

IDENTITY data type

The IDENTITY data type was introduced in Firebird 3.0.

The IDENTITY data type spawns unique identifiers for the defined column from an internal [generator](#).

The following is an excerpt from the [The Firebird 3.0 Release Notes \(27 January 2014 - Document v.0300-08 - for Firebird 3.0 Alpha 2\)](#):

IDENTITY column type

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An identity column is a column associated with an internal sequence generator. Its value is set automatically when the column is omitted in an [INSERT statement](#).

Syntax Patterns

```
<column definition> ::=  
    <name> <type> GENERATED BY DEFAULT AS IDENTITY [ (START WITH <value>)  
    ]<constraints>
```

When defining a column, the optional START WITH clause allows the generator to be initialised to a value other than zero. See Tracker ticket [CORE-4199](#).

<alter column definition> ::=

```
<name> RESTART [ WITH <value> ]
```

A column definition can be altered to modify the starting value of the generator. `RESTART` alone resets the generator to zero; the option `WITH <value>` clauselet allows the restarted generator to start at a value other than zero. See Tracker ticket [CORE-4206](#).

Rules:

- The data type of an identity column must be an exact number type with zero scale. Allowed types are thus [SMALLINT](#), [INTEGER](#), [BIGINT](#), [NUMERIC\(x,0\)](#) and [DECIMAL\(x,0\)](#).
- An identity column cannot have `DEFAULT` or `COMPUTED` value.

Notes:

- An identity column cannot be altered to become a regular column. The reverse is also true.
- Identity columns are implicitly `NOT NULL` (non-nullable).
- Uniqueness is not enforced automatically. A [UNIQUE](#) or [PRIMARY KEY](#) constraint is required to guarantee uniqueness.

Example

```
create table objects (  
  id integer generated by default as identity primary key,  
  name varchar(15)  
);
```

```
insert into objects (name) values ('Table');  
insert into objects (name) values ('Book');  
insert into objects (id, name) values (10, 'Computer');
```

```
select * from objects;
```

```
      ID NAME  
=====
```

1	Table
2	Book
10	Computer

Implementation Details

Two new columns have been inserted in [RDB\\$RELATION_FIELDS](#) to support identity columns: [RDB\\$GENERATOR_NAME](#) and [RDB\\$IDENTITY_TYPE](#).

- [RDB\\$GENERATOR_NAME](#) stores the automatically created generator for the column. In [RDB\\$GENERATORS](#), the value of [RDB\\$SYSTEM_FLAG](#) of that generator will be 6.
- Currently, [RDB\\$IDENTITY_TYPE](#) always stores the value 0 ([GENERATED BY DEFAULT](#)) for identity columns and NULL for non-identity columns. In the future this column will be able to store the value 1 ([GENERATED ALWAYS](#)) when that type of identity column is supported by Firebird.

Source: *The Firebird 3.0 Release Notes* by Helen Borrie (Collator/Editor): 27 January 2014 - Document v.0300-08 - for Firebird 3.0 Alpha 2.

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Last update: **2023/08/17 01:44**

