Create & Populate Time Dimension with 24 Hour+ Values

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Create time dimension with 24 hour plus values and time buckets in your data warehouse

Download source code - 2.2 KB

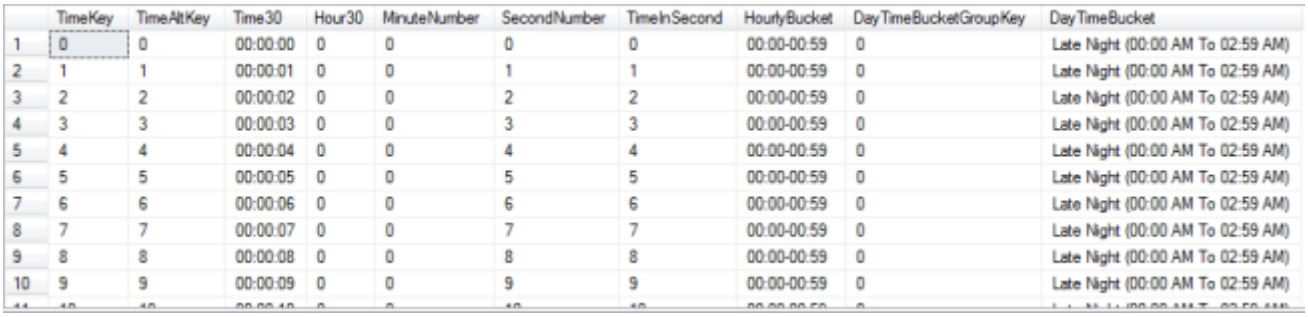
Introduction

A common task most of us face while setting up a new data warehouse is creating a time dimension.

This tip will especially help those people who work in Business Intelligence and whenever as a starting point, they need to set new data warehouse. During this time, they need to create and fill their time dimension with the necessary values.

I have searched the internet to find T-SQL script which can create and fill time dimension with 24 hour plus values. I did not find any readymade script, then I invested my time to create this script and am now sharing with all so that it can help everyone.

The given time dimension script will create table of time dimension and populate it with appropriate values. It also creates time buckets in table and fills it with group values, so that the user can perform aggregation of data using various combinations of hourly time buckets or day time buckets and they can do analysis of data using these time buckets and can do study of trend over the entire day.



	TimeKey	TimeAltKey	Time30	Hour30	MinuteNumber	SecondNumber	TimeInSecond	HourlyBucket	DayTimeBucketGroupKey	DayTimeBucket
1	0	0	00:00:00	0	0	0	0	00:00-00:59	0	Late Night (00:00 AM To 02:59 AM)
2	1	1	00:00:01	0	0	1	1	00:00-00:59	0	Late Night (00:00 AM To 02:59 AM)
3	2	2	00:00:02	0	0	2	2	00:00-00:59	0	Late Night (00:00 AM To 02:59 AM)
4	3	3	00:00:03	0	0	3	3	00:00-00:59	0	Late Night (00:00 AM To 02:59 AM)
5	4	4	00:00:04	0	0	4	4	00:00-00:59	0	Late Night (00:00 AM To 02:59 AM)
6	5	5	00:00:05	0	0	5	5	00:00-00:59	0	Late Night (00:00 AM To 02:59 AM)
7	6	6	00:00:06	0	0	6	6	00:00-00:59	0	Late Night (00:00 AM To 02:59 AM)
8	7	7	00:00:07	0	0	7	7	00:00-00:59	0	Late Night (00:00 AM To 02:59 AM)
9	8	8	00:00:08	0	0	8	8	00:00-00:59	0	Late Night (00:00 AM To 02:59 AM)
10	9	9	00:00:09	0	0	9	9	00:00-00:59	0	Late Night (00:00 AM To 02:59 AM)

Using the Code

Follow the given steps to create time dimension:

1. Open SQL Server Management Studio.
2. Connect database engine.
3. Open new query editor.
4. Copy paste the script given below in new query editor window.
5. Press F5 to run the given SQL script.

SQL Shrink ▲

```
/*Created by Mubin M. Shaikh */
--Create Test Database named as Test_DW
Create Database [Test_DW]
GO
--Choose the database Test_DW
USE [Test_DW]
GO
/****** Create Time Dimension Table In Test_DW ******/
/****** Create Table [dbo].[DimTime] ******/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
SET ANSI_PADDING ON
GO
CREATE TABLE [dbo].[DimTime](
[TimeKey] [int] NOT NULL,
[TimeAltKey] [int] NOT NULL,
[Time30] [varchar](8) NOT NULL,
[Hour30] [tinyint] NOT NULL,
[MinuteNumber] [tinyint] NOT NULL,
[SecondNumber] [tinyint] NOT NULL,
[TimeInSecond] [int] NOT NULL,
[HourlyBucket] varchar(15)not null,
[DayTimeBucketGroupKey] int not null,
[DayTimeBucket] varchar(100) not null
CONSTRAINT [PK_DimTime] PRIMARY KEY CLUSTERED
(
[TimeKey] ASC
)
WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, _
IGNORE_DUP_KEY = OFF, ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON) ON [PRIMARY]
)
ON [PRIMARY]
GO
```

```
SET ANSI_PADDING OFF
GO
/***** Create Stored procedure In Test_DW and Run SP To Fill Time Dimension with
Values****/
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE [dbo].[FillDimTime]
as
BEGIN
--Specify Total Number of Hours You need to fill in Time Dimension
DECLARE @Size INTEGER
--iF @Size=32 THEN This will Fill values Upto 32:59 hr in Time Dimension
Set @Size=23
DECLARE @hour INTEGER
DECLARE @minute INTEGER
DECLARE @second INTEGER
DECLARE @k INTEGER
DECLARE @TimeAltKey INTEGER
DECLARE @TimeInSeconds INTEGER
DECLARE @Time30 varchar(25)
DECLARE @Hour30 varchar(4)
DECLARE @Minute30 varchar(4)
DECLARE @Second30 varchar(4)
DECLARE @HourBucket varchar(15)
DECLARE @HourBucketGroupKey int
DECLARE @DayTimeBucket varchar(100)
DECLARE @DayTimeBucketGroupKey int
SET @hour = 0
SET @minute = 0
SET @second = 0
SET @k = 0
SET @TimeAltKey = 0
WHILE(@hour<= @Size )
BEGIN
if (@hour <10 )
begin
set @Hour30 = '0' + cast( @hour as varchar(10))
end
else
begin
set @Hour30 = @hour
end
--Create Hour Bucket Value
set @HourBucket= @Hour30+':00' +'-' +@Hour30+':59'
WHILE(@minute <= 59)
BEGIN
WHILE(@second <= 59)
BEGIN
set @TimeAltKey = @hour *10000 +@minute*100 +@second
set @TimeInSeconds =@hour * 3600 + @minute *60 +@second
If @minute <10
begin
set @Minute30 = '0' + cast ( @minute as varchar(10) )
end
else
begin
set @Minute30 = @minute
end
if @second <10
```

```
begin
set @Second30 = '0' + cast ( @second as varchar(10) )
end
else
begin
set @Second30 = @second
end
--Concatenate values for Time30
set @Time30 = @Hour30 +':'+@Minute30 +':'+@Second30
--DayTimeBucketGroupKey can be used in Sorting of DayTime Bucket In proper Order
SELECT @DayTimeBucketGroupKey =
CASE
WHEN (@TimeAltKey >= 00000 AND @TimeAltKey <= 25959) THEN 0
WHEN (@TimeAltKey >= 30000 AND @TimeAltKey <= 65959) THEN 1
WHEN (@TimeAltKey >= 70000 AND @TimeAltKey <= 85959) THEN 2
WHEN (@TimeAltKey >= 90000 AND @TimeAltKey <= 115959) THEN 3
WHEN (@TimeAltKey >= 120000 AND @TimeAltKey <= 135959)THEN 4
WHEN (@TimeAltKey >= 140000 AND @TimeAltKey <= 155959)THEN 5
WHEN (@TimeAltKey >= 50000 AND @TimeAltKey <= 175959) THEN 6
WHEN (@TimeAltKey >= 180000 AND @TimeAltKey <= 235959)THEN 7
WHEN (@TimeAltKey >= 240000) THEN 8
END
--print @DayTimeBucketGroupKey
-- DayTimeBucket Time Divided in Specific Time Zone
-- So Data can Be Grouped as per Bucket for Analyzing as per time of day
SELECT @DayTimeBucket =
CASE
WHEN (@TimeAltKey >= 00000 AND @TimeAltKey <= 25959) _
THEN 'Late Night (00:00 AM To 02:59 AM)'
WHEN (@TimeAltKey >= 30000 AND @TimeAltKey <= 65959) _
THEN 'Early Morning(03:00 AM To 6:59 AM)'
WHEN (@TimeAltKey >= 70000 AND @TimeAltKey <= 85959) _
THEN 'AM Peak (7:00 AM To 8:59 AM)'
WHEN (@TimeAltKey >= 90000 AND @TimeAltKey <= 115959) _
THEN 'Mid Morning (9:00 AM To 11:59 AM)'
WHEN (@TimeAltKey >= 120000 AND @TimeAltKey <= 135959) _
THEN 'Lunch (12:00 PM To 13:59 PM)'
WHEN (@TimeAltKey >= 140000 AND @TimeAltKey <= 155959)_
THEN 'Mid Afternoon (14:00 PM To 15:59 PM)'
WHEN (@TimeAltKey >= 50000 AND @TimeAltKey <= 175959)_
THEN 'PM Peak (16:00 PM To 17:59 PM)'
WHEN (@TimeAltKey >= 180000 AND @TimeAltKey <= 235959)_
THEN 'Evening (18:00 PM To 23:59 PM)'
WHEN (@TimeAltKey >= 240000) THEN 'Previous Day Late Night _
(24:00 PM to '+cast( @Size as varchar(10)) +':00 PM )'
END
-- print @DayTimeBucket
INSERT into DimTime (TimeKey,TimeAltKey,[Time30] ,[Hour30] ,_
[MinuteNumber],[SecondNumber],[TimeInSecond],[HourlyBucket],_
DayTimeBucketGroupKey,DayTimeBucket)
VALUES (@k,@TimeAltKey ,@Time30 ,@hour ,@minute,@Second , _
@TimeInSeconds,@HourBucket,@DayTimeBucketGroupKey,@DayTimeBucket )
SET @second = @second + 1
SET @k = @k + 1
END
SET @minute = @minute + 1
SET @second = 0
END
SET @hour = @hour + 1
SET @minute =0
END
```

```
END
Go
Exec [FillDimTime]
go
select * from DimTime//
```

Enjoy T-SQLization.

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Microsoft® Certified Professional (Microsoft Certification ID: 8918672).

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