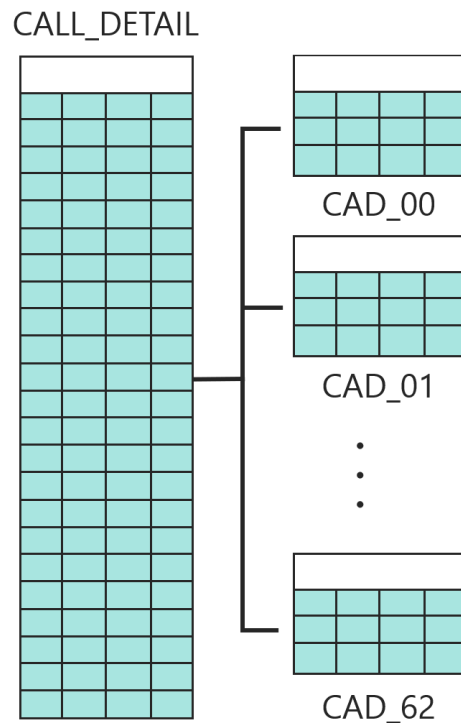


## What Are Partitioned Tables?

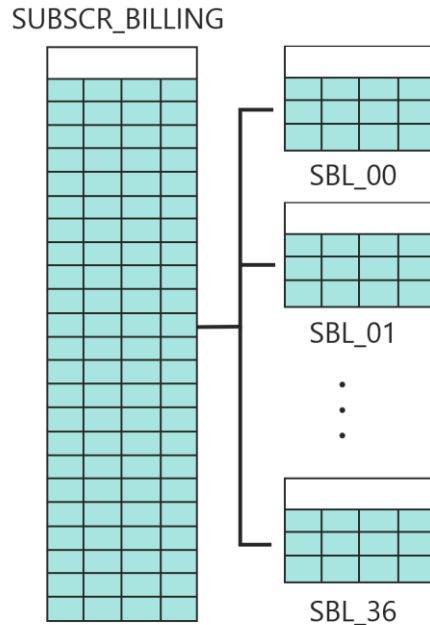
Partitioned tables are database tables that have the exact same structure, but contain different records. Partitioned tables logically segment the records that would otherwise be contained in one very large table. Using smaller, partitioned tables makes database administration much easier. In addition, using partitioned tables increases response time for users.

At ABC, partitioned tables are used for large fact tables. For example, CALL\_DETAIL contains two months of data, or approximately 90 million records. To make this table easier to manage and query, it is partitioned into 63 tables, each containing a day's worth of records (63=31 maximum days in a month x 2 months + 1 for the current day's table). Each partitioned table is named CAD\_##, where ## is a number from 00 to 62.



*CALL\_DETAIL Partitioning*

SUBSCR\_BILLING is another example of a partitioned fact table. It contains three years of subscriber billing records, or approximately 45 million records. To make this table easier to manage and query, it is partitioned into 37 tables, each containing a month's worth of billing records (12 months x 3 years + 1 for the current month's table). These partitioned tables are named SBL\_##, where ## is a number from 00 to 36.

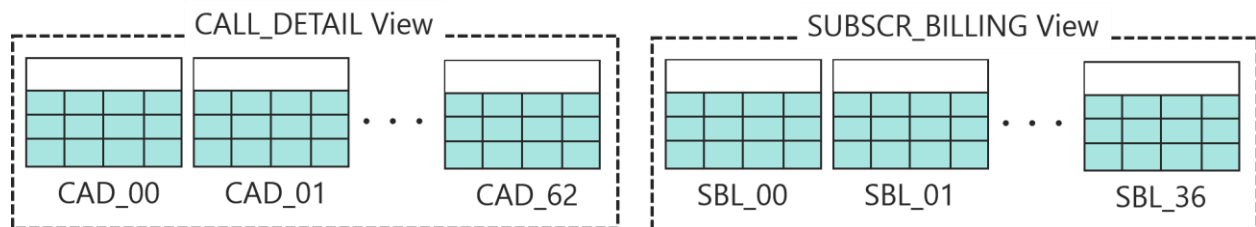


*SUBSCR\_BILLING Partitioning*

## How Are Views Used With Partitioned Tables?

An Oracle view is a custom-tailored presentation of the data from one or more database tables. Views enable the user to examine the data in arrangements different than the actual arrangements in the tables.

At ABC, views are used to group the data in a set of partitioned tables. For example, the CALL\_DETAIL view groups the data from all the CAD tables. The SUBSCR\_BILLING view groups the data from all the SBL tables.



*Partitioned Tables and Views*

## How Are Aliases Used With Partitioned Tables?

Aliases, or synonyms, are simple, descriptive names for tables. Aliases make database administration much easier.

At ABC, aliases reflecting the date of the data are used for each of the partitioned tables. For example:

- CAD\_JAN\_02 is the alias for the table containing call records from January 2.
- SBL\_JAN is the alias for the table containing billing records from January.

## How Are Check Constraints Used With Partitioned Tables?

A constraint is an object in an Oracle database that defines a business rule for a column of a table. A check constraint is a specific type of constraint that only allows values in a column if those values satisfy the logical expression of the constraint. Check constraints improve performance by ensuring user queries go against only the relevant table in a view.

At ABC, there is a check constraint for each partitioned table formatted as follows:

*partition\_table\_CK\_alias*

Where:

*partition\_table* = the partitioned table that is constrained

*alias* = the alias of the partitioned table

These check constraints limit the value in the partitioned table's PERIOD\_KEY column. This ensures the table only contains data for a particular date.

For example:

- The check constraint CAD\_00\_CK\_JAN\_02 limits the data in the PERIOD\_KEY column to 1320 for the CAD\_00 table with the alias CAD\_JAN\_02. In other words, the CAD\_00 table can only contain call records for January 2.
- The check constraint SBL\_00\_CK\_SBL\_JAN limits the data in the PERIOD\_KEY column to 1200 for the SBL\_00 table with the alias SBL\_JAN. In other words, the SBL\_00 table can only contain billing records for January.

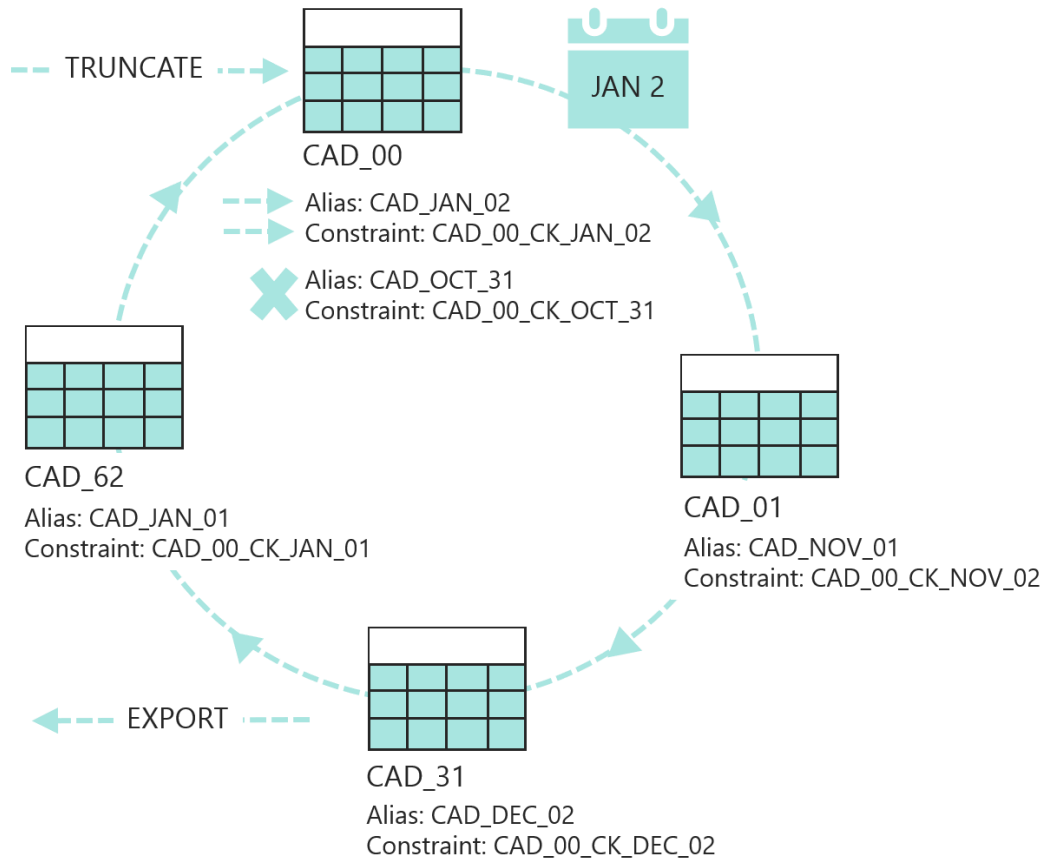
## How Are Partitioned Tables and Their Constraints Maintained?

The ABC database always contains the same number of partitioned tables. However, the data these tables contain changes over time through the maintenance process.

For example, the 63 CAD partitioned tables always contain call records for the past 63 days. So that the CAD tables always contain the most current 63 days of data, the following maintenance process is performed on the partitioned tables every night. The process is cyclical and new tables are maintained each night.

1. The data that is 31 days old is exported and backed up. Exporting data halfway through the partitioned table cycle allows time to troubleshoot any export problems.
2. The partitioned table containing data that is 64 days old is truncated. This deletes the table's rows in the fastest possible way.
3. Check constraints are created for the current date and associated with the partitioned table that was truncated.
4. The partitioned table that was truncated is loaded with data during the ABC extract and load process.
5. The partitioned table is analyzed.

This process is the same for the SBL partitioned tables, except these tables are maintained monthly instead of daily.



Partitioned Table Maintenance Process