

Session 5-4 Transaction Control

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Transaction Control Statements

- Results of Data Manipulation Language (DML) are not permanently updated to a table until explicit or implicit COMMIT occurs
- Transaction control statements can:
 - Commit data through COMMIT command
 - Undo data changes through ROLLBACK command



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COMMIT Command

Two Types of COMMIT

- **Explicit COMMIT** occurs by executing COMMIT;
- **Implicit COMMIT** occurs when DDL command (table creation) is executed or user properly exits system

Both COMMITs permanently update table(s) and allows other users to view changes



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ROLLBACK Command

- Used to “undo” changes that have not been committed
- Occurs when:
 - ROLLBACK; is executed
 - System restarts after a crash



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SAVEPOINT Command

- SAVEPOINT marks a specific spot within the transaction
- Can ROLLBACK to a SAVEPOINT to undo part of the transaction



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Transaction Control Example

```
Enter SQL Statement:

UPDATE acctmanager
SET region = 'E'
WHERE amid = 'M500';
COMMIT; ← Permanent save with COMMIT

UPDATE acctmanager
SET region = 'E'
WHERE amid = 'T500';

UPDATE acctmanager
SET region = 'E'
WHERE amid = 'L500';
SAVEPOINT ONE; ← Create a SAVEPOINT

UPDATE acctmanager
SET amcomm = 6600
WHERE amid = 'T500';
```

Results | Script Output | Explain | Autotrace | DBMS Output | OWA Output

1 rows updated
COMMIT succeeded.
1 rows updated
1 rows updated
SAVEPOINT ONE succeeded.
1 rows updated



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Transaction Control Example (cont'd)

Enter SQL Statement:

```
ROLLBACK TO ONE;
```

Only undo the DML actions after SAVEPOINT

Results Script Output Explain Autotrace DBMS Output OWA Output

ROLLBACK TO succeeded.

The screenshot shows a web-based SQL interface. At the top, there is a text input field labeled 'Enter SQL Statement:' containing the text 'ROLLBACK TO ONE;'. To the right of this field is a callout box with the text 'Only undo the DML actions after SAVEPOINT'. Below the input field is a toolbar with buttons for 'Results', 'Script Output', 'Explain', 'Autotrace', 'DBMS Output', and 'OWA Output'. Below the toolbar are icons for a pencil, a floppy disk, and a printer. At the bottom of the interface, a text area displays the message 'ROLLBACK TO succeeded.'



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Transaction Control Example (cont'd)

Rollback

Rollback to one

```
Enter SQL Statement:

UPDATE acctmanager
SET region = 'E'
WHERE amid = 'M500';
COMMIT;
UPDATE acctmanager
SET region = 'E'
WHERE amid = 'T500';
UPDATE acctmanager
SET region = 'E'
WHERE amid = 'L500';
SAVEPOINT ONE;
UPDATE acctmanager
SET amcomm = 6600
WHERE amid = 'T500';
```

Permanent save with COMMIT

Create a SAVEPOINT

Results Script Output Explain Autotrace DBMS Output OWA Output

1 rows updated
COMMIT succeeded.
1 rows updated
1 rows updated
SAVEPOINT ONE succeeded.
1 rows updated



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Wrap-up

- Manage transactions with transaction control statements
 - COMMIT
 - ROLLBACK, ROLLBACK TO
 - SAVEPOINT



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