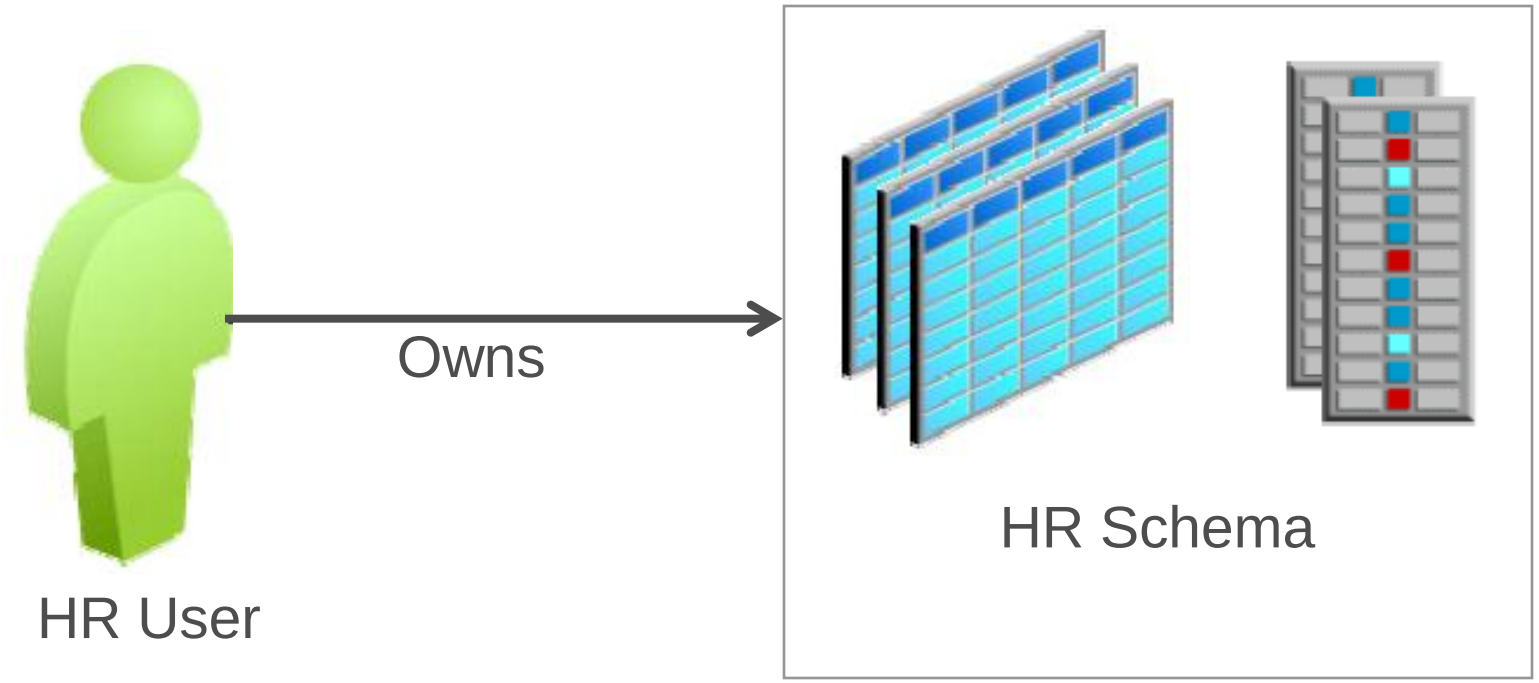
Managing Schema Objects

Preview

- Schemas
- Guidelines for Objects Management
- Data Types
- Managing Tables
- Indexes
- Views
- Sequences

Schemas

What's a schema?



Schemas

Database User and schemas

- The collection of objects owned by a user is the schema
- A user can be associated with only one schema
- Username and schema are often used interchangeably

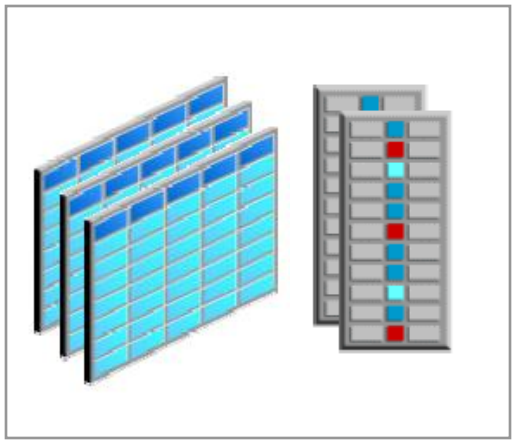
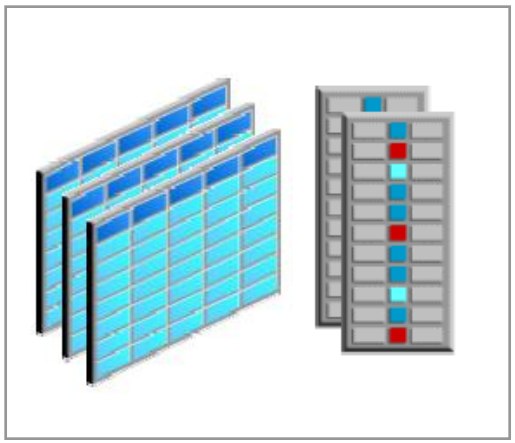
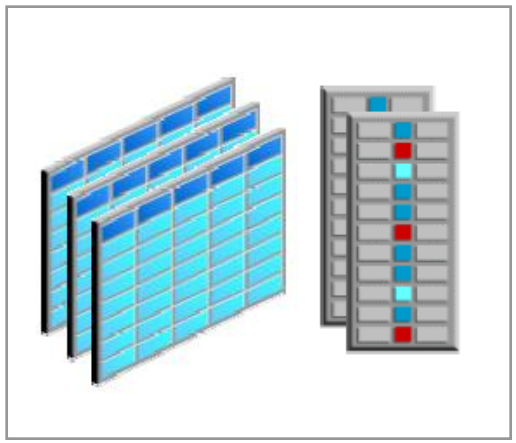
Schema Objects

Tables
Triggers
Indexes
Views
Sequences
Stored program units
Synonyms
User-defined data types
Database links

Schemas

Schemas created as part of the database creation process

- SYS
- SYSTEM
- Sample schemas

Guidelines for Objects Management

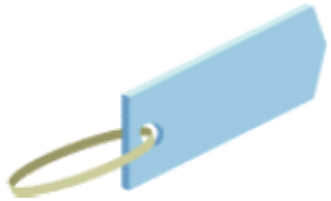
Global view

Click a link to access the schema objects.

Guidelines for Objects Management

Naming database objects

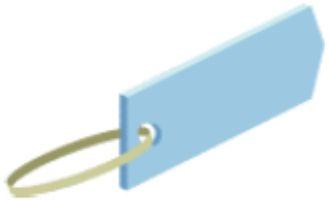
- Names must be from 1 to 30 bytes long with these exceptions:
  - Names of databases are limited to 8 bytes
  - Names of database links can be as long as 128 bytes
- Nonquoted names cannot be Oracle reserved words.
- Nonquoted names must begin with an alphabetic character from your database character set.



Guidelines for Objects Management

Naming database objects (continued)

- Nonquoted names can contain only :
  - Alphanumeric characters from your database character set
  - The underscore (_)
  - Dollar sign ($)
  - Pound sign (#)
- Two objects can’t have the same name within the same namespace



Guidelines for Objects Management

Schema Object Namespaces

The following are in the same namespace :

- Tables
- Views
- Sequences
- Private synonyms
- Stand-alone Procedures
- Stand-alone stored Functions
- Packages
- Materialized views
- User-defined types

Guidelines for Objects Management

Schema Object Namespaces (continued)

The following have their own namespace :

- Indexes
- Constraints
- Clusters
- Database triggers
- Private database links
- Dimensions

Data Types

Common data types

- **`CHAR(size)`**: Fixed-length character data of length **`size`** bytes
- **`VARCHAR2(size)`**: Variable-length character string having maximum length **`size`** bytes
- **`DATE`**: Valid date range from January 1, 4712 BC to December 31, 9999 AD
- **`NUMBER(p,s)`**: Number having precision **`p`** and scale **`s`**

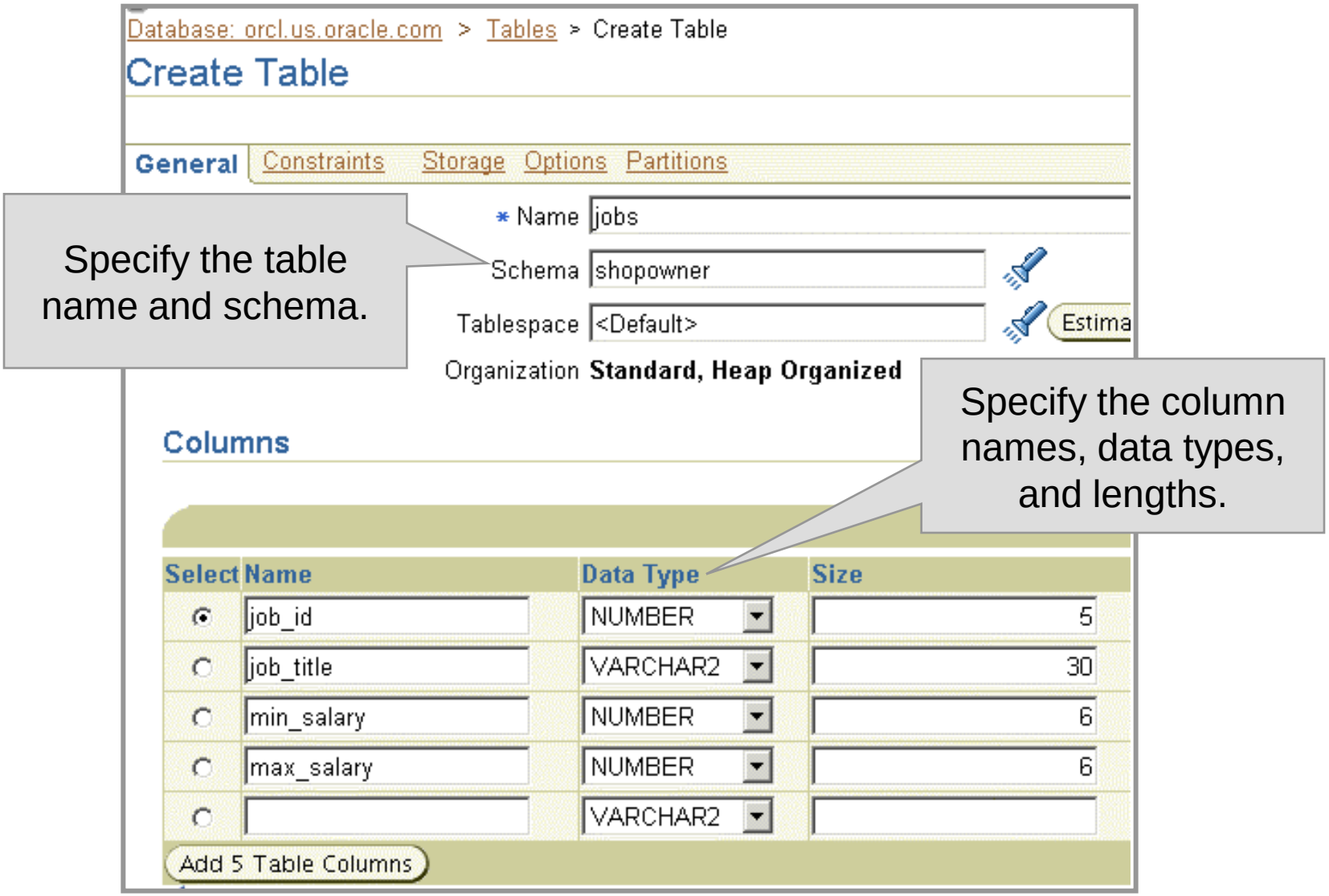
Data Types

Other data types

- FLOAT
- INTEGER
- NCHAR
- NVARCHAR2
- LONG
- LONG RAW
- RAW
- ROWID
- UROWID
- BLOB
- CLOB
- NCLOB
- BFILE
- TIMESTAMP

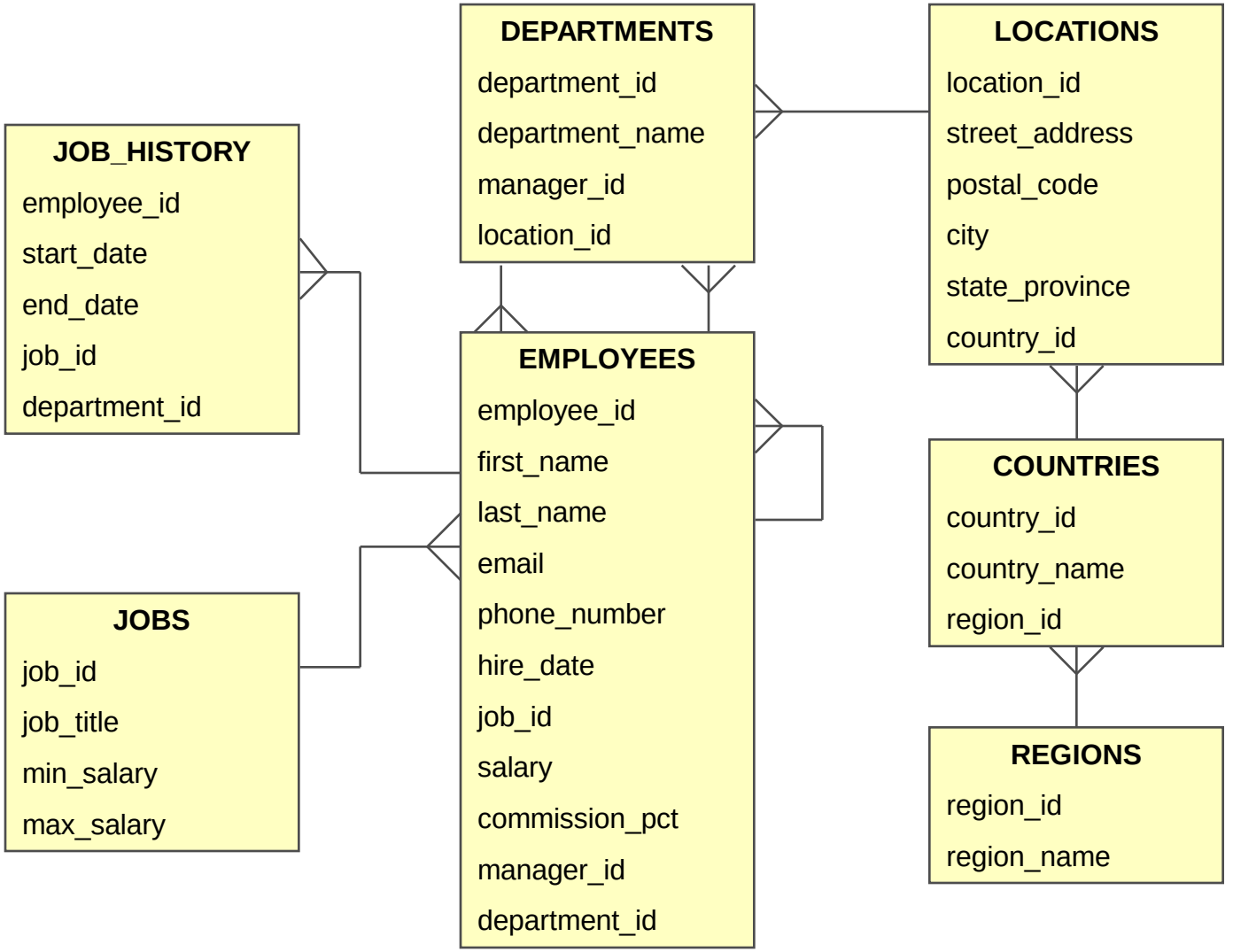
Managing Tables

Creating and modifying tables



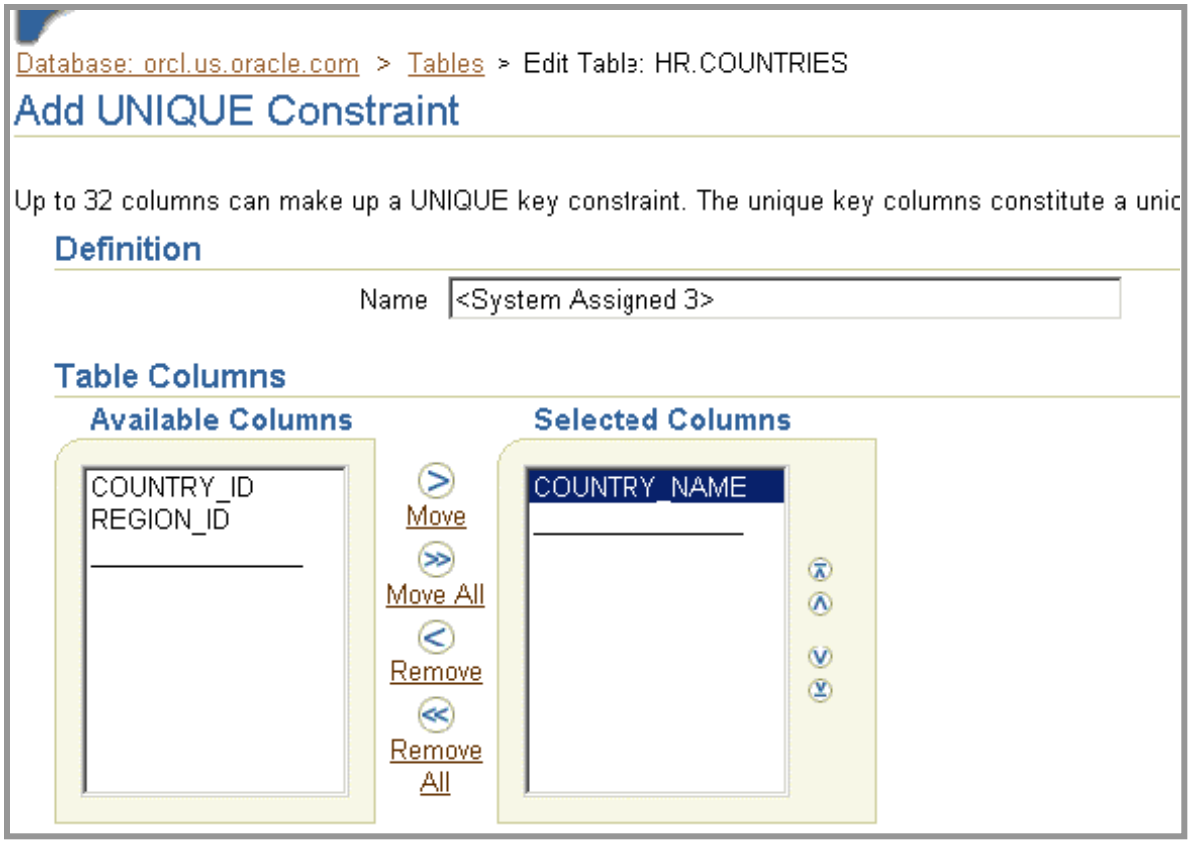
Managing Tables

Understanding Data Integrity



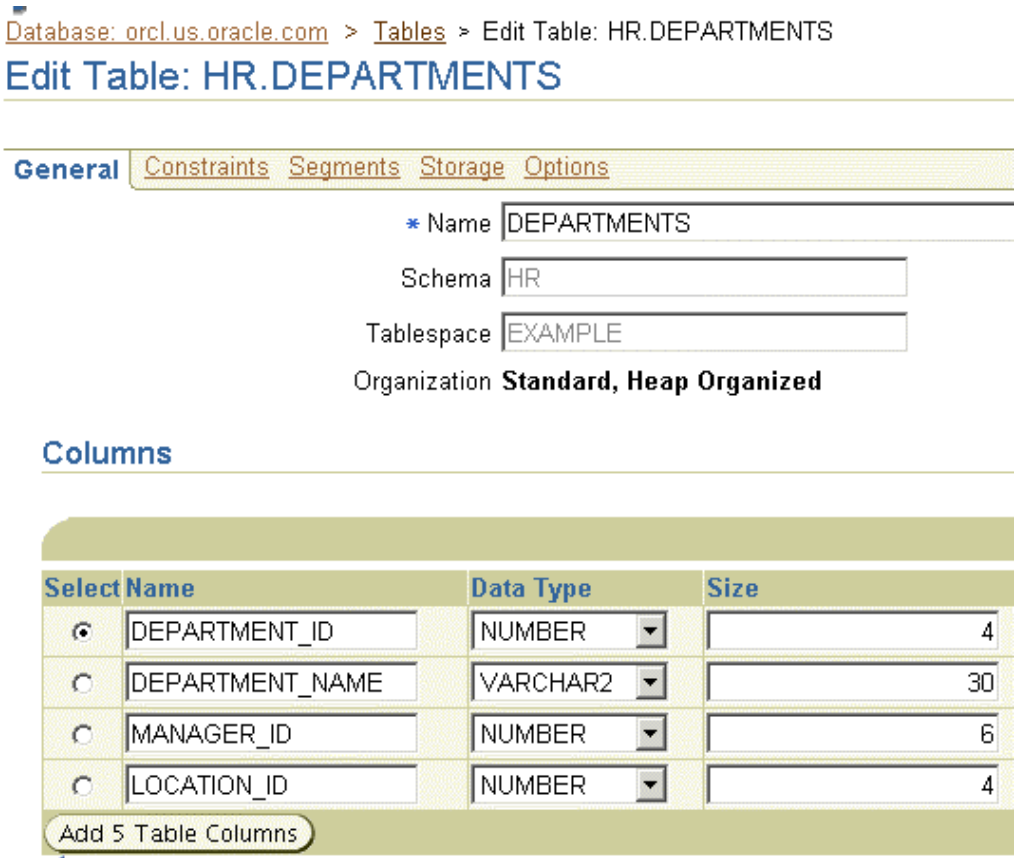
Managing Tables

Defining Constraints



Managing Tables

Viewing the Attributes of a Table

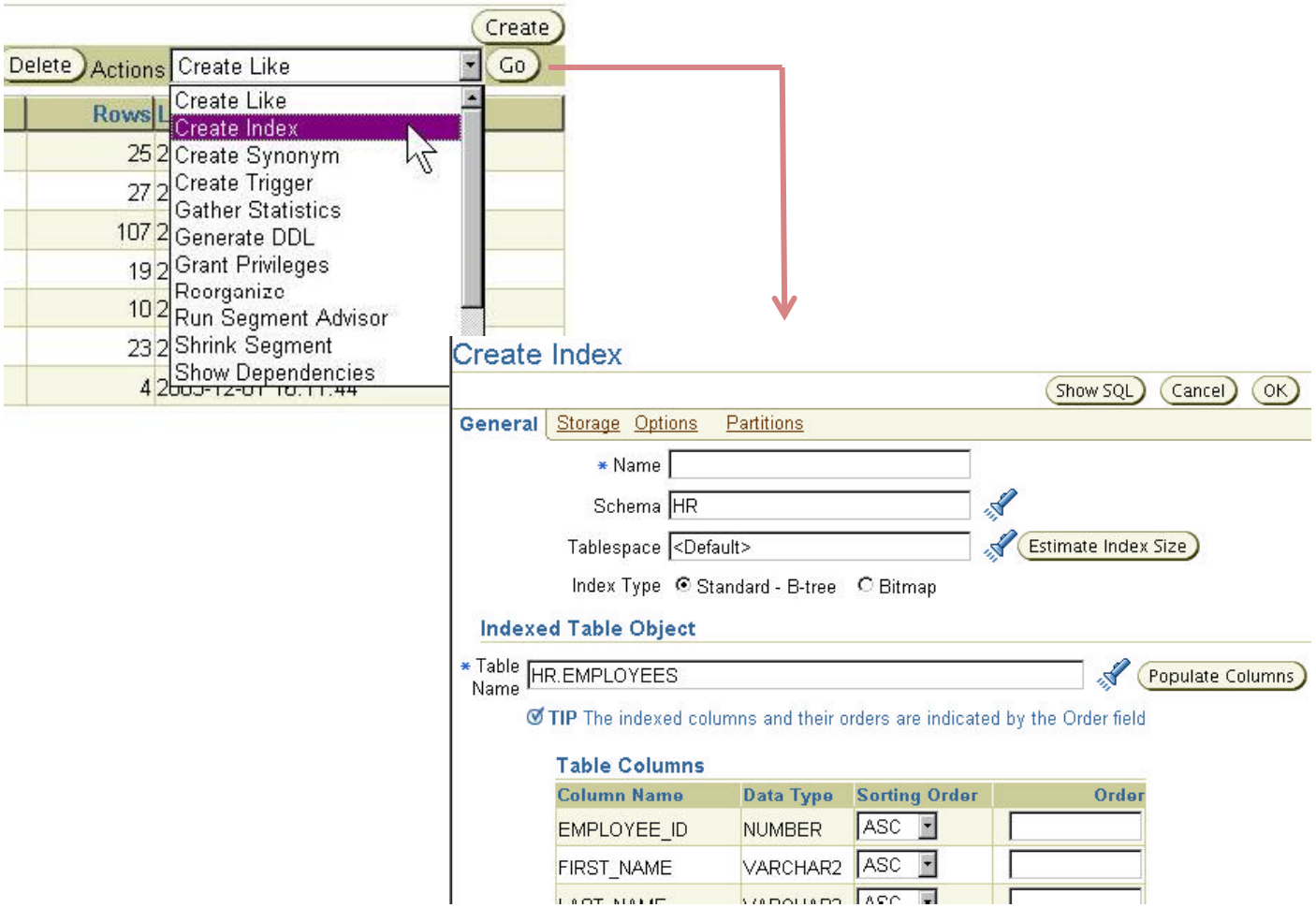


Managing Tables

Viewing the Contents of a Table

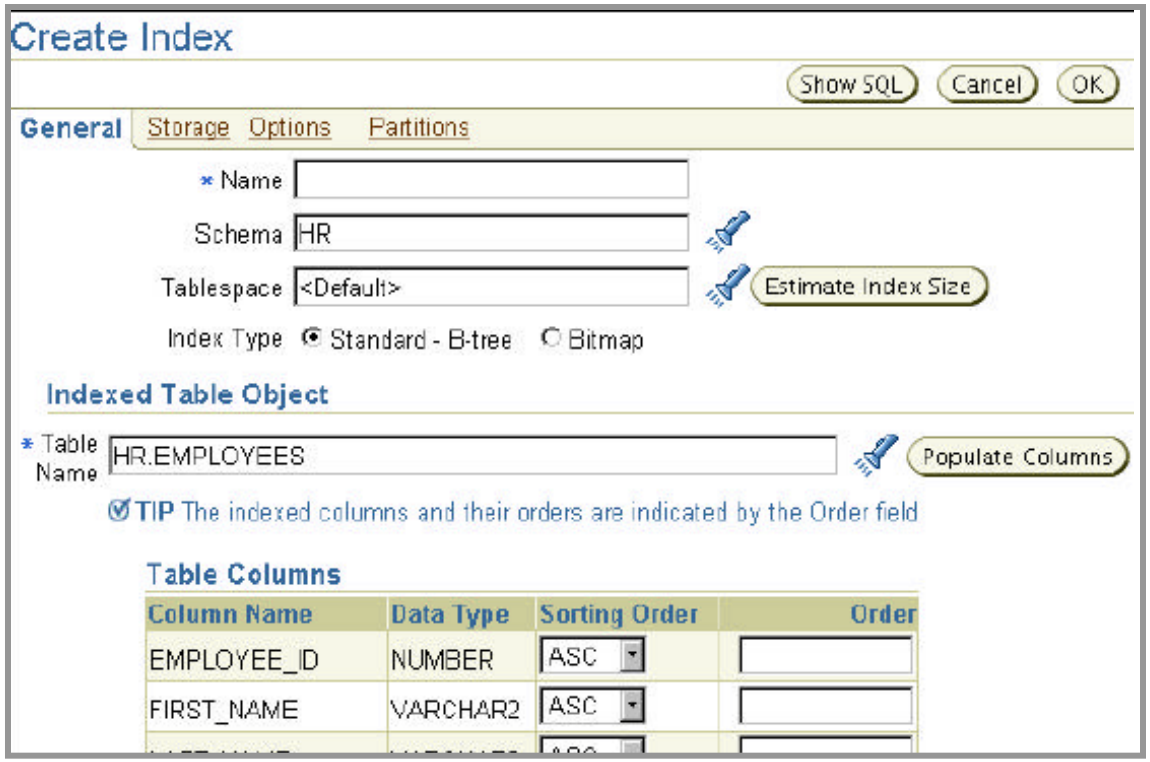
Managing Tables

Actions with Tables



Indexes

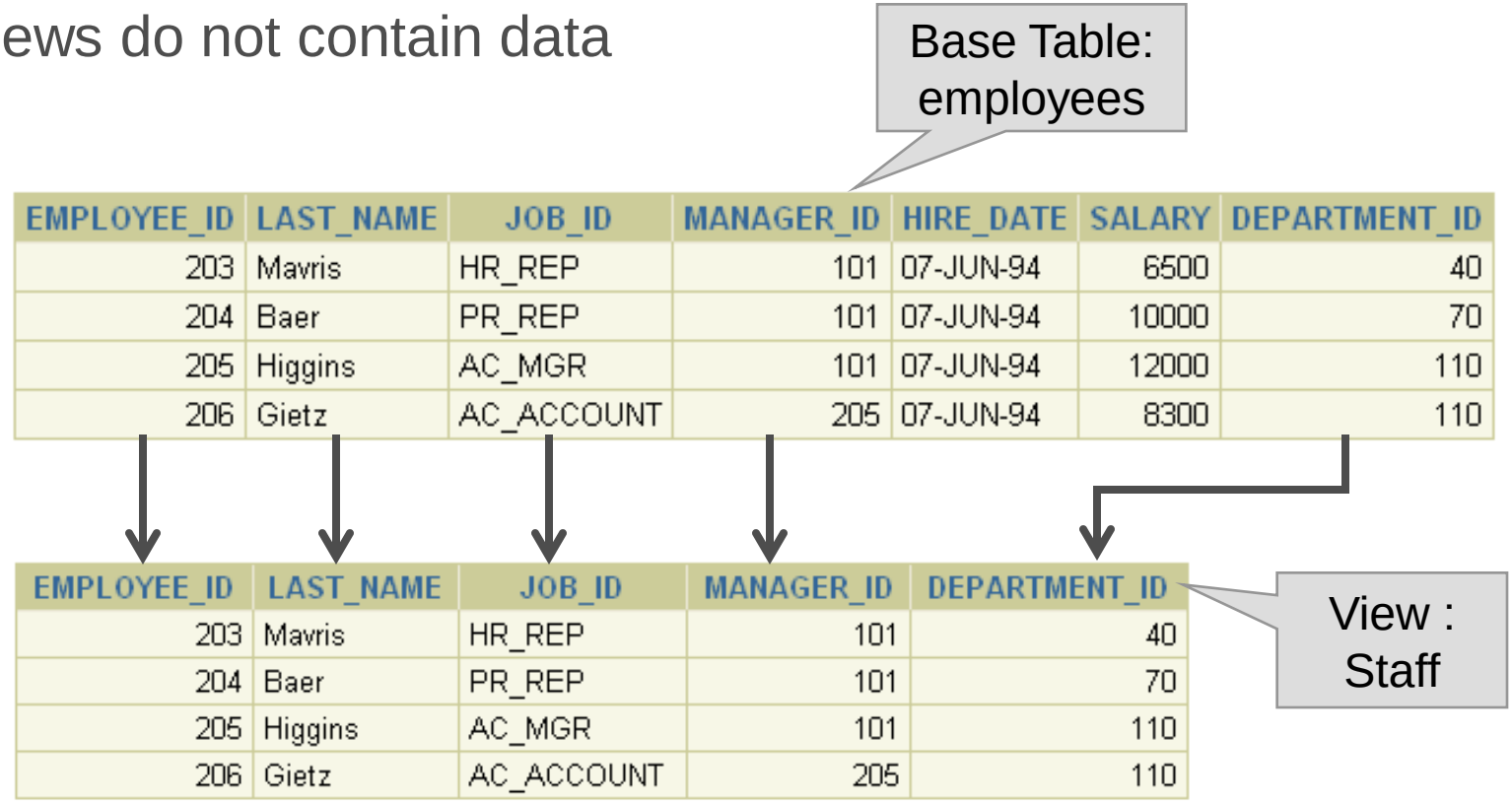
Creating indexes



Views

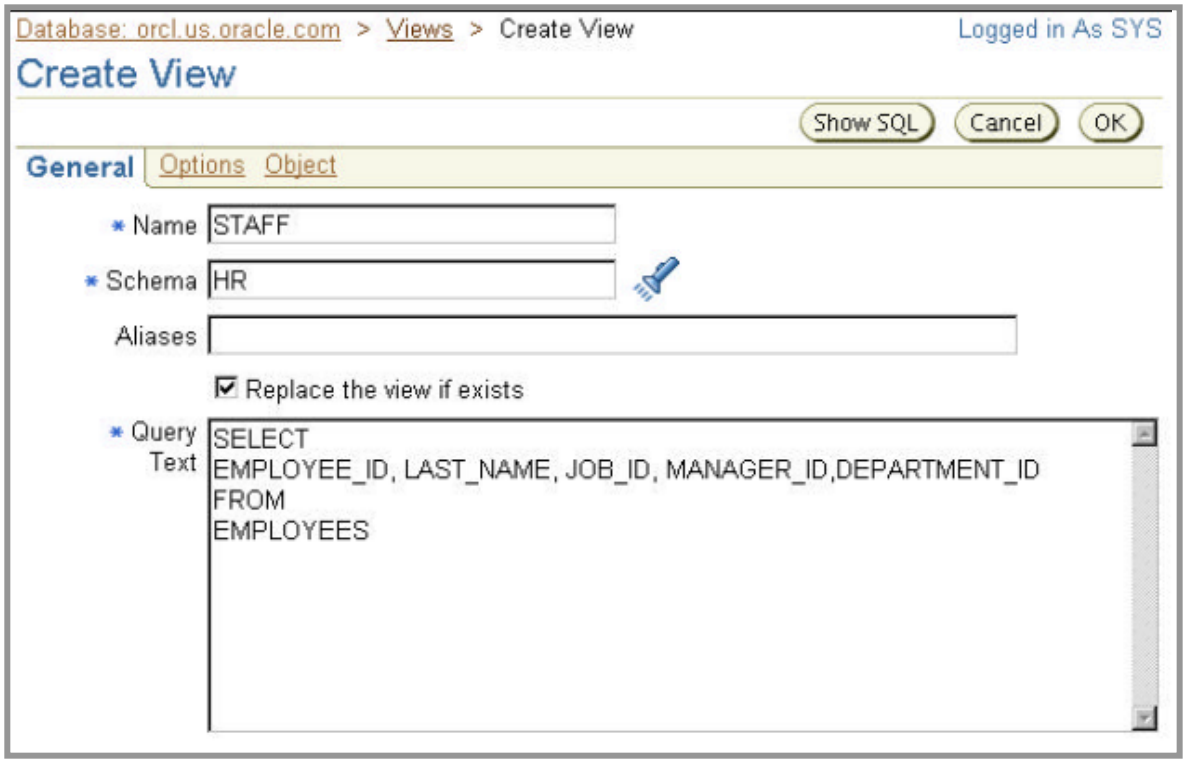
What's a view?

- Tailored representation of data in a table or view
- Views do not contain data



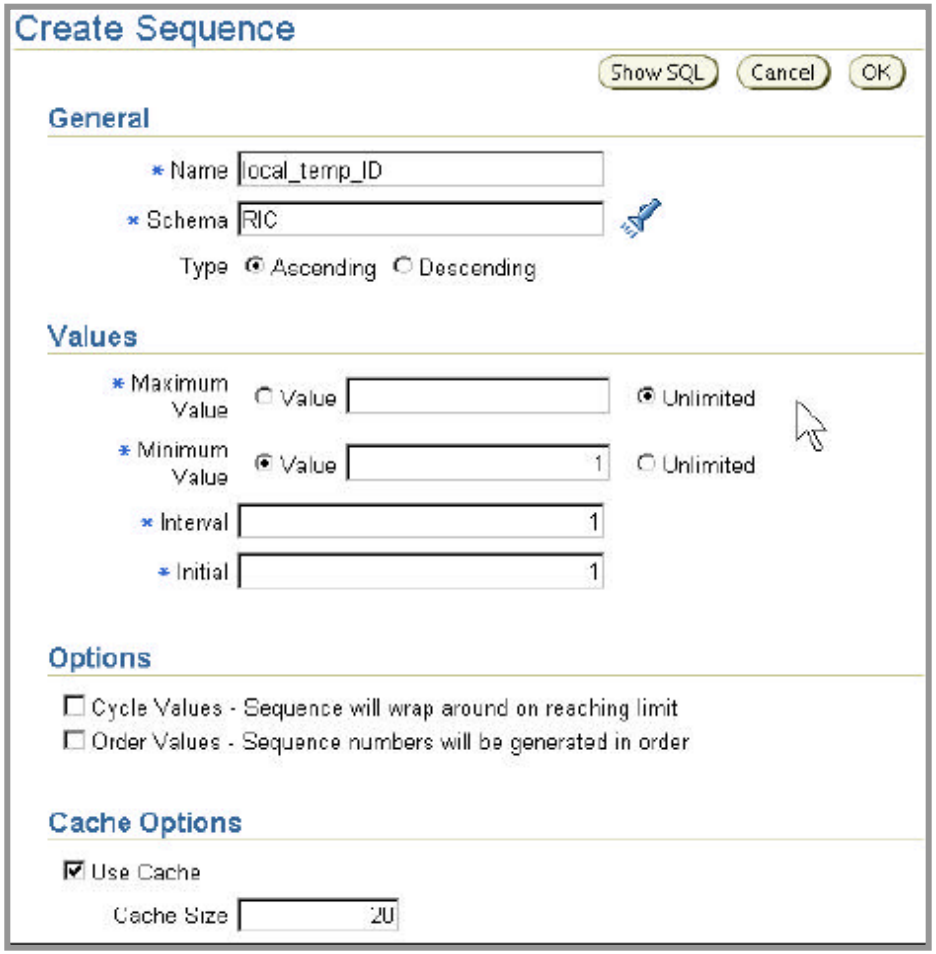
Views

Creating a view



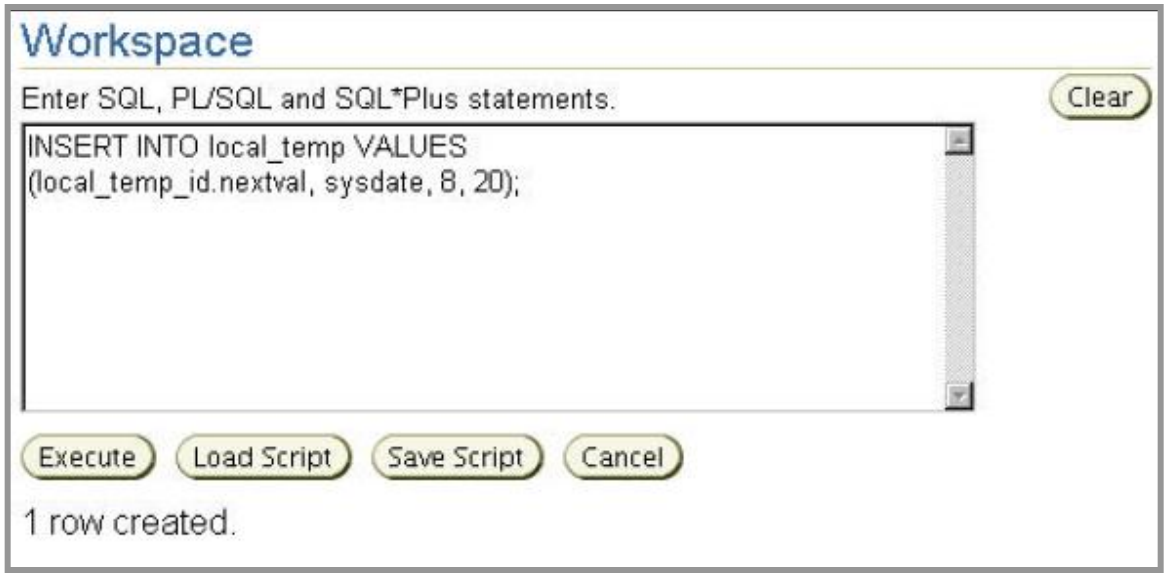
Sequences

What's a sequence?



Sequences

Using a sequence



Part 2 Summary

- Schema
- Guidelines for Objects Management
- Data Types
- Managing Tables
- Indexes
- Views
- Sequences

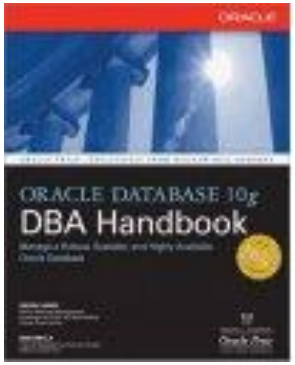
Part 2 Stop-and-think

Do you have any questions?

For more

If you want to go into these subjects more deeply, …

Publications



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Courses

Cursus: Merise & SQL

Cursus: PL/SQL

Cursus: DBA1 & DBA2

Cursus: DWH, OAS & BIS

Web sites

http://www.labo-oracle.com

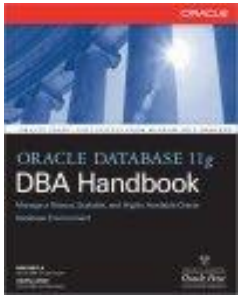
http://www.oracle.com

http://otn.oracle.com

Certifications

1Z0-042

1Z0-043



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Congratulations

You have successfully completed
the SUPINFO course module n°8

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The end


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