

# Oracle Understand Undo Tablespace with Simple Example

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## First — What is “Undo Data”?

Whenever you make a **change** in Oracle (like UPDATE, DELETE, or INSERT), Oracle secretly keeps a **copy of the old data** — this copy is called **Undo Data**.

Think of it like this:

Undo data is like a “**backup copy**” of your data before the change.

Example:

Let’s say you have a table:

| ID | NAME  | SALARY |
|----|-------|--------|
| 1  | Alice | 5000   |

Now you run:

UPDATE employees SET salary = 6000 WHERE id = 1;

When you do this:

- Oracle **updates** the row to 6000
- But **keeps the old value (5000)** in the **Undo tablespace**

That old value is called **undo data**.

## Why Does Oracle Keep Undo Data?

Because it’s used for **three important things**:

| Purpose                     | Easy Explanation                                                                                                                                                                   |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Transaction rollback</b> | If you run ROLLBACK, Oracle uses undo data to put the row back the way it was (salary = 5000).                                                                                     |
| <b>Read consistency</b>     | Suppose another user runs a query <i>while you’re updating</i> . Oracle shows them the <b>old data</b> (5000) — so they see a consistent view of the database even during changes. |
| <b>Recovery / Flashback</b> | Undo data helps Oracle <i>undo changes</i> after a crash or lets you use features like <b>Flashback Query</b> to see how data looked in the past.                                  |

## Where is this Undo Data Stored?

It’s stored inside a special tablespace called the **Undo Tablespace** (like UNDOTBS1).

You can check it using:

SELECT tablespace\_name, contents FROM dba\_tablespaces WHERE contents = 'UNDO';

Output:

```
TABSPACE_NAME CONTENTS
-----
UNDOTBS1      UNDO
```

## In Simple Words:

**Undo Tablespace** is like Oracle’s “time machine” — it keeps old versions of changed data so Oracle can:

- Roll back uncommitted changes
- Show consistent data to others
- Recover or flashback if needed