Oracle9i Datetime Functions
Objectives

After completing this lesson, you should be able to use the following datetime functions:

• `TZ_OFFSET`
• `CURRENT_DATE`
• `CURRENT_TIMESTAMP`
• `LOCALTIMESTAMP`
• `DBTIMEZONE`
• `SESSIONTIMEZONE`
• `EXTRACT`
• `FROM_TZ`
• `TO_TIMESTAMP`
• `TO_TIMESTAMP_TZ`
• `TO_YMINTERVAL`
The image represents the time for each time zone when Greenwich time is 12:00.
Oracle9i Datetime Support

• In Oracle9i, you can include the time zone in your date and time data, and provide support for fractional seconds.

• Three new data types are added to DATE:
  – TIMESTAMP
  – TIMESTAMP WITH TIME ZONE (TSTZ)
  – TIMESTAMP WITH LOCAL TIME ZONE (TSLTZ)

• Oracle9i provides daylight savings support for datetime data types in the server.
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TZ_OFFSET

• Display the time zone offset for the time zone 'US/Eastern'

```sql
SELECT TZ_OFFSET('US/Eastern') FROM DUAL;
```

<table>
<thead>
<tr>
<th>TZ_OFFSET</th>
</tr>
</thead>
<tbody>
<tr>
<td>-04:00</td>
</tr>
</tbody>
</table>

• Display the time zone offset for the time zone 'Canada/Yukon'

```sql
SELECT TZ_OFFSET('Canada/Yukon') FROM DUAL;
```

<table>
<thead>
<tr>
<th>TZ_OFFSET</th>
</tr>
</thead>
<tbody>
<tr>
<td>-07:00</td>
</tr>
</tbody>
</table>

• Display the time zone offset for the time zone 'Europe/London'

```sql
SELECT TZ_OFFSET('Europe/London') FROM DUAL;
```

<table>
<thead>
<tr>
<th>TZ_OFFSET</th>
</tr>
</thead>
<tbody>
<tr>
<td>+01:00</td>
</tr>
</tbody>
</table>
CURRENT_DATE

- Display the current date and time in the session’s time zone.

```sql
ALTER SESSION
SET NLS_DATE_FORMAT = 'DD-MON-YYYY HH24:MI:SS';
```

```
ALTER SESSION SET TIME_ZONE = '-5:0';
SELECT SESSIONTIMEZONE, CURRENT_DATE FROM DUAL;
```

<table>
<thead>
<tr>
<th>SESSIONTIMEZONE</th>
<th>CURRENT_DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>-05:00</td>
<td>03-OCT-2001 09:37:06</td>
</tr>
</tbody>
</table>

```
ALTER SESSION SET TIME_ZONE = '-8:0';
SELECT SESSIONTIMEZONE, CURRENT_DATE FROM DUAL;
```

<table>
<thead>
<tr>
<th>SESSIONTIMEZONE</th>
<th>CURRENT_DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>-08:00</td>
<td>03-OCT-2001 06:38:07</td>
</tr>
</tbody>
</table>

**CURRENT_DATE** is sensitive to the session time zone.

- The return value is a date in the Gregorian calendar.
CURRENT_TIMESTAMP

- Display the current date and fractional time in the session's time zone.

```sql
ALTER SESSION SET TIME_ZONE = '-5:0';
SELECT SESSIONTIMEZONE, CURRENT_TIMESTAMP
FROM DUAL;
```

<table>
<thead>
<tr>
<th>SESSIONTIMEZONE</th>
<th>CURRENT_TIMESTAMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>-05:00</td>
<td>03-OCT-01 09.40.59.000000 AM -05:00</td>
</tr>
</tbody>
</table>

```sql
ALTER SESSION SET TIME_ZONE = '-8:0';
SELECT SESSIONTIMEZONE, CURRENT_TIMESTAMP
FROM DUAL;
```

<table>
<thead>
<tr>
<th>SESSIONTIMEZONE</th>
<th>CURRENT_TIMESTAMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>-08:00</td>
<td>03-OCT-01 06.41.38.000000 AM -08:00</td>
</tr>
</tbody>
</table>

- CURRENT_TIMESTAMP is sensitive to the session time zone.
- The return value is of the TIMESTAMP WITH TIME ZONE datatype.
LOCALTIMESTAMP

- Display the current date and time in the session time zone in a value of TIMESTAMP data type.

```
ALTER SESSION SET TIME_ZONE = '-5:0';
SELECT CURRENT_TIMESTAMP, LOCALTIMESTAMP
FROM DUAL;
```

<table>
<thead>
<tr>
<th>CURRENT_TIMESTAMP</th>
<th>LOCALTIMESTAMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>03-OCT-01 09.44.21.000000 AM</td>
<td>03-OCT-01 09.44.21.000000 AM</td>
</tr>
</tbody>
</table>

```
ALTER SESSION SET TIME_ZONE = '-8:0';
SELECT CURRENT_TIMESTAMP, LOCALTIMESTAMP
FROM DUAL;
```

<table>
<thead>
<tr>
<th>CURRENT_TIMESTAMP</th>
<th>LOCALTIMESTAMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>03-OCT-01 06.45.21.000000 AM</td>
<td>03-OCT-01 06.45.21.000000 AM</td>
</tr>
</tbody>
</table>

- LOCALTIMESTAMP returns a TIMESTAMP value, whereas CURRENT_TIMESTAMP returns a TIMESTAMP WITH TIME ZONE value.
DBTIMEZONE and SESSIONTIMEZONE

• Display the value of the database time zone.

```
SELECT DBTIMEZONE FROM DUAL;
```

<table>
<thead>
<tr>
<th>DBTIME</th>
<th>-05:00</th>
</tr>
</thead>
</table>

• Display the value of the session's time zone.

```
SELECT SESSIONTIMEZONE FROM DUAL;
```

<table>
<thead>
<tr>
<th>SESSIONTIMEZONE</th>
<th>-08:00</th>
</tr>
</thead>
</table>
**EXTRACT**

- Display the **YEAR** component from the **SYSDATE**.

```sql
SELECT EXTRACT (YEAR FROM SYSDATE) FROM DUAL;
```

<table>
<thead>
<tr>
<th>EXTRACT(YEARFROMSYSDATE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
</tr>
</tbody>
</table>

- Display the **MONTH** component from the **HIRE_DATE** for those employees whose **MANAGER_ID** is **100**.

```sql
SELECT last_name, hire_date, 
       EXTRACT (MONTH FROM HIRE_DATE) 
FROM employees 
WHERE manager_id = 100;
```

<table>
<thead>
<tr>
<th>LAST_NAME</th>
<th>HIRE_DATE</th>
<th>EXTRACT(MONTHFROMHIRE_DATE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kochhar</td>
<td>21-SEP-89</td>
<td>9</td>
</tr>
<tr>
<td>De Haan</td>
<td>13-JAN-93</td>
<td>1</td>
</tr>
<tr>
<td>Mourgos</td>
<td>16-NOV-99</td>
<td>11</td>
</tr>
<tr>
<td>Zlotkay</td>
<td>29-JAN-00</td>
<td>1</td>
</tr>
<tr>
<td>Hartstein</td>
<td>17-FEB-96</td>
<td>2</td>
</tr>
</tbody>
</table>
TIMESTAMP Conversion Using FROM_TZ

• Display the TIMESTAMP value '2000-03-28 08:00:00' as a TIMESTAMP WITH TIME ZONE value.

```
SELECT FROM_TZ(TIMESTAMP '2000-03-28 08:00:00', '3:00')
FROM DUAL;
```

<table>
<thead>
<tr>
<th>FROM_TZ(TIMESTAMP '2000-03-28 08:00:00', '3:00')</th>
</tr>
</thead>
<tbody>
<tr>
<td>28-MAR-00 08:00:00.000000000 AM +03:00</td>
</tr>
</tbody>
</table>

• Display the TIMESTAMP value '2000-03-28 08:00:00' as a TIMESTAMP WITH TIME ZONE value for the time zone region 'Australia/North'

```
SELECT FROM_TZ(TIMESTAMP '2000-03-28 08:00:00', 'Australia/North')
FROM DUAL;
```

<table>
<thead>
<tr>
<th>FROM_TZ(TIMESTAMP '2000-03-28 08:00:00', 'Australia/North')</th>
</tr>
</thead>
<tbody>
<tr>
<td>28-MAR-00 08:00:00.000000000 AM AUSTRALIA/NORTH</td>
</tr>
</tbody>
</table>
STRING To TIMESTAMP Conversion Using TO_TIMESTAMP and TO_TIMESTAMP_TZ

• Display the character string '2000-12-01 11:00:00' as a TIMESTAMP value.

```
SELECT TO_TIMESTAMP ('2000-12-01 11:00:00', 'YYYY-MM-DD HH:MI:SS')
FROM DUAL;
```

<table>
<thead>
<tr>
<th>TO_TIMESTAMP('2000-12-01 11:00:00','YYYY-MM-DD HH:MI:SS')</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-DEC-00 11:00:00.000000000 AM</td>
</tr>
</tbody>
</table>

• Display the character string '1999-12-01 11:00:00 -8:00' as a TIMESTAMP WITH TIME ZONE value.

```
SELECT TO_TIMESTAMP_TZ ('1999-12-01 11:00:00 -8:00', 'YYYY-MM-DD HH:MI:SS TZH:TZM')
FROM DUAL;
```

<table>
<thead>
<tr>
<th>TO_TIMESTAMP_TZ('1999-12-01 11:00:00-08:00','YYYY-MM-DD HH:MI:SS TZH:TZM')</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-DEC-99 11:00:00.000000000 AM -08:00</td>
</tr>
</tbody>
</table>
Time Interval Conversion with TO_YMINTERVAL

- Display a date that is one year two months after the hire date for the employees working in the department with the DEPARTMENT_ID 20

```
SELECT hire_date,
       hire_date + TO_YMINTERVAL('01-02') AS HIRE_DATE_YMININTERVAL
FROM EMPLOYEES
WHERE department_id = 20;
```

<table>
<thead>
<tr>
<th>HIRE_DATE</th>
<th>HIRE_DATE_YMININTERVAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-FEB-1996 00:00:00</td>
<td>17-APR-1997 00:00:00</td>
</tr>
<tr>
<td>17-AUG-1997 00:00:00</td>
<td>17-OCT-1998 00:00:00</td>
</tr>
</tbody>
</table>
Summary

In this lesson, you should have learned how to use the following functions:

- TZ_OFFSET
- FROM_TZ
- TO_TIMESTAMP
- TO_TIMESTAMP_TZ
- TO_YMINTERVAL

- CURRENT_DATE
- CURRENT_TIMESTAMP
- LOCALTIMESTAMP
- DBTIMEZONE
- SESSIONTIMEZONE
- EXTRACT
Practice 16 Overview

This practice covers using the Oracle9i datetime functions.
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