127.0.0.1,13001 Documentation

MidtermDataModelingCSCI381

Server 127.0.0.1,13001

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127.0.0.1,13001

Databases (1)

MidtermDataModelingCSCl381

Server Properties

Property	Value
Product	Microsoft SQL Server
Version	15.0.4236.7
Language	English
Platform	NT x64
Edition	Developer Edition (64-bit)
Engine Edition	3 (Enterprise)
Processors	4
OS Version	6.2 (9200)
Physical Memory	10225
Is Clustered	False
Root Directory	C:\
Collation	SQL_Latin1_General_CP1_CI_AS

Server Settings

Property	Value
Default data file path	/var/opt/mssql/data/
Default backup file path	/var/opt/mssql/backup/
Default log file path	/var/opt/mssql/log/
Recovery Interval (minutes)	0
Default index fill factor	0
Default backup media retention	0
Compress Backup	False

Advanced Server Settings

Property	Value
Locks	0
Nested triggers enabled	True
Allow triggers to fire others	True
Default language	English

Network packet size	4096
Default fulltext language LCID	1033
Two-digit year cutoff	2049
Remote login timeout	10
Cursor threshold	-1
Max text replication size	65536
Parallelism cost threshold	5
Max degree of parallelism	0
Min server memory	16
Max server memory	2147483647
Scan for startup procs	False
Transform noise words	False
CLR enabled	False
Blocked process threshold	0
Filestream access level	False
Optimize for ad hoc workloads	False
CLR strict security	True

\sim			
	User	data	bases

Databases (1)

MidtermDataModelingCSCl381

■ MidtermDataModelingCSCI381 Database

Database Properties

Property	Value
SQL Server Version	Max
Compatibility Level	Max
Last backup time	10/15/2022
Last log backup time	-
Creation date	Oct 24 2022
Users	5
Database Encryption Enabled	False
Database Encryption Algorithm	None
Database size	208.00 MB
Unallocated space	2.55 MB

Database Options

Property	Value
Compatibility Level	150
Database collation	SQL_Latin1_General_CP1_CI_AS
Restrict access	MULTI_USER
Is read-only	False
Auto close	False
Auto shrink	False
Database status	ONLINE
In standby	False
Cleanly shutdown	False
Supplemental logging enabled	False
Snapshot isolation state	OFF
Read committed snapshot on	False
Recovery model	FULL
Page verify option	CHECKSUM
Auto create statistics	True
Auto update statistics	True
Auto update statistics asynchronously	False
ANSI NULL default	False
ANSI NULL enabled	False
ANSI padding enabled	False

ANSI warnings enabled	False
Arithmetic abort enabled	False
Concatenating NULL yields NULL	False
Numeric roundabort enabled	False
Quoted Identifier On	False
Recursive triggers enabled	False
Close cursors on commit	False
Local cursors by default	False
Fulltext enabled	True
Trustworthy	False
Database chaining	False
Forced parameterization	False
Master key encrypted by server	False
Published	False
Subscribed	False
Merge published	False
Is distribution database	False
Sync with backup	False
Service broker GUID	8cdb5309-002e-4efd-ad78-a1c12da41134
Service broker enabled	False
Log reuse wait	NOTHING
Date correlation	False
CDC enabled	False
Encrypted	False
Honor broker priority	False
Default language	English
Default fulltext language LCID	1033
Nested triggers enabled	True
Transform noise words	False
Two-digit year cutoff	2049
Containment	NONE
Target recovery time	60
Database owner	sa

Files

Name	Туре	Size	Maxsize	Autogrowth	File Name
MidtermDataModelingCSCl381	Data	8.00 MB	unlimited	64.00 MB	/var/opt/mssql/data/ MidtermData- Modeling- CSCl381.mdf
MidtermDataModelingCSCl381_log	Log	200.00 MB	2048.00 GB	64.00 MB	/var/opt/mssql/log/M idtermDataModeling-

	CSCl381_log.ldf
--	-----------------

■ Tables

Objects

Name
dbo.Nums
HumanResources.Employee
Production.Category
Production.Product
Production.Supplier
Sales.Customer
Sales.Order
Sales.OrderDetail
Sales.Shipper
SystemVersioned.Employee
Triggered.AuditTriggeredEmployeeHistory
Triggered.Employee

[dbo].[Nums]

Properties

Property	Value
Row Count (~)	100000
Created	2:46:42 PM Saturday, October 15, 2022
Last Modified	2:46:42 PM Saturday, October 15, 2022

Columns

Key	Name	Data Type	Max Length (Bytes)	Nullability
PK C	N	[Udt].[SurrogateKeyInt]	4	NOT NULL

Indexes

Key	Name	Key Columns	Unique
PK G	PK_Nums	N	True

SQL Script

```
CREATE TABLE [dbo].[Nums]

(
[N] [Udt].[SurrogateKeyInt] NOT NULL
) ON [PRIMARY]

GO

ALTER TABLE [dbo].[Nums] ADD CONSTRAINT [PK_Nums] PRIMARY KEY CLUSTERED ([N]) ON [PRIMARY]

GO
```

Uses

[Udt].[SurrogateKeyInt]

III [HumanResources].[Employee]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1_CI_AS
Row Count (~)	9
Created	2:46:42 PM Saturday, October 15, 2022
Last Modified	6:57:35 PM Saturday, October 29, 2022

Columns

Key	Name	Data Type	Max Length (Bytes)	Nullability	Identity
PK C	Employeeld	[Udt].[SurrogateKeyInt]	4	NOT NULL	1 - 1
	EmployeeLastName	[Udt].[LastName]	50	NOT NULL	
	EmployeeFirstName	[Udt].[FirstName]	50	NOT NULL	
	EmployeeTitle	[Udt].[Title]	60	NOT NULL	
	EmployeeTitleOfCourtesy	[Udt].[TitleOfCourtesy]	10	NOT NULL	
■	BirthDate	[Udt].[DateYYYYMMDD]	3	NOT NULL	
	HireDate	[Udt].[DateYYYYMMDD]	3	NOT NULL	
	EmployeeAddress	[Udt].[Address]	120	NOT NULL	
	EmployeeCity	[Udt].[City]	30	NULL allowed	
	EmployeeRegion	[Udt].[Region]	30	NULL allowed	
	EmployeePostalCode	[Udt].[PostalCode]	20	NULL allowed	
	EmployeeCountry	[Udt].[Country]	30	NOT NULL	
	EmployeePhoneNumber	[Udt].[TelephoneNumber]	48	NOT NULL	
F/P	EmployeeManagerId	[Udt].[SurrogateKeyInt]	4	NULL allowed	

Indexes

Key	Name	Key Columns	Unique
PK P G	PK_Employees	Employeeld	True

Check Constraints

Name	On Column	Constraint
CHK_birthdate	BirthDate	([birthdate]<=CONVERT([date],sysdatetime(),(0)))

Foreign Keys

Name	Columns
FK_Employees_Employees	EmployeeManagerId->[HumanResources].[Employee].[EmployeeId]

SQL Script

```
CREATE TABLE [HumanResources].[Employee]
[EmployeeId] [Udt].[SurrogateKeyInt] NOT NULL IDENTITY(1, 1),
[EmployeeLastName] [Udt].[LastName] NOT NULL,
[EmployeeFirstName] [Udt].[FirstName] NOT NULL,
[EmployeeTitle] [Udt].[Title] NOT NULL,
[EmployeeTitleOfCourtesy] [Udt].[TitleOfCourtesy] NOT NULL,
[BirthDate] [Udt].[DateYYYYMMDD] NOT NULL,
[HireDate] [Udt].[DateYYYYMMDD] NOT NULL,
[EmployeeAddress] [Udt].[Address] NOT NULL,
[EmployeeCity] [Udt].[City] NULL,
[EmployeeRegion] [Udt].[Region] NULL,
[EmployeePostalCode] [Udt].[PostalCode] NULL,
[EmployeeCountry] [Udt].[Country] NOT NULL,
[EmployeePhoneNumber] [Udt].[TelephoneNumber] NOT NULL,
[EmployeeManagerId] [Udt].[SurrogateKeyInt] NULL
) ON [PRIMARY]
GO
ALTER TABLE [HumanResources].[Employee] ADD CONSTRAINT [CHK birthdate] CHECK
(([birthdate] <= CONVERT([date], sysdatetime(), (0))))</pre>
ALTER TABLE [HumanResources].[Employee] ADD CONSTRAINT [PK Employees] PRIMARY KEY
CLUSTERED ([EmployeeId]) ON [PRIMARY]
ALTER TABLE [HumanResources].[Employee] ADD CONSTRAINT [FK_Employees_Employees] FOREIGN
KEY ([EmployeeManagerId]) REFERENCES [HumanResources].[Employee] ([EmployeeId])
GO
```

Uses

[Udt].[Address]
[Udt].[City]
[Udt].[Country]
[Udt].[DateYYYYMMDD]
[Udt].[FirstName]
[Udt].[LastName]

Project > 127.0.0.1,13001 > User databases > MidtermDataModelingCSCl381 > Tables > Human-Resources.Employee

[Udt].[PostalCode]

[Udt].[Region]

[Udt].[SurrogateKeyInt]

[Udt].[TelephoneNumber]

[Udt].[Title]

[Udt].[TitleOfCourtesy]

HumanResources

Used By

[Sales].[Order]
[JsonOutput].[uvw_HumanResourcesEmployee]
[JsonOutput].[uvw_MongoDBOrder]
[JsonOutput].[MongoOrder]

■ [Production].[Category]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1_CI_AS
Row Count (~)	8
Created	2:46:42 PM Saturday, October 15, 2022
Last Modified	6:57:35 PM Saturday, October 29, 2022

Columns

Key	Name	Data Type	Max Length (Bytes)	Nullability	Identity
PKP C	Categoryld	[Udt].[SurrogateKeyInt]	4	NOT NULL	1 - 1
	CategoryName	[Udt].[CategoryName]	30	NOT NULL	
	Description	[Udt].[Description]	400	NOT NULL	

Indexes

Key	Name	Key Columns	Unique
PK	PK_Categories	Categoryld	True

Triggers

Name	ANSI Nulls On	Quoted Identifier On	On
tD_Category	True	True	After Delete
tU_Category	True	True	After Update

SQL Script

```
CREATE TABLE [Production].[Category]

(
[CategoryId] [Udt].[SurrogateKeyInt] NOT NULL IDENTITY(1, 1),

[CategoryName] [Udt].[CategoryName] NOT NULL,

[Description] [Udt].[Description] NOT NULL

) ON [PRIMARY]

GO

CREATE TRIGGER [Production].[tD_Category] ON [Production].[Category] FOR DELETE AS

/* erwin Builtin Trigger */

/* DELETE trigger on Category */
```

```
BEGIN
 DECLARE @errno int,
          @severity int,
          Ostate int,
          @errmsg varchar(255)
   /* erwin Builtin Trigger */
   /* Production.Category Production.Product on parent delete no action */
    /* ERWIN RELATION:CHECKSUM="000135d0", PARENT OWNER="Production", PARENT -
TABLE="Category"
   CHILD OWNER="Production", CHILD TABLE="Product"
   P2C VERB PHRASE="", C2P VERB PHRASE="",
   FK CONSTRAINT="FK Product Category", FK COLUMNS="CategoryId" */
   IF EXISTS (
     SELECT * FROM deleted, Production. Product
     WHERE
       /* %JoinFKPK(Production.Product, deleted, " = ", " AND") */
       Production.Product.CategoryId = deleted.CategoryId
   BEGIN
     SELECT @errno = 30001,
            @errmsg = 'Cannot delete Production.Category because Production.Product
exists.'
    GOTO error
   END
   /* erwin Builtin Trigger */
   RETURN
error:
  RAISERROR (@errmsg, -- Message text.
             @severity, -- Severity (0~25).
             @state) -- State (0~255).
   rollback transaction
END
CREATE TRIGGER [Production].[tU Category] ON [Production].[Category] FOR UPDATE AS
/* erwin Builtin Trigger */
/* UPDATE trigger on Category */
BEGIN
 DECLARE @numrows int,
          @nullcnt int,
          @validcnt int,
          @insCategoryId Udt.SurrogateKeyInt,
          @errno int,
          @severity int,
          Ostate int,
          @errmsg varchar(255)
 SELECT @numrows = @@rowcount
 /* erwin Builtin Trigger */
 /* Production.Category Production.Product on parent update no action */
  /* ERWIN RELATION: CHECKSUM="00015552", PARENT OWNER="Production", PARENT -
TABLE="Category"
   CHILD OWNER="Production", CHILD TABLE="Product"
```

```
P2C_VERB_PHRASE="", C2P_VERB PHRASE="",
   FK CONSTRAINT="FK Product Category", FK COLUMNS="CategoryId" */
   /* %ParentPK(" OR",UPDATE) */
   UPDATE (CategoryId)
 BEGIN
   IF EXISTS (
     SELECT * FROM deleted, Production. Product
     WHERE
       /* %JoinFKPK(Production.Product, deleted, " = ", " AND") */
       Production.Product.CategoryId = deleted.CategoryId
   BEGIN
     SELECT @errno = 30005,
          @errmsq = 'Cannot update Production.Category because Production.Product
exists.'
    GOTO error
   END
 /* erwin Builtin Trigger */
 RETURN
error:
  RAISERROR (@errmsg, -- Message text.
             @severity, -- Severity (0~25).
             @state) -- State (0~255).
   rollback transaction
END
GO
ALTER TABLE [Production].[Category] ADD CONSTRAINT [PK Categories] PRIMARY KEY
CLUSTERED ([CategoryId]) ON [PRIMARY]
```

Uses

[Udt].[CategoryName]

[Udt].[Description]

[Udt].[SurrogateKeyInt]

Production

Used By

[Production].[Product]

[JsonOutput].[uvw MongoDBOrderdetail]

[JsonOutput].[uvw_ProductionCategory]

[JsonOutput].[uvw_ProductionProduct]

[JsonOutput].[MongoOrderDetail]

■ [Production].[Product]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1_CI_AS
Row Count (~)	77
Created	2:46:42 PM Saturday, October 15, 2022
Last Modified	6:57:35 PM Saturday, October 29, 2022

Columns

Key	Name	Data Type	Max Length (Bytes)	Nullability	Identity	Default
PKP C	ProductId	[Udt].[SurrogateKeyInt]	4	NOT NULL	1 - 1	
	ProductName	[Udt].[ProductName]	80	NOT NULL		
FK	SupplierId	[Udt].[SurrogateKeyInt]	4	NOT NULL		
FK	Categoryld	[Udt].[SurrogateKeyInt]	4	NOT NULL		
	UnitPrice	[Udt].[Currency]	8	NOT NULL		((0))
	Discontinued	[Udt].[FlagBit]	1	NOT NULL		((0))

Indexes

Key	Name	Key Columns	Unique
PK C	PK_Products	ProductId	True

Triggers

Name	ANSI Nulls On	Quoted Identifier On	On
tD_Product	True	True	After Delete
tU_Product	True	True	After Update

Check Constraints

Name	On Column	Constraint
CHK_Products_unitprice	UnitPrice	([unitprice]>=(0))

Foreign Keys

Name	Columns
FK_Product_Category	CategoryId->[Production].[Category].[CategoryId]
FK_product_supplier	SupplierId->[Production].[Supplier].[SupplierId]

SQL Script

```
CREATE TABLE [Production].[Product]
[ProductId] [Udt].[SurrogateKeyInt] NOT NULL IDENTITY(1, 1),
[ProductName] [Udt].[ProductName] NOT NULL,
[SupplierId] [Udt].[SurrogateKeyInt] NOT NULL,
[CategoryId] [Udt].[SurrogateKeyInt] NOT NULL,
[UnitPrice] [Udt].[Currency] NOT NULL CONSTRAINT [DFT Products unitprice] DEFAULT
((0)),
[Discontinued] [Udt].[FlagBit] NOT NULL CONSTRAINT [DFT Products discontinued] DEFAULT
((0))
) ON [PRIMARY]
GO
CREATE TRIGGER [Production].[tD Product] ON [Production].[Product] FOR DELETE AS
/* erwin Builtin Trigger */
/* DELETE trigger on Product */
BEGIN
 DECLARE @errno int,
          @severity int,
          Ostate int,
           @errmsg varchar(255)
   /* erwin Builtin Trigger */
   /* Production.Product Sales.OrderDetail on parent delete no action */
   /* ERWIN RELATION: CHECKSUM="00040d95", PARENT OWNER="Production", PARENT -
TABLE="Product"
   CHILD OWNER="Sales", CHILD TABLE="OrderDetail"
   P2C VERB PHRASE="", C2P VERB PHRASE="",
   FK CONSTRAINT="FK OrderDetail Product", FK COLUMNS="ProductId" */
   IF EXISTS (
     SELECT * FROM deleted, Sales.OrderDetail
     WHERE
       /* %JoinFKPK(Sales.OrderDetail, deleted, " = "," AND") */
       Sales.OrderDetail.ProductId = deleted.ProductId
   )
   BEGIN
     SELECT @errno = 30001,
            @errmsg = 'Cannot delete Production.Product because Sales.OrderDetail
exists.'
    GOTO error
   END
   /* erwin Builtin Trigger */
   /* Production.Supplier Production.Product on child delete no action */
   /* ERWIN RELATION: CHECKSUM="00000000", PARENT OWNER="Production", PARENT -
TABLE="Supplier"
```

```
CHILD OWNER="Production", CHILD TABLE="Product"
   P2C VERB PHRASE="", C2P VERB PHRASE="",
   FK CONSTRAINT="FK product supplier", FK COLUMNS="SupplierId" */
   IF EXISTS (SELECT * FROM deleted, Production.Supplier
        /* %JoinFKPK(deleted, Production. Supplier, " = ", " AND") */
       deleted.SupplierId = Production.Supplier.SupplierId AND
       NOT EXISTS (
         SELECT * FROM Production.Product
            /* %JoinFKPK(Production.Product, Production.Supplier," = "," AND") */
           Production.Product.SupplierId = Production.Supplier.SupplierId
   )
   BEGIN
     SELECT @errno = 30010,
            @errmsg = 'Cannot delete last Production.Product because
Production.Supplier exists.'
    GOTO error
   END
   /* erwin Builtin Trigger */
   /* Production.Category Production.Product on child delete no action */
    /* ERWIN RELATION:CHECKSUM="00000000", PARENT OWNER="Production", PARENT -
TABLE="Category"
   CHILD OWNER="Production", CHILD TABLE="Product"
   P2C VERB PHRASE="", C2P VERB PHRASE="",
   FK CONSTRAINT="FK Product Category", FK COLUMNS="CategoryId" */
   IF EXISTS (SELECT * FROM deleted, Production.Category
        /* %JoinFKPK(deleted, Production. Category, " = ", " AND") */
       deleted.CategoryId = Production.Category.CategoryId AND
       NOT EXISTS (
         SELECT * FROM Production.Product
            /* %JoinFKPK(Production.Product, Production.Category," = "," AND") */
           Production.Product.CategoryId = Production.Category.CategoryId
   )
   BEGIN
     SELECT @errno = 30010,
            @errmsg = 'Cannot delete last Production.Product because
Production.Category exists.'
    GOTO error
   END
   /* erwin Builtin Trigger */
   RETURN
error:
  RAISERROR (@errmsg, -- Message text.
             @severity, -- Severity (0~25).
             (0\sim255).
   rollback transaction
```

```
END
CREATE TRIGGER [Production].[tU Product] ON [Production].[Product] FOR UPDATE AS
/* erwin Builtin Trigger */
/* UPDATE trigger on Product */
BEGIN
 DECLARE @numrows int,
          @nullcnt int,
          @validcnt int,
          @insProductId Udt.SurrogateKeyInt,
          @errno int,
          @severity int,
           @state int,
          @errmsg varchar(255)
 SELECT @numrows = @@rowcount
  /* erwin Builtin Trigger */
  /* Production.Product Sales.OrderDetail on parent update no action */
  /* ERWIN RELATION: CHECKSUM="000450c5", PARENT OWNER="Production", PARENT -
TABLE="Product"
   CHILD OWNER="Sales", CHILD TABLE="OrderDetail"
   P2C VERB PHRASE="", C2P VERB PHRASE="",
   FK CONSTRAINT="FK OrderDetail Product", FK COLUMNS="ProductId" */
   /* %ParentPK(" OR",UPDATE) */
   UPDATE (ProductId)
 BEGIN
   IF EXISTS (
     SELECT * FROM deleted, Sales.OrderDetail
     WHERE
      /* %JoinFKPK(Sales.OrderDetail, deleted, " = "," AND") */
       Sales.OrderDetail.ProductId = deleted.ProductId
   BEGIN
    SELECT @errno = 30005,
            @errmsg = 'Cannot update Production.Product because Sales.OrderDetail
exists.'
     GOTO error
   END
 /* erwin Builtin Trigger */
 /* Production.Supplier Production.Product on child update no action */
  /* ERWIN RELATION: CHECKSUM="00000000", PARENT OWNER="Production", PARENT -
TABLE="Supplier"
   CHILD_OWNER="Production", CHILD_TABLE="Product"
   P2C VERB PHRASE="", C2P VERB PHRASE="",
   FK CONSTRAINT="FK product supplier", FK COLUMNS="SupplierId" */
   /* %ChildFK(" OR",UPDATE) */
   UPDATE (SupplierId)
 BEGIN
   SELECT @nullcnt = 0
   SELECT @validcnt = count(*)
```

```
FROM inserted, Production. Supplier
       WHERE
         /* %JoinFKPK(inserted, Production.Supplier) */
         inserted.SupplierId = Production.Supplier.SupplierId
   /* %NotnullFK(inserted," IS NULL", "select @nullcnt = count(*) from inserted
where", " AND") */
   IF @validcnt + @nullcnt != @numrows
   BEGIN
     SELECT @errno = 30007,
            @errmsq = 'Cannot update Production.Product because Production.Supplier
does not exist.'
    GOTO error
   END
 END
  /* erwin Builtin Trigger */
 /* Production.Category Production.Product on child update no action */
  /* ERWIN RELATION: CHECKSUM="00000000", PARENT OWNER="Production", PARENT -
TABLE="Category"
   CHILD OWNER="Production", CHILD TABLE="Product"
   P2C VERB PHRASE="", C2P VERB PHRASE="",
   FK CONSTRAINT="FK Product Category", FK COLUMNS="CategoryId" */
 ΙF
   /* %ChildFK(" OR", UPDATE) */
   UPDATE (CategoryId)
 BEGIN
   SELECT @nullcnt = 0
   SELECT @validcnt = count(*)
     FROM inserted, Production. Category
       WHERE
         /* %JoinFKPK(inserted, Production.Category) */
         inserted.CategoryId = Production.Category.CategoryId
   /* %NotnullFK(inserted," IS NULL", "select @nullcnt = count(*) from inserted
where"," AND") */
   IF @validcnt + @nullcnt != @numrows
   BEGIN
     SELECT @errno = 30007,
            @errmsg = 'Cannot update Production.Product because Production.Category
does not exist.'
    GOTO error
   END
 END
 /* erwin Builtin Trigger */
 RETURN
error:
  RAISERROR (@errmsg, -- Message text.
             @severity, -- Severity (0~25).
             @state) -- State (0~255).
   rollback transaction
END
```

```
ALTER TABLE [Production].[Product] ADD CONSTRAINT [CHK_Products_unitprice] CHECK
(([unitprice]>=(0)))

GO

ALTER TABLE [Production].[Product] ADD CONSTRAINT [PK_Products] PRIMARY KEY CLUSTERED
(([ProductId]) ON [PRIMARY]

GO

ALTER TABLE [Production].[Product] ADD CONSTRAINT [FK_Product_Category] FOREIGN KEY
([CategoryId]) REFERENCES [Production].[Category] ([CategoryId])

GO

ALTER TABLE [Production].[Product] ADD CONSTRAINT [FK_product_supplier] FOREIGN KEY
([SupplierId]) REFERENCES [Production].[Supplier] ([SupplierId])

GO
```

Uses

[Production].[Category]

[Production].[Supplier]

[Udt].[Currency]

[Udt].[FlagBit]

[Udt].[ProductName]

[Udt].[SurrogateKeyInt]

Production

Used By

[Sales].[OrderDetail]
[JsonOutput].[uvw_MongoDBOrderdetail]
[JsonOutput].[uvw_ProductionProduct]
[JsonOutput].[MongoOrderDetail]

I [Production].[Supplier]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1_CI_AS
Row Count (~)	29
Created	2:46:42 PM Saturday, October 15, 2022
Last Modified	6:57:35 PM Saturday, October 29, 2022

Columns

Key	Name	Data Type	Max Length (Bytes)	Nullability	Identity
PK	SupplierId	[Udt].[SurrogateKeyInt]	4	NOT NULL	1 - 1
	SupplierCompanyName	[Udt].[CompanyName]	80	NOT NULL	
	SupplierContactName	[Udt].[ContactName]	60	NOT NULL	
	SupplierContactTitle	[Udt].[ContactTitle]	60	NOT NULL	
	SupplierAddress	[Udt].[Address]	120	NOT NULL	
	SupplierCity	[Udt].[City]	30	NOT NULL	
	SupplierRegion	[Udt].[Region]	30	NULL allowed	
	SupplierPostalCode	[Udt].[PostalCode]	20	NULL allowed	
	SupplierCountry	[Udt].[Country]	30	NOT NULL	
	SupplierPhoneNumber	[Udt].[TelephoneNumber]	48	NOT NULL	
	SupplierFaxNumber	[Udt].[TelephoneNumber]	48	NULL allowed	

Indexes

Key	Name	Key Columns	Unique
PKP C	PK_Suppliers	SupplierId	True

Triggers

Name	ANSI Nulls On	Quoted Identifier On	On
tD_Supplier	True	True	After Delete
tU_Supplier	True	True	After Update

SQL Script

```
CREATE TABLE [Production].[Supplier]
[SupplierId] [Udt].[SurrogateKeyInt] NOT NULL IDENTITY(1, 1),
[SupplierCompanyName] [Udt].[CompanyName] NOT NULL,
[SupplierContactName] [Udt].[ContactName] NOT NULL,
[SupplierContactTitle] [Udt].[ContactTitle] NOT NULL,
[SupplierAddress] [Udt].[Address] NOT NULL,
[SupplierCity] [Udt].[City] NOT NULL,
[SupplierRegion] [Udt].[Region] NULL,
[SupplierPostalCode] [Udt].[PostalCode] NULL,
[SupplierCountry] [Udt].[Country] NOT NULL,
[SupplierPhoneNumber] [Udt].[TelephoneNumber] NOT NULL,
[SupplierFaxNumber] [Udt].[TelephoneNumber] NULL
ON [PRIMARY]
CREATE TRIGGER [Production].[tD Supplier] ON [Production].[Supplier] FOR DELETE AS
/* erwin Builtin Trigger */
/* DELETE trigger on Supplier */
BEGIN
 DECLARE @errno int,
          @severity int,
          @state int,
           @errmsg varchar(255)
   /* erwin Builtin Trigger */
   /* Production.Supplier Production.Product on parent delete no action */
   /* ERWIN RELATION: CHECKSUM="000136d7", PARENT OWNER="Production", PARENT -
TABLE="Supplier"
   CHILD OWNER="Production", CHILD TABLE="Product"
   P2C VERB PHRASE="", C2P VERB PHRASE="",
   FK CONSTRAINT="FK product supplier", FK COLUMNS="SupplierId" */
   IF EXISTS (
     SELECT * FROM deleted, Production.Product
     WHERE
       /* %JoinFKPK(Production.Product, deleted, " = ", " AND") */
       Production.Product.SupplierId = deleted.SupplierId
   BEGIN
     SELECT @errno = 30001,
            @errmsg = 'Cannot delete Production.Supplier because Production.Product
exists.'
    GOTO error
   END
   /* erwin Builtin Trigger */
   RETURN
error:
  RAISERROR (@errmsg, -- Message text.
             @severity, -- Severity (0~25).
             @state) -- State (0~255).
   rollback transaction
```

```
END
CREATE TRIGGER [Production].[tU Supplier] ON [Production].[Supplier] FOR UPDATE AS
/* erwin Builtin Trigger */
/* UPDATE trigger on Supplier */
BEGIN
 DECLARE @numrows int,
          @nullcnt int,
          @validcnt int,
          @insSupplierId Udt.SurrogateKeyInt,
          @errno int,
          @severity int,
           @state
          @errmsg varchar(255)
 SELECT @numrows = @@rowcount
  /* erwin Builtin Trigger */
  /* Production.Supplier Production.Product on parent update no action */
  /* ERWIN RELATION: CHECKSUM="00014e39", PARENT OWNER="Production", PARENT -
TABLE="Supplier"
   CHILD OWNER="Production", CHILD TABLE="Product"
   P2C VERB PHRASE="", C2P VERB PHRASE="",
   FK CONSTRAINT="FK product supplier", FK COLUMNS="SupplierId" */
   /* %ParentPK(" OR",UPDATE) */
   UPDATE(SupplierId)
 BEGIN
   IF EXISTS (
     SELECT * FROM deleted, Production.Product
     WHERE
       /* %JoinFKPK(Production.Product, deleted, " = ", " AND") */
       Production.Product.SupplierId = deleted.SupplierId
   BEGIN
     SELECT @errno = 30005,
            @errmsg = 'Cannot update Production.Supplier because Production.Product
exists.'
     GOTO error
   END
 END
 /* erwin Builtin Trigger */
 RETURN
error:
  RAISERROR (@errmsg, -- Message text.
             @severity, -- Severity (0~25).
             @state) -- State (0~255).
   rollback transaction
END
ALTER TABLE [Production].[Supplier] ADD CONSTRAINT [PK Suppliers] PRIMARY KEY CLUSTERED
([SupplierId]) ON [PRIMARY]
```

Uses

[Udt].[Address]

[Udt].[City]

[Udt].[CompanyName]

[Udt].[ContactName]

[Udt].[ContactTitle]

[Udt].[Country]

[Udt].[PostalCode]

[Udt].[Region]

[Udt].[SurrogateKeyInt]

[Udt].[TelephoneNumber]

Production

Used By

[Production].[Product]

[JsonOutput].[uvw_MongoDBOrderdetail]

[JsonOutput].[uvw_ProductionProduct]

[JsonOutput].[uvw_ProductionSupplier]

[JsonOutput].[MongoOrderDetail]

I [Sales].[Customer]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1_CI_AS
Row Count (~)	91
Created	2:46:42 PM Saturday, October 15, 2022
Last Modified	2:53:02 PM Saturday, October 15, 2022

Columns

Key	Name	Data Type	Max Length (Bytes)	Nullability	Identity
PK G	CustomerId	[Udt].[SurrogateKeyInt]	4	NOT NULL	1 - 1
	CustomerCompanyName	[Udt].[CompanyName]	80	NOT NULL	
	CustomerContactName	[Udt].[ContactName]	60	NOT NULL	
	CustomerContactTitle	[Udt].[Title]	60	NOT NULL	
	CustomerAddress	[Udt].[Address]	120	NOT NULL	
	CustomerCity	[Udt].[City]	30	NOT NULL	
	CustomerRegion	[Udt].[Region]	30	NULL allowed	
	CustomerPostalCode	[Udt].[PostalCode]	20	NULL allowed	
	CustomerCountry	[Udt].[Country]	30	NOT NULL	
	CustomerPhoneNumber	[Udt].[TelephoneNumber]	48	NOT NULL	
	CustomerFaxNumber	[Udt].[TelephoneNumber]	48	NULL allowed	

Indexes

Key	Name	Key Columns	Unique
PKC	PK_Customers	CustomerId	True

SQL Script

```
CREATE TABLE [Sales].[Customer]

(
[CustomerId] [Udt].[SurrogateKeyInt] NOT NULL IDENTITY(1, 1),

[CustomerCompanyName] [Udt].[CompanyName] NOT NULL,

[CustomerContactName] [Udt].[ContactName] NOT NULL,
```

```
[CustomerContactTitle] [Udt].[Title] NOT NULL,

[CustomerAddress] [Udt].[Address] NOT NULL,

[CustomerCity] [Udt].[City] NOT NULL,

[CustomerRegion] [Udt].[Region] NULL,

[CustomerPostalCode] [Udt].[PostalCode] NULL,

[CustomerCountry] [Udt].[Country] NOT NULL,

[CustomerPhoneNumber] [Udt].[TelephoneNumber] NOT NULL,

[CustomerFaxNumber] [Udt].[TelephoneNumber] NULL

) ON [PRIMARY]

GO

ALTER TABLE [Sales].[Customer] ADD CONSTRAINT [PK_Customers] PRIMARY KEY CLUSTERED

([CustomerId]) ON [PRIMARY]

GO
```

Uses

[Udt].[Address]

[Udt].[City]

[Udt].[CompanyName]

[Udt].[ContactName]

[Udt].[Country]

[Udt].[PostalCode]

[Udt].[Region]

[Udt].[SurrogateKeyInt]

[Udt].[TelephoneNumber]

[Udt].[Title]

Sales

Used By

[Sales].[Order]
[JsonOutput].[uvw_MongoDBOrder]
[JsonOutput].[uvw_SalesCustomer]
[JsonOutput].[MongoOrder]

Image: Sales in Sales in

Properties

Property	Value
Collation	SQL_Latin1_General_CP1_CI_AS
Row Count (~)	830
Created	2:46:42 PM Saturday, October 15, 2022
Last Modified	6:57:35 PM Saturday, October 29, 2022

Columns

Key	Name	Data Type	Max Length (Bytes)	Nullability	Identity	Default
PK	Orderld	[Udt].[SurrogateKeyInt]	4	NOT NULL	1 - 1	
FK	CustomerId	[Udt].[SurrogateKeyInt]	4	NULL allowed		
FK	Employeeld	[Udt].[SurrogateKeyInt]	4	NOT NULL		
FK	ShipperId	[Udt].[SurrogateKeyInt]	4	NOT NULL		
	OrderDate	[Udt].[DateYYYYMMDD]	3	NOT NULL		
	RequiredDate	[Udt].[DateYYYYMMDD]	3	NOT NULL		
	ShipToDate	[Udt].[DateYYYYMMDD]	3	NULL allowed		
	Freight	[Udt].[Currency]	8	NOT NULL		((0))
	ShipToName	[Udt].[ContactName]	60	NOT NULL		
	ShipToAddress	[Udt].[Address]	120	NOT NULL		
	ShipToCity	[Udt].[City]	30	NOT NULL		
	ShipToRegion	[Udt].[Region]	30	NULL allowed		
	ShipToPostalCode	[Udt].[PostalCode]	20	NULL allowed		
	ShipToCountry	[Udt].[Country]	30	NOT NULL		
	UserAuthenticationId	int	4	NULL allowed		
	DateAdded	datetime2	8	NULL allowed		
	DateOfLastUpdate	datetime2	8	NULL allowed		

Indexes

Key	Name	Key Columns	Unique
PK G	PK_Orders	Orderld	True

Foreign Keys

Name	Columns
FK_Order_Customer1	CustomerId->[Sales].[Customer].[CustomerId]
FK_Order_Employee	Employeeld->[HumanResources].[Employee].[Employeeld]
FK_Order_Shipper	ShipperId->[Sales].[Shipper].[ShipperId]

SQL Script

```
CREATE TABLE [Sales].[Order]
[OrderId] [Udt].[SurrogateKeyInt] NOT NULL IDENTITY(1, 1),
[CustomerId] [Udt].[SurrogateKeyInt] NULL,
[EmployeeId] [Udt].[SurrogateKeyInt] NOT NULL,
[ShipperId] [Udt].[SurrogateKeyInt] NOT NULL,
[OrderDate] [Udt].[DateYYYYMMDD] NOT NULL,
[RequiredDate] [Udt].[DateYYYYMMDD] NOT NULL,
[ShipToDate] [Udt].[DateYYYYMMDD] NULL,
[Freight] [Udt].[Currency] NOT NULL CONSTRAINT [DFT Orders freight] DEFAULT ((0)),
[ShipToName] [Udt].[ContactName] NOT NULL,
[ShipToAddress] [Udt].[Address] NOT NULL,
[ShipToCity] [Udt].[City] NOT NULL,
[ShipToRegion] [Udt].[Region] NULL,
[ShipToPostalCode] [Udt].[PostalCode] NULL,
[ShipToCountry] [Udt].[Country] NOT NULL,
[UserAuthenticationId] [int] NULL,
[DateAdded] [datetime2] NULL,
[DateOfLastUpdate] [datetime2] NULL
) ON [PRIMARY]
ALTER TABLE [Sales].[Order] ADD CONSTRAINT [PK Orders] PRIMARY KEY CLUSTERED ([Order-
Id]) ON [PRIMARY]
ALTER TABLE [Sales].[Order] ADD CONSTRAINT [FK Order Customer1] FOREIGN KEY ([Customer-
Id]) REFERENCES [Sales].[Customer] ([CustomerId])
ALTER TABLE [Sales].[Order] ADD CONSTRAINT [FK Order Employee] FOREIGN KEY ([Employee-
Id]) REFERENCES [HumanResources].[Employee] ([EmployeeId])
ALTER TABLE [Sales].[Order] ADD CONSTRAINT [FK Order Shipper] FOREIGN KEY ([ShipperId])
REFERENCES [Sales].[Shipper] ([ShipperId])
GO
```

Uses

[HumanResources].[Employee]

[Sales].[Customer]

[Sales].[Shipper]

[Udt].[Address]

[Udt].[City]

[Udt].[ContactName]

[Udt].[Country]

[Udt].[Currency]

[Udt].[DateYYYYMMDD]

[Udt].[PostalCode]

[Udt].[Region]

[Udt].[SurrogateKeyInt]

Sales

Used By

[Sales].[OrderDetail]

[JsonOutput].[uvw_MongoDBOrder]

[JsonOutput].[uvw_Order]

[Sales].[usp_getorders]

[JsonOutput].[MongoOrder]

■ [Sales].[OrderDetail]

Properties

Property	Value
Row Count (~)	2155
Created	2:46:42 PM Saturday, October 15, 2022
Last Modified	6:57:35 PM Saturday, October 29, 2022

Columns

Key	Name	Data Type	Max Length (Bytes)	Nullability	Default
PKO FKO	Orderld	[Udt].[SurrogateKeyInt]	4	NOT NULL	
PKO FKO	ProductId	[Udt].[SurrogateKeyInt]	4	NOT NULL	
	UnitPrice	[Udt].[Currency]	8	NOT NULL	((0))
	Quantity	[Udt].[QuantitySmall]	2	NOT NULL	((1))
	DiscountPercentage	[Udt].[Percentage]	5	NOT NULL	((0))

Indexes

Key	Name	Key Columns	Unique
PK	PK_OrderDetails	Orderld, ProductId	True

Check Constraints

Name	On Column	Constraint
CHK_DiscountPercentage	DiscountPercentage	([DiscountPercentage]>=(0) AND [Discount- Percentage]<=(1))
CHK_Quantity	Quantity	([Quantity]>(0))

Foreign Keys

Name	Columns
FK_OrderDetail_Order	Orderld->[Sales].[Order].[Orderld]
FK_OrderDetail_Product	ProductId->[Production].[Product].[ProductId]

SQL Script

```
CREATE TABLE [Sales].[OrderDetail]
[OrderId] [Udt].[SurrogateKeyInt] NOT NULL,
[ProductId] [Udt].[SurrogateKeyInt] NOT NULL,
[UnitPrice] [Udt].[Currency] NOT NULL CONSTRAINT [DFT_OrderDetails_UnitPrice] DEFAULT
((0)),
[Quantity] [Udt].[QuantitySmall] NOT NULL CONSTRAINT [DFT_OrderDetails_Quantity]
DEFAULT ((1)),
[DiscountPercentage] [Udt].[Percentage] NOT NULL CONSTRAINT [DFT OrderDetails Discount-
Percentage] DEFAULT ((0))
) ON [PRIMARY]
ALTER TABLE [Sales].[OrderDetail] ADD CONSTRAINT [CHK DiscountPercentage] CHECK
(([DiscountPercentage]>=(0) AND [DiscountPercentage]<=(1)))
GO
ALTER TABLE [Sales].[OrderDetail] ADD CONSTRAINT [CHK Quantity] CHECK
(([Quantity]>(0)))
ALTER TABLE [Sales].[OrderDetail] ADD CONSTRAINT [PK OrderDetails] PRIMARY KEY
CLUSTERED ([OrderId], [ProductId]) ON [PRIMARY]
ALTER TABLE [Sales].[OrderDetail] ADD CONSTRAINT [FK OrderDetail Order] FOREIGN KEY
([OrderId]) REFERENCES [Sales].[Order] ([OrderId])
ALTER TABLE [Sales].[OrderDetail] ADD CONSTRAINT [FK OrderDetail Product] FOREIGN KEY
([ProductId]) REFERENCES [Production].[Product] ([ProductId])
```

Uses

[Production].[Product]

[Sales].[Order]

[Udt].[Currency]

[Udt].[Percentage]

[Udt].[QuantitySmall]

[Udt].[SurrogateKeyInt]

Sales

Used By

[JsonOutput].[uvw_MongoDBOrderdetail] [JsonOutput].[uvw_OrderDetail] [JsonOutput].[MongoOrderDetail]

I [Sales].[Shipper]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1_CI_AS
Row Count (~)	3
Created	2:46:42 PM Saturday, October 15, 2022
Last Modified	6:57:35 PM Saturday, October 29, 2022

Columns

Key	Name	Data Type	Max Length (Bytes)	Nullability	Identity
PK	ShipperId	[Udt].[SurrogateKeyInt]	4	NOT NULL	1 - 1
	ShipperCompanyName	[Udt].[CompanyName]	80	NOT NULL	
	PhoneNumber	[Udt].[TelephoneNumber]	48	NOT NULL	

Indexes

Key	Name	Key Columns	Unique
PK2 C	PK_Shippers	ShipperId	True

SQL Script

```
CREATE TABLE [Sales].[Shipper]

(
[ShipperId] [Udt].[SurrogateKeyInt] NOT NULL IDENTITY(1, 1),

[ShipperCompanyName] [Udt].[CompanyName] NOT NULL,

[PhoneNumber] [Udt].[TelephoneNumber] NOT NULL

) ON [PRIMARY]

GO

ALTER TABLE [Sales].[Shipper] ADD CONSTRAINT [PK_Shippers] PRIMARY KEY CLUSTERED

([ShipperId]) ON [PRIMARY]

GO
```

Uses

[Udt].[CompanyName]

[Udt].[SurrogateKeyInt]

[Udt].[TelephoneNumber]

Sales

Used By

[Sales].[Order]
[JsonOutput].[uvw_MongoDBOrder]
[JsonOutput].[uvw_SalesShipper]
[JsonOutput].[MongoOrder]

☐ [SystemVersioned].[Employee]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1_CI_AS
Неар	True
Row Count (~)	0
Created	3:21:10 PM Saturday, October 15, 2022
Last Modified	3:21:10 PM Saturday, October 15, 2022
System Versioned	True
Remote Data Archive	Disabled
History Table	[Audit].[VersionedEmployeeHistory]
History Table Row Count (~)	0
History Table Created	2:46:42 PM Saturday, October 15, 2022
History Table Last Modified	3:21:10 PM Saturday, October 15, 2022

Columns

Key	Name	Data Type	Max Length (Bytes)	Nullability
PK	Employeeld	int	4	NOT NULL
	EmployeeFullName	varchar(25)	25	NOT NULL
	Department	varchar(50)	50	NOT NULL
	Salary	money	8	NOT NULL
	Notes	varchar(60)	60	NOT NULL

Indexes

Key	Name	Key Columns	Unique
PK	PK_EmployeeVersioned	Employeeld	True

```
CREATE TABLE [Audit].[VersionedEmployeeHistory]

(
[EmployeeId] [int] NOT NULL,

[EmployeeFullName] [varchar] (25) COLLATE SQL_Latin1_General_CP1_CI_AS NOT NULL,

[Department] [varchar] (50) COLLATE SQL_Latin1_General_CP1_CI_AS NOT NULL,

[Salary] [money] NOT NULL,

[Notes] [varchar] (60) COLLATE SQL_Latin1_General_CP1_CI_AS NOT NULL,
```

Project > 127.0.0.1,13001 > User databases > MidtermDataModelingCSCl381 > Tables > System-Versioned.Employee

```
[SysStart] [datetime2] (0) NOT NULL,
[SysEnd] [datetime2] (0) NOT NULL
) ON [PRIMARY]
CREATE CLUSTERED INDEX [ix VersionedEmployeeHistory] ON [Audit].[VersionedEmployee-
History] ([SysEnd], [SysStart]) ON [PRIMARY]
CREATE TABLE [SystemVersioned].[Employee]
[EmployeeId] [int] NOT NULL,
[EmployeeFullName] [varchar] (25) COLLATE SQL Latin1 General CP1 CI AS NOT NULL,
[Department] [varchar] (50) COLLATE SQL Latin1 General CP1 CI AS NOT NULL,
[Salary] [money] NOT NULL,
[Notes] [varchar] (60) COLLATE SQL Latin1 General CP1 CI AS NOT NULL,
[SysStart] [datetime2] (0) GENERATED ALWAYS AS ROW START HIDDEN NOT NULL CONSTRAINT
[DFT Employees SysStart] DEFAULT ('19000101'),
[SysEnd] [datetime2] (0) GENERATED ALWAYS AS ROW END HIDDEN NOT NULL CONSTRAINT [DFT -
Employees SysEnd] DEFAULT ('99991231 23:59:59'),
PERIOD FOR SYSTEM_TIME (SysStart, SysEnd),
CONSTRAINT [PK EmployeeVersioned] PRIMARY KEY NONCLUSTERED ([EmployeeId]) ON [PRIMARY]
) ON [PRIMARY]
WITH
SYSTEM VERSIONING = ON (HISTORY TABLE = [Audit].[VersionedEmployeeHistory])
)
GO
```

Uses

SystemVersioned

[Triggered].[AuditTriggeredEmployeeHistory]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1_CI_AS
Row Count (~)	12
Created	3:36:41 PM Saturday, October 15, 2022
Last Modified	3:36:41 PM Saturday, October 15, 2022

Columns

Key	Name	Data Type	Max Length (Bytes)	Nullabil ity	Identity	Default
P / P	TriggeredEmployeeHistoryId	[Udt].[SurrogateKeyInt]	4	NOT NULL	1 - 1	
	AuditTriggeredEmployeeHistory- Timestamp	[Udt].[TimeStampNow]	8	NULL allowed		(sysdat etime())
	TriggerOption	[Udt].[TriggerOption]	1	NULL allowed		('U')
/	Employeeld	[Udt].[SurrogateKeyInt]	4	NOT NULL		
	EmployeeFullName	[Udt].[Name]	80	NOT NULL		
	Department	[Udt].[Name]	80	NOT NULL		
	Salary	[Udt].[Currency]	8	NOT NULL		
	Notes	[Udt].[Note]	400	NOT NULL		
	IsDeleted	[Udt].[FlagChar]	1	NULL allowed		('N')
	TransactionNumber	[Udt].[SequenceNo]	4	NULL allowed		((1))
	UserAuthenticatedKey	[Udt].[SurrogateKeyInt]	4	NULL allowed		((37))
/	SysStartTime	[Udt].[TimeStampNow]	8	NULL allowed		(sysdat etime())
<i>P</i>	SysEndTime	[Udt].[TimeStampNow]	8	NULL allowed		('99991 231 23:59:5 9')
	TimestampRowChanged	[Udt].[TimeStampNow]	8	NULL allowed		(sysdat etime())

Indexes

Key	Name	Key Columns	Unique
PK	PK_TriggeredEmployeeHistoryId	TriggeredEmployeeHistoryId	True
<i>></i>	ix_Employees	Employeeld, SysStartTime, Sys- EndTime, TriggeredEmployee- HistoryId	True

SQL Script

```
CREATE TABLE [Triggered].[AuditTriggeredEmployeeHistory]
[TriggeredEmployeeHistoryId] [Udt].[SurrogateKeyInt] NOT NULL IDENTITY(1, 1),
[AuditTriggeredEmployeeHistoryTimestamp] [Udt].[TimeStampNow] NULL CONSTRAINT [DF -
AuditTrig Audit 6383C8BA] DEFAULT (sysdatetime()),
[TriggerOption] [Udt].[TriggerOption] NULL CONSTRAINT [DF_AuditTrig_Trigg_6477ECF3]
DEFAULT ('U'),
[EmployeeId] [Udt].[SurrogateKeyInt] NOT NULL,
[EmployeeFullName] [Udt].[Name] NOT NULL,
[Department] [Udt].[Name] NOT NULL,
[Salary] [Udt]. [Currency] NOT NULL,
[Notes] [Udt].[Note] NOT NULL,
[IsDeleted] [Udt].[FlagChar] NULL CONSTRAINT [DF AuditTrig IsDel 656C112C] DEFAULT
[TransactionNumber] [Udt].[SequenceNo] NULL CONSTRAINT [DF AuditTrig Trans 66603565]
DEFAULT ((1)),
[UserAuthenticatedKey] [Udt].[SurrogateKeyInt] NULL CONSTRAINT [DF AuditTrig User-
A 6754599E] DEFAULT ((37)),
[SysStartTime] [Udt].[TimeStampNow] NULL CONSTRAINT [DF AuditTrig SysSt 68487DD7]
DEFAULT (sysdatetime()),
[SysEndTime] [Udt].[TimeStampNow] NULL CONSTRAINT [DF AuditTrig SysEn 693CA210]
DEFAULT ('99991231 23:59:59'),
[TimestampRowChanged] [Udt].[TimeStampNow] NULL CONSTRAINT [DF AuditTrig -
Times 6A30C649] DEFAULT (sysdatetime())
) ON [PRIMARY]
ALTER TABLE [Triggered].[AuditTriggeredEmployeeHistory] ADD CONSTRAINT [PK Triggered-
EmployeeHistoryId] PRIMARY KEY NONCLUSTERED ([TriggeredEmployeeHistoryId]) ON
[PRIMARY]
CREATE UNIQUE CLUSTERED INDEX [ix Employees] ON [Triggered].[AuditTriggeredEmployee-
History] ([EmployeeId], [SysStartTime], [SysEndTime], [TriggeredEmployeeHistoryId]) ON
[PRIMARY]
```

Uses

[Udt].[Currency] [Udt].[FlagChar]

[Udt].[Name]

[Udt].[Note]

[Udt].[SequenceNo]

 $\label{local_project} Project > 127.0.0.1,13001 > User \ databases > MidtermDataModelingCSCl381 > Tables > Triggered. AuditTriggered-EmployeeHistory$

[Udt].[SurrogateKeyInt] [Udt].[TimeStampNow] [Udt].[TriggerOption] Triggered

Used By

[Triggered].[utvf_EmployeeCurrentAndHistory]
[Triggered].[utvf_EmployeeCurrentAndHistoryCTE]

III [Triggered].[Employee]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1_CI_AS
Row Count (~)	5
Created	3:39:04 PM Saturday, October 15, 2022
Last Modified	3:39:04 PM Saturday, October 15, 2022

Columns

Key	Name	Data Type	Max Length (Bytes)	Nullability	Default
P 199	Employeeld	[Udt].[SurrogateKeyInt]	4	NOT NULL	
	EmployeeFullName	[Udt].[Name]	80	NOT NULL	
	Department	[Udt].[Name]	80	NOT NULL	
	Salary	[Udt].[Currency]	8	NOT NULL	
	Notes	[Udt].[Note]	400	NOT NULL	
	IsDeleted	[Udt].[FlagChar]	1	NULL allowed	('N')
	TransactionNumber	[Udt].[SequenceNo]	4	NULL allowed	((1))
	UserAuthenticatedKey	[Udt].[SurrogateKeyInt]	4	NULL allowed	((37))
/	SysStartTime	[Udt].[TimeStampNow]	8	NULL allowed	(sysdatetime()
/	SysEndTime	[Udt].[TimeStampNow]	8	NULL allowed	('99991231 23:59:59')
	TimestampRowChanged	[Udt].[TimeStampNow]	8	NULL allowed	(sysdatetime()

Indexes

Key	Name	Key Columns	Unique
PK	PK_TriggeredEmployee	Employeeld	True
/	ix_Employees	Employeeld, SysStartTime, SysEnd-Time	

Triggers

Name	ANSI Nulls On	Quoted Identifier On	On
uTdu_AuditTriggeredEmployeeHistory	True	True	After Delete Update

```
CREATE TABLE [Triggered].[Employee]
[EmployeeId] [Udt].[SurrogateKeyInt] NOT NULL,
[EmployeeFullName] [Udt].[Name] NOT NULL,
[Department] [Udt].[Name] NOT NULL,
[Salary] [Udt].[Currency] NOT NULL,
[Notes] [Udt].[Note] NOT NULL,
[IsDeleted] [Udt].[FlagChar] NULL CONSTRAINT [DF Employee IsDele 6B24EA82] DEFAULT
('N'),
[TransactionNumber] [Udt].[SequenceNo] NULL CONSTRAINT [DF Employee Transa 6C190EBB]
DEFAULT ((1)),
[UserAuthenticatedKey] [Udt].[SurrogateKeyInt] NULL CONSTRAINT [DF Employee User-
Au 6D0D32F4] DEFAULT ((37)),
[SysStartTime] [Udt].[TimeStampNow] NULL CONSTRAINT [DF Employee SysSta 6E01572D]
DEFAULT (sysdatetime()),
[SysEndTime] [Udt].[TimeStampNow] NULL CONSTRAINT [DF Employee SysEnd 6EF57B66]
DEFAULT ('99991231 23:59:59'),
[TimestampRowChanged] [Udt].[TimeStampNow] NULL CONSTRAINT [DF Employee -
Timest 6FE99F9F] DEFAULT (sysdatetime())
) ON [PRIMARY]
GO
create trigger [Triggered].[uTdu AuditTriggeredEmployeeHistory]
       on [Triggered].[Employee]
       after delete, update --, insert
       begin
           declare @action char(1) = 'I';
           declare @IsDeleted char(1) = 'N';
           declare @DeletedMessage char(25) = 'Rows has been deleted';
           declare @SysStartTimeAsSysEnd datetime2;
           if (exists (select * from inserted) and exists (select * from deleted))
           begin
               set @action = 'U';
               SELECT @SysStartTimeAsSysEnd = Inserted.SysStartTime FROM Inserted
           end:
           else if (exists (select * from deleted))
           begin
               set @action = 'D';
               set @IsDeleted = 'Y';
            end;
            else
               set @action = 'I';
            if (@action <> 'I')
                insert into Triggered.AuditTriggeredEmployeeHistory
                   AuditTriggeredEmployeeHistoryTimestamp
                  , TriggerOption
                  , EmployeeId
                  , EmployeeFullName
```

```
, Department
                  , Salary
                 , Notes
                 , IsDeleted
                  , TransactionNumber
                 , UserAuthenticatedKey
                 , TimestampRowChanged
                 , SysStartTime
                  , SysEndTime
               select sysdatetime() as AuditTriggeredEmployeeHistoryTimestamp
                    , @action
                                         as TriggerOption
                    , EmployeeId
                    , EmployeeFullName
                    , Department
                     , Salary
                     , case
                          when @action <> 'D' then
                              Deleted.Notes
                          else
                              @DeletedMessage
                      end
                     , @IsDeleted
                                         as IsDeleted
                     , Deleted.TransactionNumber
                    , UserAuthenticatedKey
                     , TimestampRowChanged
                     , Deleted.SysStartTime
                     , case
                          when @action <> 'D' then
                             @SysStartTimeAsSysEnd
                              sysdatetime()
                      end as SysEndTime
               from Deleted;
       end:
GO
ALTER TABLE [Triggered].[Employee] ADD CONSTRAINT [PK_TriggeredEmployee] PRIMARY KEY
NONCLUSTERED ([EmployeeId]) ON [PRIMARY]
GO
CREATE CLUSTERED INDEX [ix Employees] ON [Triggered]. [Employee] ([EmployeeId], [Sys-
StartTime], [SysEndTime]) ON [PRIMARY]
```

Uses

[Udt].[Currency]
[Udt].[FlagChar]
[Udt].[Name]
[Udt].[Note]
[Udt].[SequenceNo]
[Udt].[SurrogateKeyInt]
[Udt].[TimeStampNow]

Triggered

Used By

[Triggered].[utvf_EmployeeCurrentAndHistory]
[Triggered].[utvf_EmployeeCurrentAndHistoryCTE]

■ Views

Objects

Name
JsonOutput.uvw_HumanResourcesEmployee
JsonOutput.uvw_MongoDBOrder
JsonOutput.uvw_MongoDBOrderdetail
JsonOutput.uvw_Order
JsonOutput.uvw_OrderDetail
JsonOutput.uvw_ProductionCategory
JsonOutput.uvw_ProductionProduct
JsonOutput.uvw_ProductionSupplier
JsonOutput.uvw_SalesCustomer
JsonOutput.uvw_SalesShipper
Utils.uvw_FindColumnDefinitionPlusDefaultAndCheckConstraint
Utils.uw_FindAllDatabaseColumnsOnTheServer

[JsonOutput].[uvw_HumanResourcesEmployee]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1_CI_AS
ANSI Nulls On	True
Quoted Identifier On	True
Created	2:46:42 PM Saturday, October 15, 2022
Last Modified	2:46:42 PM Saturday, October 15, 2022

Columns

Name	Data Type	Max Length (Bytes)	Identity
EmployeeObjectId	[Udt].[SurrogateKeyInt]	4	0 - 0
EmployeeLastName	[Udt].[LastName]	50	
EmployeeFirstName	[Udt].[FirstName]	50	
EmployeeTitle	[Udt].[Title]	60	
EmployeeTitleOfCourtesy	[Udt].[TitleOfCourtesy]	10	
BirthDate	[Udt].[DateYYYYMMDD]	3	
HireDate	[Udt].[DateYYYYMMDD]	3	
EmployeeAddress	[Udt].[Address]	120	
EmployeeCity	[Udt].[City]	30	
EmployeeRegion	[Udt].[Region]	30	
EmployeePostalCode	[Udt].[PostalCode]	20	
EmployeeCountry	[Udt].[Country]	30	
EmployeePhoneNumber	[Udt].[TelephoneNumber]	48	
EmployeeManagerId	[Udt].[SurrogateKeyInt]	4	

```
create view [JsonOutput].[uvw_HumanResourcesEmployee] as
--for json auto, include_null_values;
SELECT E.EmployeeId as [EmployeeObjectId]
, E.EmployeeLastName
, E.EmployeeFirstName
, E.EmployeeTitle
, E.EmployeeTitle
, E.EmployeeTitleOfCourtesy
, E.BirthDate
, E.HireDate
, E.EmployeeAddress
```

```
, E.EmployeeCity
, E.EmployeeRegion
, E.EmployeePostalCode
, E.EmployeeCountry
, E.EmployeePhoneNumber
, E.EmployeeManagerId FROM HumanResources.Employee as E
```

Uses

[HumanResources].[Employee]

[Udt].[Address]

[Udt].[City]

[Udt].[Country]

[Udt].[DateYYYYMMDD]

[Udt].[FirstName]

[Udt].[LastName]

[Udt].[PostalCode]

[Udt].[Region]

[Udt].[SurrogateKeyInt]

[Udt].[TelephoneNumber]

[Udt].[Title]

[Udt].[TitleOfCourtesy]

JsonOutput

[JsonOutput].[uvw_MongoDBOrder]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1_CI_AS
ANSI Nulls On	True
Quoted Identifier On	True
Created	2:46:42 PM Saturday, October 15, 2022
Last Modified	2:46:42 PM Saturday, October 15, 2022

Columns

Name	Data Type	Max Length (Bytes)
OrderObjectId	[Udt].[SurrogateKeyInt]	4
OrderDate	[Udt].[DateYYYYMMDD]	3
RequiredDate	[Udt].[DateYYYYMMDD]	3
ShipToDate	[Udt].[DateYYYYMMDD]	3
Freight	[Udt].[Currency]	8
ShipToName	[Udt].[ContactName]	60
ShipToAddress	[Udt].[Address]	120
ShipToCity	[Udt].[City]	30
ShipToRegion	[Udt].[Region]	30
ShipToPostalCode	[Udt].[PostalCode]	20
ShipToCountry	[Udt].[Country]	30
SalesCustomer	nvarchar(max)	max
HumanResourcesEmployee	nvarchar(max)	max
SalesShipper	nvarchar(max)	max

```
create view [JsonOutput].[uvw_MongoDBOrder]
as
select o.OrderId as OrderObjectId
    , o.OrderDate
    , o.RequiredDate
    , o.ShipToDate
    , o.Freight
    , o.ShipToName
    , o.ShipToAddress
    , o.ShipToCity
```

```
, o.ShipToRegion
    , o.ShipToPostalCode
    , o.ShipToCountry
    , (
          select SalesCustomer.CustomerId
                                            as 'CustomerObjectId'
               , SalesCustomer.CustomerCompanyName as 'CustomerCompanyName'
               , SalesCustomer.CustomerContactName as 'CustomerContactName'
               , SalesCustomer.CustomerPhoneNumber as 'CustomerPhoneNumber'
               , SalesCustomer.CustomerFaxNumber as 'CustomerFaxNumber'
          from Sales.[Order]
                                as o2
              inner join Sales. Customer as Sales Customer
                 on SalesCustomer.CustomerId = o.CustomerId
          where o.OrderId = o2.OrderId
          for json path, include null values
               as SalesCustomer
      )
          select HumanResourcesEmployee.EmployeeId
as 'EmployeeObjectId'
               , HumanResourcesEmployee.EmployeeLastName as 'EmployeeLastName'
               , HumanResourcesEmployee.EmployeeFirstName as 'EmployeeFirstName'
               , HumanResourcesEmployee.EmployeePhoneNumber as 'EmployeePhoneNumber'
               , HumanResourcesEmployee.EmployeeManagerId as 'EmployeeManagerId'
          from Sales.[Order]
                                                as 02
              inner join HumanResources. Employee as HumanResources Employee
                 on HumanResourcesEmployee.EmployeeId = o2.EmployeeId
          where o.OrderId = o2.OrderId
          for json path, include null values
              as HumanResourcesEmployee
          select SalesShipper.ShipperId
as 'ShipperObjectId'
              , SalesShipper.ShipperCompanyName as 'ShipperCompanyName'
               , SalesShipper.PhoneNumber as 'PhoneNumber'
          from Sales.[Order]
                               as o2
              inner join Sales. Shipper as Sales Shipper
                on SalesShipper.ShipperId = o2.ShipperId
          where o.OrderId = o2.OrderId
          for json path, include null values
              as SalesShipper
from Sales.[Order]
                                    as o
   inner join Sales.Customer
                                    as SalesCustomer
      on SalesCustomer.CustomerId = o.CustomerId
   inner join HumanResources. Employee as HumanResources Employee
       on HumanResourcesEmployee.EmployeeId = o.EmployeeId
   inner join Sales. Shipper
                                     as SalesShipper
      on SalesShipper.ShipperId = o.ShipperId;
GO
```

Uses

[HumanResources].[Employee] [Sales].[Customer] [Sales].[Order] Project > 127.0.0.1,13001 > User databases > MidtermDataModelingCSCl381 > Views > JsonOutput.uvw_Mongo-DBOrder

[Sales].[Shipper]

[Udt].[Address]

[Udt].[City]

[Udt].[ContactName]

[Udt].[Country]

[Udt].[Currency]

[Udt].[DateYYYYMMDD]

[Udt].[PostalCode]

[Udt].[Region]

[Udt].[SurrogateKeyInt]

JsonOutput

[JsonOutput].[uvw_MongoDBOrderdetail]

Properties

Property	Value	
Collation	SQL_Latin1_General_CP1_CI_AS	
ANSI Nulls On	True	
Quoted Identifier On	True	
Created	2:46:42 PM Saturday, October 15, 2022	
Last Modified	2:46:42 PM Saturday, October 15, 2022	

Columns

Name	Data Type	Max Length (Bytes)
OrderObjectId	[Udt].[SurrogateKeyInt]	4
LineItemNumer	bigint	8
UnitPrice	[Udt].[Currency]	8
Quantity	[Udt].[QuantitySmall]	2
DiscountPercentage	[Udt].[Percentage]	5
TotalCost	money	8
TotalDiscountedCost	numeric(25,7)	13
Orderld	[Udt].[SurrogateKeyInt]	4
ProductionProduct	nvarchar(max)	max
ProductionCategory	nvarchar(max)	max
ProductionSupplier	nvarchar(max)	max

```
ProductionProduct.ProductId as 'ProductionProduct.Product-
ObjectId'
                    , ProductionProduct.ProductName as 'ProductionProduct.ProductName'
                    , ProductionProduct.SupplierId as 'ProductionProduct.SupplierId'
                    , ProductionProduct.CategoryId as 'ProductionProduct.CategoryId'
                    , ProductionProduct.UnitPrice as 'ProductionProduct.UnitPrice'
                    , ProductionProduct.Discontinued as 'Production-
Product.Discontinued'
              from Production.Product
                                                as ProductionProduct
                  inner join Production. Category as Production Category
                      on ProductionCategory.CategoryId = ProductionProduct.CategoryId
                  inner join Production.Supplier as ProductionSupplier
                     on ProductionSupplier.SupplierId = ProductionProduct.SupplierId
                  inner join Sales.OrderDetail as od
                      on OrderDetail.ProductId = ProductionProduct.ProductId
              where od.OrderId = OrderDetail.OrderId
              for json path, include null values
as ProductionProduct
              select distinct
                    ProductionCategory.CategoryId as 'ProductionCategory.Category-
ObjectId'
                   , ProductionCategory.CategoryName as 'ProductionCategory.Category-
Name'
                   , ProductionCategory.Description as 'Production-
Category.Description'
              from Production.Product
                                                as ProductionProduct
                  inner join Production.Category as ProductionCategory
                      on ProductionCategory.CategoryId = ProductionProduct.CategoryId
                  inner join Sales.OrderDetail as od
                     on OrderDetail.ProductId = ProductionProduct.ProductId
              where od.OrderId = OrderDetail.OrderId
              for json path, include null values
as ProductionCategory
        , (
              select distinct
                     ProductionSupplier.SupplierId
                                                           as 'Production-
Supplier.SupplierObjectId'
                   , ProductionSupplier.SupplierCompanyName as 'Production-
Supplier.SupplierCompanyName
                   , ProductionSupplier.SupplierContactName as 'Production-
Supplier.SupplierContactName
                   , ProductionSupplier.SupplierPhoneNumber as 'Production-
Supplier.SupplierPhoneNumber'
                   , ProductionSupplier.SupplierFaxNumber as 'Production-
Supplier.SupplierFaxNumber'
              from Production.Product
                                                as ProductionProduct
                  inner join Production.Supplier as ProductionSupplier
                     on ProductionSupplier.SupplierId = ProductionProduct.SupplierId
                  inner join Sales.OrderDetail as od
                      on OrderDetail.ProductId = ProductionProduct.ProductId
              where od.OrderId = OrderDetail.OrderId
              for json path, include null values
```

Project > 127.0.0.1,13001 > User databases > MidtermDataModelingCSCl381 > Views > JsonOutput.uvw_Mongo-DBOrderdetail

```
as ProductionSupplier

from Production.Product

inner join Production.Category as ProductionCategory

on ProductionCategory.CategoryId = ProductionProduct.CategoryId

inner join Production.Supplier as ProductionSupplier

on ProductionSupplier.SupplierId = ProductionProduct.SupplierId

inner join Sales.OrderDetail as OrderDetail

on OrderDetail.ProductId = ProductionProduct.ProductId

GO
```

Uses

[Production].[Category]
[Production].[Product]
[Production].[Supplier]
[Sales].[OrderDetail]
[Udt].[Currency]
[Udt].[Percentage]
[Udt].[QuantitySmall]
[Udt].[SurrogateKeyInt]

JsonOutput

[JsonOutput].[uvw_Order]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1_CI_AS
ANSI Nulls On	True
Quoted Identifier On	True
Created	2:46:42 PM Saturday, October 15, 2022
Last Modified	2:46:42 PM Saturday, October 15, 2022

Columns

Name	Data Type	Max Length (Bytes)	Identity
Orderld	[Udt].[SurrogateKeyInt]	4	0 - 0
CustomerId	[Udt].[SurrogateKeyInt]	4	
Employeeld	[Udt].[SurrogateKeyInt]	4	
ShipperId	[Udt].[SurrogateKeyInt]	4	
OrderDate	[Udt].[DateYYYYMMDD]	3	
RequiredDate	[Udt].[DateYYYYMMDD]	3	
ShipToDate	[Udt].[DateYYYYMMDD]	3	
Freight	[Udt].[Currency]	8	
ShipToName	[Udt].[ContactName]	60	
ShipToAddress	[Udt].[Address]	120	
ShipToCity	[Udt].[City]	30	
ShipToRegion	[Udt].[Region]	30	
ShipToPostalCode	[Udt].[PostalCode]	20	
ShipToCountry	[Udt].[Country]	30	

```
create view [JsonOutput].[uvw_Order] as
SELECT O.OrderId
    , O.CustomerId
    , O.EmployeeId
    , O.ShipperId
    , O.OrderDate
    , O.RequiredDate
    , O.ShipToDate
    , O.Freight
    , O.ShipToName
```

```
, O.ShipToAddress
, O.ShipToCity
, O.ShipToRegion
, O.ShipToPostalCode
, O.ShipToCountry
FROM Sales.[Order] as O
GO
```

Uses

[Sales].[Order]
[Udt].[Address]
[Udt].[City]
[Udt].[ContactName]
[Udt].[Country]
[Udt].[Currency]
[Udt].[DateYYYYMMDD]
[Udt].[PostalCode]
[Udt].[Region]
[Udt].[SurrogateKeyInt]
JsonOutput

[JsonOutput].[uvw_OrderDetail]

Properties

Property	Value
ANSI Nulls On	True
Quoted Identifier On	True
Created	2:46:42 PM Saturday, October 15, 2022
Last Modified	2:46:42 PM Saturday, October 15, 2022

Columns

Name	Data Type	Max Length (Bytes)
Orderld	[Udt].[SurrogateKeyInt]	4
ProductId	[Udt].[SurrogateKeyInt]	4
UnitPrice	[Udt].[Currency]	8
Quantity	[Udt].[QuantitySmall]	2
DiscountPercentage	[Udt].[Percentage]	5

SQL Script

Uses

[Sales].[OrderDetail]
[Udt].[Currency]
[Udt].[Percentage]
[Udt].[QuantitySmall]
[Udt].[SurrogateKeyInt]
JsonOutput

[JsonOutput].[uvw_ProductionCategory]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1_CI_AS
ANSI Nulls On	True
Quoted Identifier On	True
Created	2:46:42 PM Saturday, October 15, 2022
Last Modified	2:46:42 PM Saturday, October 15, 2022

Columns

Name	Data Type	Max Length (Bytes)	Identity
CategoryObjectId	[Udt].[SurrogateKeyInt]	4	0 - 0
CategoryName	[Udt].[CategoryName]	30	
Description	[Udt].[Description]	400	

SQL Script

Uses

[Production].[Category] [Udt].[CategoryName] [Udt].[Description] [Udt].[SurrogateKeyInt] JsonOutput

[JsonOutput].[uvw_ProductionProduct]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1_CI_AS
ANSI Nulls On	True
Quoted Identifier On	True
Created	2:46:42 PM Saturday, October 15, 2022
Last Modified	2:46:42 PM Saturday, October 15, 2022

Columns

Name	Data Type	Max Length (Bytes)
ProductObjectId	[Udt].[SurrogateKeyInt]	4
ProductName	[Udt].[ProductName]	80
SupplierId	[Udt].[SurrogateKeyInt]	4
Categoryld	[Udt].[SurrogateKeyInt]	4
UnitPrice	[Udt].[Currency]	8
Discontinued	[Udt].[FlagBit]	1
Production.CategoryObjectId	[Udt].[SurrogateKeyInt]	4
Production.CategoryName	[Udt].[CategoryName]	30
Production.Description	[Udt].[Description]	400
Production.SupplierId	[Udt].[SurrogateKeyInt]	4
Production.SupplierCompanyName	[Udt].[CompanyName]	80
Production.SupplierContactName	[Udt].[ContactName]	60
Production.SupplierPhoneNumber	[Udt].[TelephoneNumber]	48
Production.SupplierFaxNumber	[Udt].[TelephoneNumber]	48

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Uses

[Production].[Category]

[Production].[Product]

[Production].[Supplier]

[Udt].[CategoryName]

[Udt].[CompanyName]

[Udt].[ContactName]

[Udt].[Currency]

[Udt].[Description]

[Udt].[FlagBit]

[Udt].[ProductName]

[Udt].[SurrogateKeyInt]

[Udt].[TelephoneNumber]

JsonOutput

[JsonOutput].[uvw_ProductionSupplier]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1_CI_AS
ANSI Nulls On	True
Quoted Identifier On	True
Created	2:46:42 PM Saturday, October 15, 2022
Last Modified	2:46:42 PM Saturday, October 15, 2022

Columns

Name	Data Type	Max Length (Bytes)	Identity
SupplierObjectId	[Udt].[SurrogateKeyInt]	4	0 - 0
SupplierCompanyName	[Udt].[CompanyName]	80	
SupplierContactName	[Udt].[ContactName]	60	
SupplierContactTitle	[Udt].[ContactTitle]	60	
SupplierAddress	[Udt].[Address]	120	
SupplierCity	[Udt].[City]	30	
SupplierRegion	[Udt].[Region]	30	
SupplierPostalCode	[Udt].[PostalCode]	20	
SupplierCountry	[Udt].[Country]	30	
SupplierPhoneNumber	[Udt].[TelephoneNumber]	48	
SupplierFaxNumber	[Udt].[TelephoneNumber]	48	

```
create view [JsonOutput].[uvw_ProductionSupplier] as
--for json auto, include_null_values;
select S.SupplierId as SupplierObjectId
    , S.SupplierCompanyName
    , S.SupplierContactName
    , S.SupplierContactTitle
    , S.SupplierAddress
    , S.SupplierCity
    , S.SupplierRegion
    , S.SupplierPostalCode
    , S.SupplierPostalCode
    , S.SupplierPoneNumber
    , S.SupplierFaxNumber
from Production.Supplier as S
```

GO

Uses

[Production].[Supplier]

[Udt].[Address]

[Udt].[City]

[Udt].[CompanyName]

[Udt].[ContactName]

[Udt].[ContactTitle]

[Udt].[Country]

[Udt].[PostalCode]

[Udt].[Region]

[Udt].[SurrogateKeyInt]

[Udt].[TelephoneNumber]

JsonOutput

[JsonOutput].[uvw_SalesCustomer]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1_CI_AS
ANSI Nulls On	True
Quoted Identifier On	True
Created	2:46:42 PM Saturday, October 15, 2022
Last Modified	2:46:42 PM Saturday, October 15, 2022

Columns

Name	Data Type	Max Length (Bytes)	Identity
CustomerObjectId	[Udt].[SurrogateKeyInt]	4	0 - 0
CustomerCompanyName	[Udt].[CompanyName]	80	
CustomerContactName	[Udt].[ContactName]	60	
CustomerContactTitle	[Udt].[Title]	60	
CustomerAddress	[Udt].[Address]	120	
CustomerCity	[Udt].[City]	30	
CustomerRegion	[Udt].[Region]	30	
CustomerPostalCode	[Udt].[PostalCode]	20	
CustomerCountry	[Udt].[Country]	30	
CustomerPhoneNumber	[Udt].[TelephoneNumber]	48	
CustomerFaxNumber	[Udt].[TelephoneNumber]	48	

```
create view [JsonOutput].[uvw_SalesCustomer] as
--for json auto, include_null_values;
select C.CustomerId as CustomerObjectId
    , C.CustomerCompanyName
    , C.CustomerContactName
    , C.CustomerContactTitle
    , C.CustomerAddress
    , C.CustomerCity
    , C.CustomerRegion
    , C.CustomerPostalCode
    , C.CustomerPoneNumber
    , C.CustomerPhoneNumber
    from Sales.Customer as C
```

GO

Uses

[Sales].[Customer]

[Udt].[Address]

[Udt].[City]

[Udt].[CompanyName]

[Udt].[ContactName]

[Udt].[Country]

[Udt].[PostalCode]

[Udt].[Region]

[Udt].[SurrogateKeyInt]

[Udt].[TelephoneNumber]

[Udt].[Title]

JsonOutput

[JsonOutput].[uvw_SalesShipper]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1_CI_AS
ANSI Nulls On	True
Quoted Identifier On	True
Created	2:46:42 PM Saturday, October 15, 2022
Last Modified	2:46:42 PM Saturday, October 15, 2022

Columns

Name	Data Type	Max Length (Bytes)	Identity
ShipperObjectId	[Udt].[SurrogateKeyInt]	4	0 - 0
ShipperCompanyName	[Udt].[CompanyName]	80	
PhoneNumber	[Udt].[TelephoneNumber]	48	

SQL Script

```
create view [JsonOutput].[uvw_SalesShipper] as
--for json auto, include_null_values;
SELECT S.ShipperId as ShipperObjectId
    , S.ShipperCompanyName
    , S.PhoneNumber FROM Sales.Shipper as S
GO
```

Uses

[Sales].[Shipper] [Udt].[CompanyName] [Udt].[SurrogateKeyInt] [Udt].[TelephoneNumber] JsonOutput

[Utils].[uvw_FindColumnDefinitionPlusDefaultAndCheckConstraint]

Properties

Property	Value
Collation	SQL_Latin1_General_CP1_CI_AS
ANSI Nulls On	True
Quoted Identifier On	True
Created	2:46:42 PM Saturday, October 15, 2022
Last Modified	2:46:42 PM Saturday, October 15, 2022

Columns

Name	Data Type	Max Length (Bytes)
FullyQualifiedTableName	nvarchar(257)	514
SchemaName	[sys].[sysname]	256
TableName	[sys].[sysname]	256
ColumnName	[sys].[sysname]	256
OrdinalPosition	int	4
FullyQualifiedDomainName	nvarchar(257)	514
DomainName	[sys].[sysname]	256
DataType	nvarchar(128)	256
IsNullable	varchar(3)	3
DefaultName	[sys].[sysname]	256
DefaultNameDefinition	nvarchar(4000)	8000
CheckConstraintRuleName	[sys].[sysname]	256
CheckConstraintRuleNameDefinition	nvarchar(4000)	8000

```
CREATE view [Utils].[uvw_FindColumnDefinitionPlusDefaultAndCheckConstraint]

as
select concat(tbl.Table_SCHEMA, '.', tbl.Table_NAME) as FullyQualifiedTableName
, tbl.Table_SCHEMA as SchemaName
, tbl.Table_NAME as TableName
, col.COLUMN_NAME as ColumnName
```

```
, col.ORDINAL POSITION
                                                       as OrdinalPosition
     , concat(col.DOMAIN_SCHEMA, '.', col.DOMAIN_NAME) as FullyQualifiedDomainName
     , col.DOMAIN NAME
                                                       as DomainName
     , case
          when col.DATA TYPE = 'varchar' then
              concat('varchar(', CHARACTER MAXIMUM LENGTH, ')')
           when col.DATA TYPE = 'char' then
              concat('char(', CHARACTER_MAXIMUM_LENGTH, ')')
           when col.DATA TYPE = 'nvarchar' then
              concat('nvarchar(', CHARACTER MAXIMUM LENGTH, ')')
           when col.DATA TYPE = 'nchar' then
              concat('nchar(', CHARACTER MAXIMUM LENGTH, ')')
           when col.DATA TYPE = 'numeric' then
              concat('numeric(', NUMERIC PRECISION RADIX, ', ', NUMERIC SCALE, ')')
           when col.DATA TYPE = 'decimal' then
              concat('decimal(', NUMERIC PRECISION RADIX, ', ', NUMERIC SCALE, ')')
           else
              col.DATA TYPE
      end
                                                       as DataType
     , col.IS NULLABLE
                                                      as IsNullable
    , dcn.DefaultName
     , col.COLUMN DEFAULT
                                                      as DefaultNameDefinition
    , cc.CONSTRAINT NAME
                                                      as CheckConstraintRuleName
     , cc.CHECK CLAUSE
                                                      as CheckConstraintRuleName-
Definition
from
   select TABLE CATALOG
        , TABLE SCHEMA
        , TABLE NAME
        , TABLE_TYPE
   from INFORMATION SCHEMA. TABLES
   where (TABLE TYPE = 'BASE TABLE')
     as tbl
   inner join
        select TABLE CATALOG
            , TABLE SCHEMA
             , TABLE NAME
             , COLUMN NAME
             , ORDINAL POSITION
             , COLUMN DEFAULT
             , IS NULLABLE
             , DATA TYPE
             , CHARACTER MAXIMUM LENGTH
             , CHARACTER OCTET LENGTH
             , NUMERIC_PRECISION
             , NUMERIC PRECISION RADIX
             , NUMERIC SCALE
             , DATETIME PRECISION
             , CHARACTER SET CATALOG
             , CHARACTER SET SCHEMA
             , CHARACTER SET NAME
```

```
, COLLATION CATALOG
             , COLLATION SCHEMA
             , COLLATION NAME
             , DOMAIN CATALOG
             , DOMAIN SCHEMA
             , DOMAIN NAME
        from INFORMATION SCHEMA.COLUMNS
   ) as col
        on col.TABLE CATALOG = tbl.TABLE CATALOG
           and col.TABLE SCHEMA = tbl.TABLE SCHEMA
           and col.TABLE NAME = tbl.TABLE NAME
   left outer join
        select t.name
                                      as TableName
            , schema name(s.schema id) as SchemaName
       , ac.name as ColumnName
, d.name as DefaultName
from sys.all_columns as ac
           m sys.all_columns as ac inner join sys.tables as t
              on ac.object id = t.object id
           inner join sys.schemas
              on t.schema id = s.schema id
           inner join sys.default constraints as d
              on ac.default_object_id = d.object_id
   ) as dcn
       on dcn.SchemaName = tbl.TABLE SCHEMA
          and dcn.TableName = tbl.TABLE NAME
           and dcn.ColumnName = col.COLUMN NAME
   left outer join
        select cu.TABLE CATALOG
            , cu.TABLE SCHEMA
             , cu.TABLE NAME
             , cu.COLUMN NAME
             , c.CONSTRAINT CATALOG
             , c.CONSTRAINT SCHEMA
             , c.CONSTRAINT NAME
             , c.CHECK CLAUSE
        from INFORMATION SCHEMA.CONSTRAINT COLUMN USAGE as cu
           inner join INFORMATION SCHEMA.CHECK CONSTRAINTS as c
              on c.CONSTRAINT NAME = cu.CONSTRAINT NAME
   ) as cc
        on cc.TABLE_SCHEMA = tbl.TABLE_SCHEMA
          and cc.TABLE NAME = tbl.TABLE NAME
           and cc.COLUMN_NAME = col.COLUMN_NAME;
GO
```

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Uses
Utils
Used By
[Utils].[uw_FindAllDatabaseColumnsOnTheServer]

[Utils].[uw_FindAllDatabaseColumnsOnTheServer]

Properties

Property	Value	
Collation	SQL_Latin1_General_CP1_CI_AS	
ANSI Nulls On	True	
Quoted Identifier On	True	
Created	2:46:42 PM Saturday, October 15, 2022	
Last Modified	2:46:42 PM Saturday, October 15, 2022	

Columns

Name	Data Type	Max Length (Bytes)
FullyQualifiedTableName	nvarchar(257)	514
SchemaName	[sys].[sysname]	256
ColumnName	[sys].[sysname]	256
OrdinalPosition	int	4
FullyQualifiedDomainName	nvarchar(257)	514
DataType	nvarchar(128)	256
IsNullable	varchar(3)	3
DefaultName	[sys].[sysname]	256
DefaultNameDefinition	nvarchar(4000)	8000
CheckConstraintRuleName	[sys].[sysname]	256
CheckConstraintRuleNameDefinition	nvarchar(4000)	8000
Server Name	nvarchar(128)	256
Target Database Version	nvarchar(300)	600
Instance Name	nvarchar(128)	256
Database Name	nvarchar(128)	256
Host Name	nvarchar(128)	256

```
create view [Utils].[uw_FindAllDatabaseColumnsOnTheServer] as
select vw.FullyQualifiedTableName
,vw.SchemaName
, vw.ColumnName
, vw.OrdinalPosition
, vw.FullyQualifiedDomainName
```

Project > 127.0.0.1,13001 > User databases > MidtermDataModelingCSCl381 > Views > Utils.uw_FindAllDatabase-ColumnsOnTheServer

```
, vw.DataType
, vw.IsNullable
, vw.DefaultName
, vw.DefaultNameDefinition
, vw.CheckConstraintRuleName
, vw.CheckConstraintRuleNameDefinition
, @@servername as 'Server Name' -- The database server's machine name
, @@version as [Target Database Version]
, @@servicename as 'Instance Name' -- e.g.: MSSQLSERVER
, db_name() as 'Database Name'
, host_name() as 'Host Name' -- The database client's machine name
from Utils.uvw_FindColumnDefinitionPlusDefaultAndCheckConstraint as vw
where vw.SchemaName in ('Sales','Production', 'HumanResources')
```

Uses

[Utils].[uvw_FindColumnDefinitionPlusDefaultAndCheckConstraint] Utils

 $\label{local_project} Project > 127.0.0.1, 13001 > User\ databases > MidtermDataModelingCSCl381 > Programmability > Stored\ Procedures$

Stored Procedures

Objects

Name

Sales.usp_getorders

[Sales].[usp_getorders]

Properties

Property	Value
ANSI Nulls On	True
Quoted Identifier On	True

Parameters

Name	Data Type	Max Length (Bytes)
@country	nvarchar(40)	80

SQL Script

```
CREATE proc [Sales].[usp_getorders] @country as nvarchar(40)
as
begin
select o.OrderId
, o.CustomerId
, o.EmployeeId
, o.OrderDate
, @country as Country
from Sales.[Order] as o
where o.ShipToCountry = @country;
end;

GO
```

Uses

[Sales].[Order]

Sales

■ Table-valued Functions

Objects

Name

JsonOutput.MongoOrder

JsonOutput.MongoOrderDetail

Triggered.utvf_EmployeeCurrentAndHistory

Triggered.utvf_EmployeeCurrentAndHistoryCTE

☑ [JsonOutput].[MongoOrder]

Properties

Property	Value
ANSI Nulls On	True
Quoted Identifier On	True

SQL Script

```
-- Author:
             Name
-- Create date:
-- Description:
-- -----
create function [JsonOutput].[MongoOrder]
()
returns table
as
return
   select o.OrderId as OrderObjectId
       , o.OrderDate
        , o.RequiredDate
        , o.ShipToDate
        , o.Freight
        , o.ShipToName
        , o.ShipToAddress
        , o.ShipToCity
        , o.ShipToRegion
        , o.ShipToPostalCode
        , o.ShipToCountry
        , (
             , SalesCustomer.CustomerCompanyName as 'CustomerCompanyName'
                 , SalesCustomer.CustomerContactName as 'CustomerContactName'
                 , SalesCustomer.CustomerPhoneNumber as 'CustomerPhoneNumber'
                 , SalesCustomer.CustomerFaxNumber as 'CustomerFaxNumber'
             from Sales.[Order]
                                       as o2
                inner join Sales.Customer as SalesCustomer
                  on SalesCustomer.CustomerId = o.CustomerId
             where o.OrderId = o2.OrderId
             for json path, include_null_values
                 as SalesCustomer
             select HumanResourcesEmployee.EmployeeId as 'EmployeeObjectId'
                 , HumanResourcesEmployee.EmployeeLastName as 'EmployeeLastName'
```

```
, HumanResourcesEmployee.EmployeeFirstName as 'EmployeeFirstName'
                   , HumanResourcesEmployee.EmployeePhoneNumber as 'EmployeePhone-
Number'
                   , HumanResourcesEmployee.EmployeeManagerId as 'EmployeeManagerId'
              from Sales.[Order]
                                                   as o2
                  inner join HumanResources. Employee as HumanResources Employee
                    on HumanResourcesEmployee.EmployeeId = o2.EmployeeId
              where o.OrderId = o2.OrderId
              for json path, include null values
                   as HumanResourcesEmployee
              select SalesShipper.ShipperId
                                                  as 'ShipperObjectId'
                   , SalesShipper.ShipperCompanyName as 'ShipperCompanyName'
                   , SalesShipper.PhoneNumber as 'PhoneNumber'
              from Sales.[Order] as o2
                 inner join Sales. Shipper as Sales Shipper
                     on SalesShipper.ShipperId = o2.ShipperId
              where o.OrderId = o2.OrderId
              for json path, include null values
                  as SalesShipper
   from Sales.[Order]
                                       as o
       inner join Sales.Customer as SalesCustomer
           on SalesCustomer.CustomerId = o.CustomerId
       inner join HumanResources. Employee as HumanResources Employee
          on HumanResourcesEmployee.EmployeeId = o.EmployeeId
       inner join Sales.Shipper as SalesShipper
          on SalesShipper.ShipperId = o.ShipperId
);
GO
```

Uses

```
[HumanResources].[Employee]
[Sales].[Customer]
[Sales].[Order]
[Sales].[Shipper]
[Udt].[Address]
[Udt].[City]
[Udt].[ContactName]
[Udt].[Country]
[Udt].[Currency]
[Udt].[DateYYYYMMDD]
[Udt].[PostalCode]
[Udt].[Region]
[Udt].[SurrogateKeyInt]
JsonOutput
```

[JsonOutput].[MongoOrderDetail]

Properties

Property	Value
ANSI Nulls On	True
Quoted Identifier On	True

Parameters

Name	Data Type	Max Length (Bytes)
@Orderld	int	4

SQL Script

```
-- Author: Name
-- Create date:
-- Description:
CREATE function [JsonOutput].[MongoOrderDetail]
   @OrderId int
returns table
return
   select OrderDetail.OrderId
as OrderObjectId
        , row_number() over (partition by OrderDetail.OrderId order by Order-
Detail.OrderId) as LineItemNumer
        , OrderDetail.UnitPrice
        , OrderDetail.Quantity
        , OrderDetail.DiscountPercentage
        , OrderDetail.UnitPrice * OrderDetail.Quantity
as TotalCost
        , (OrderDetail.UnitPrice * OrderDetail.Quantity) * (1. - OrderDetail.Discount-
Percentage) as TotalDiscountedCost
        , OrderDetail.OrderId
              select distinct
                    ProductionProduct.ProductId as 'ProductionProduct.Product-
ObjectId'
                   , ProductionProduct.ProductName as 'ProductionProduct.ProductName'
                   , ProductionProduct.SupplierId as 'ProductionProduct.SupplierId'
                   , ProductionProduct.CategoryId as 'ProductionProduct.CategoryId'
```

```
, ProductionProduct.UnitPrice as 'ProductionProduct.UnitPrice'
                    , ProductionProduct.Discontinued as 'Production-
Product.Discontinued'
              from Production.Product
                                                as ProductionProduct
                  inner join Production.Category as ProductionCategory
                      on ProductionCategory.CategoryId = ProductionProduct.CategoryId
                  inner join Production.Supplier as ProductionSupplier
                     on ProductionSupplier.SupplierId = ProductionProduct.SupplierId
                  inner join Sales.OrderDetail as od
                      on OrderDetail.ProductId = ProductionProduct.ProductId
              where od.OrderId = OrderDetail.OrderId
              for json path, include null values
as ProductionProduct
        , (
              select distinct
                    ProductionCategory.CategoryId as 'ProductionCategory.Category-
ObjectId'
                   , ProductionCategory.CategoryName as 'ProductionCategory.Category-
Name'
                    , ProductionCategory.Description as 'Production-
Category.Description'
              from Production.Product
                                                as ProductionProduct
                  inner join Production. Category as Production Category
                      on ProductionCategory.CategoryId = ProductionProduct.CategoryId
                  inner join Sales.OrderDetail as od
                      on OrderDetail.ProductId = ProductionProduct.ProductId
              where od.OrderId = OrderDetail.OrderId
              for json path, include null values
as ProductionCategory
              select distinct
                     ProductionSupplier.SupplierId
                                                          as 'Production-
Supplier.SupplierObjectId'
                   , ProductionSupplier.SupplierCompanyName as 'Production-
Supplier.SupplierCompanyName'
                    , ProductionSupplier.SupplierContactName as 'Production-
Supplier.SupplierContactName'
                   , ProductionSupplier.SupplierPhoneNumber as 'Production-
Supplier.SupplierPhoneNumber'
                    , ProductionSupplier.SupplierFaxNumber as 'Production-
Supplier.SupplierFaxNumber'
              from Production.Product
                                                as ProductionProduct
                  inner join Production.Supplier as ProductionSupplier
                     on ProductionSupplier.SupplierId = ProductionProduct.SupplierId
                  inner join Sales.OrderDetail as od
                      on OrderDetail.ProductId = ProductionProduct.ProductId
              where od.OrderId = OrderDetail.OrderId
              for json path, include null values
as ProductionSupplier
   from Production.Product
                                     as ProductionProduct
        inner join Production. Category as Production Category
           on ProductionCategory.CategoryId = ProductionProduct.CategoryId
        inner join Production.Supplier as ProductionSupplier
```

Project > 127.0.0.1,13001 > User databases > MidtermDataModelingCSCl381 > Programmability > Functions > Table-valued Functions > JsonOutput.MongoOrderDetail

Uses

[Production].[Category]

[Production].[Product]

[Production].[Supplier]

[Sales].[OrderDetail]

[Udt].[Currency]

[Udt].[Percentage]

[Udt].[QuantitySmall]

[Udt].[SurrogateKeyInt]

JsonOutput

[Triggered].[utvf_EmployeeCurrentAndHistory]

Properties

Property	Value
ANSI Nulls On	True
Quoted Identifier On	True

Parameters

Name	Data Type	Max Length (Bytes)
@EmployeeId	int	4

SQL Script

```
create function [Triggered].[utvf_EmployeeCurrentAndHistory]
    @EmployeeId as int
returns table
return
    select 'Current row' as TransactionRow
        , EmployeeId
         , EmployeeFullName
        , Department
         , Salary
        , Notes
         , IsDeleted
         , TransactionNumber
         , UserAuthenticatedKey
         , SysStartTime
        , SysEndTime
         , TimestampRowChanged
    from [Triggered].[Employee]
    where EmployeeId = @EmployeeId
    union all
    select case
              when IsDeleted = 'N' then
                  'History row'
              else
                  'Deleted Row'
           end as TransactionRow
         , EmployeeId
         , EmployeeFullName
```

```
, Department
, Salary
, Notes
, IsDeleted
, TransactionNumber
, UserAuthenticatedKey
, SysStartTime
, SysEndTime
, TimestampRowChanged
from [Triggered].[AuditTriggeredEmployeeHistory]
where EmployeeId = @EmployeeId
);
```

Uses

[Triggered].[AuditTriggeredEmployeeHistory]
[Triggered].[Employee]
Triggered

[Triggered].[utvf_EmployeeCurrentAndHistoryCTE]

Properties

Property	Value
ANSI Nulls On	True
Quoted Identifier On	True

Parameters

Name	Data Type	Max Length (Bytes)
@EmployeeId	int	4

SQL Script

```
create function [Triggered].[utvf_EmployeeCurrentAndHistoryCTE]
    @EmployeeId as int
returns table
return
    with AllTransactions
    as (select 'Current row' as TransactionRow
            , EmployeeId
             , EmployeeFullName
             , Department
             , Salary
             , Notes
             , IsDeleted
             , TransactionNumber
             , UserAuthenticatedKey
             , SysStartTime
             , SysEndTime
             , TimestampRowChanged
        from [Triggered].[Employee]
        where EmployeeId = @EmployeeId
        union
        select case
                   when IsDeleted = 'N' then
                      'History row'
                   else
                       'Deleted row'
               end as TransactionRow
             , EmployeeId
```

```
, EmployeeFullName
                 , Department
                 , Salary
                 , Notes
                 , IsDeleted
                 , TransactionNumber
                 , UserAuthenticatedKey
                 , SysStartTime
                 , SysEndTime
                 , TimestampRowChanged
            from [Triggered].[AuditTriggeredEmployeeHistory]
            where EmployeeId = @EmployeeId)
        select AllTransactions.TransactionRow
             , AllTransactions.EmployeeId
             , AllTransactions.EmployeeFullName
             , AllTransactions.Department
             , AllTransactions.Salary
             , AllTransactions.Notes
             , AllTransactions.IsDeleted
             , AllTransactions.TransactionNumber
             , AllTransactions.UserAuthenticatedKey
             , AllTransactions.SysStartTime
             , AllTransactions.SysEndTime
             , AllTransactions.TimestampRowChanged
        from AllTransactions
   );
GO
```

Uses

[Triggered].[AuditTriggeredEmployeeHistory]
[Triggered].[Employee]
Triggered

iii User-Defined Data Types

Objects

Name
dbo.dDateTime
dbo.dReversedMidterm
dbo.dString
dbo.sdClassTime
dbo.sdDatetime2_Default
dbo.sdGM_LastName
dbo.sdGroupName
dbo.sdIndividualProject
Udt.Address
Udt.BlobDefinition
Udt.CategoryName
Udt.City
Udt.CompanyName
Udt.ContactName
Udt.ContactTitle
Udt.Country
Udt.Currency
Udt.DateYYYYMMDD
Udt.Description
Udt.FirstName
Udt.FlagBit
Udt.FlagChar
Udt.Grade
Udt.IsDeletion
Udt.LastName
Udt.Name
Udt.Note
Udt.Percentage
Udt.PostalCode
Udt.ProductName
Udt.QuantitySmall
Udt.Region
Udt.Score
Udt.SequenceNo

Udt.ShortDescription
Udt.StateName
Udt.StudentIdentification
Udt.SurrogateKeyInt
Udt.TelephoneNumber
Udt.TextKeyVarchar10
Udt.TimeStampNow
Udt.Title
Udt.TitleOfCourtesy
Udt.TriggerOption
Udt. Version
Udt.YYYY

[dbo].[dDateTime]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	datetime
Length	8

SQL Script

CREATE TYPE [dbo].[dDateTime] FROM datetime NULL GO

[dbo].[dReversedMidterm]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	char
Length	18

SQL Script

CREATE TYPE [dbo].[dReversedMidterm] FROM char (18) NULL
GO



Properties

Property	Value
Nullability	NULL allowed
Base Type Name	varchar
Length	20

SQL Script

CREATE TYPE [dbo].[dString] FROM varchar (20) NULL GO

[dbo].[sdClassTime]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	datetime
Length	8

SQL Script

CREATE TYPE [dbo].[sdClassTime] FROM datetime NULL GO

[dbo].[sdDatetime2_Default]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	datetime
Length	8

SQL Script

CREATE TYPE [dbo].[sdDatetime2_Default] FROM datetime NULL GO

[dbo].[sdGM_LastName]

Properties

Property	Value
Nullability	NOT NULL
Base Type Name	varchar
Length	20

SQL Script

CREATE TYPE [dbo].[sdGM_LastName] FROM varchar (20) NOT NULL
GO

[dbo].[sdGroupName]

Properties

Property	Value
Nullability	NOT NULL
Base Type Name	varchar
Length	20

SQL Script

CREATE TYPE [dbo].[sdGroupName] FROM varchar (20) NOT NULL
GO

[dbo].[sdIndividualProject]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	varchar
Length	20

SQL Script

CREATE TYPE [dbo].[sdIndividualProject] FROM varchar (20) NULL GO

[Udt].[Address]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	nvarchar
Length	60

SQL Script

```
CREATE TYPE [Udt].[Address] FROM nvarchar (60) NULL
GO
```

Uses

Udt

Used By

[HumanResources].[Employee]

[Production].[Supplier]

[Sales].[Customer]

[Sales].[Order]

[JsonOutput].[uvw_HumanResourcesEmployee]

[JsonOutput].[uvw_MongoDBOrder]

[JsonOutput].[uvw_Order]

[JsonOutput].[uvw_ProductionSupplier]

[JsonOutput].[uvw_SalesCustomer]

[JsonOutput].[MongoOrder]

[Udt].[BlobDefinition]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	varbinary
Length	max

SQL Script

CREATE TYPE [Udt].[BlobDefinition] FROM varbinary (max) NULL
GO

Uses

Udt

[Udt].[CategoryName]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	nvarchar
Length	15

SQL Script

CREATE TYPE [Udt].[CategoryName] FROM nvarchar (15) NULL
GO

Uses

Udt

Used By

[Production].[Category]
[JsonOutput].[uvw_ProductionCategory]
[JsonOutput].[uvw_ProductionProduct]

iii [Udt].[City]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	nvarchar
Length	15

SQL Script

CREATE TYPE [Udt].[City] FROM nvarchar (15) NULL
GO

Uses

Udt

Used By

[HumanResources].[Employee]

[Production].[Supplier]

[Sales].[Customer]

[Sales].[Order]

[JsonOutput].[uvw_HumanResourcesEmployee]

[JsonOutput].[uvw_MongoDBOrder]

[JsonOutput].[uvw_Order]

[JsonOutput].[uvw_ProductionSupplier]

[JsonOutput].[uvw_SalesCustomer]

[JsonOutput].[MongoOrder]

[Udt].[CompanyName]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	nvarchar
Length	40

SQL Script

CREATE TYPE [Udt].[CompanyName] FROM nvarchar (40) NULL
GO

Uses

Used By

Udt

[Production].[Supplier]

[Sales].[Customer] [Sales].[Shipper]

[JsonOutput].[uvw_ProductionProduct]

[JsonOutput].[uvw_ProductionSupplier]

[JsonOutput].[uvw_SalesCustomer]

[JsonOutput].[uvw_SalesShipper]

[Udt].[ContactName]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	nvarchar
Length	30

SQL Script

CREATE TYPE [Udt].[ContactName] FROM nvarchar (30) NULL
GO

Uses

Udt

Used By

[Production].[Supplier]

[Sales].[Customer]

[Sales].[Order]

[JsonOutput].[uvw_MongoDBOrder]

[JsonOutput].[uvw_Order]

[JsonOutput].[uvw_ProductionProduct]

[JsonOutput].[uvw_ProductionSupplier]

[JsonOutput].[uvw_SalesCustomer]

[JsonOutput].[MongoOrder]

[Udt].[ContactTitle]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	nvarchar
Length	30

SQL Script

CREATE TYPE [Udt].[ContactTitle] FROM nvarchar (30) NULL
GO

Uses

Udt

Used By

[Production].[Supplier]
[JsonOutput].[uvw_ProductionSupplier]

[Udt].[Country]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	nvarchar
Length	15

SQL Script

```
CREATE TYPE [Udt].[Country] FROM nvarchar (15) NULL
GO
```

Uses

Udt

Used By

[HumanResources].[Employee]

[Production].[Supplier]

[Sales].[Customer]

[Sales].[Order]

[JsonOutput].[uvw_HumanResourcesEmployee]

[JsonOutput].[uvw_MongoDBOrder]

[JsonOutput].[uvw_Order]

[JsonOutput].[uvw_ProductionSupplier]

[JsonOutput].[uvw_SalesCustomer]

[JsonOutput].[MongoOrder]

[Udt].[Currency]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	money
Length	8

SQL Script

CREATE TYPE [Udt].[Currency] FROM money NULL
GO

Uses

Udt

Used By

[Production].[Product]

[Sales].[Order]

[Sales].[OrderDetail]

[Triggered].[AuditTriggeredEmployeeHistory]

[Triggered].[Employee]

[JsonOutput].[uvw_MongoDBOrder]

[JsonOutput].[uvw_MongoDBOrderdetail]

[JsonOutput].[uvw_Order]

[JsonOutput].[uvw_OrderDetail]

[JsonOutput].[uvw_ProductionProduct]

[JsonOutput].[MongoOrder]

[JsonOutput]. [MongoOrderDetail]

[Udt].[DateYYYYMMDD]

Properties

Property	Value
Nullability	NOT NULL
Base Type Name	date
Length	3

SQL Script

CREATE TYPE [Udt].[DateYYYYMMDD] FROM date NOT NULL
GO

Uses

Udt

Used By

[HumanResources].[Employee]
[Sales].[Order]
[JsonOutput].[uvw_HumanResourcesEmployee]
[JsonOutput].[uvw_MongoDBOrder]
[JsonOutput].[uvw_Order]
[JsonOutput].[MongoOrder]

[Udt].[Description]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	nvarchar
Length	200

SQL Script

CREATE TYPE [Udt].[Description] FROM nvarchar (200) NULL
GO

Uses

Udt

Used By

[Production].[Category]
[JsonOutput].[uvw_ProductionCategory]
[JsonOutput].[uvw_ProductionProduct]

[Udt].[FirstName]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	nvarchar
Length	25

SQL Script

CREATE TYPE [Udt].[FirstName] FROM nvarchar (25) NULL
GO

Uses

Udt

Used By

[HumanResources].[Employee]
[JsonOutput].[uvw_HumanResourcesEmployee]

🗓 [Udt].[FlagBit]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	bit
Length	1

SQL Script

CREATE TYPE [Udt].[FlagBit] FROM bit NULL
GO

Uses

Udt

Used By

[Production].[Product]
[JsonOutput].[uvw_ProductionProduct]

Author: StudentCSCl381Erwin

[Udt].[FlagChar]

Properties

Property	Value
Nullability	NOT NULL
Base Type Name	char
Length	1

SQL Script

CREATE TYPE [Udt].[FlagChar] FROM char (1) NOT NULL
GO

Uses

Udt

Used By

[Triggered].[AuditTriggeredEmployeeHistory]

[Triggered].[Employee]



Property	Value
Nullability	NULL allowed
Base Type Name	tinyint
Length	1

SQL Script

CREATE TYPE [Udt].[Grade] FROM tinyint NULL
GO

Uses



Property	Value
Nullability	NOT NULL
Base Type Name	char
Length	1

SQL Script

CREATE TYPE [Udt].[IsDeletion] FROM char (1) NOT NULL
GO

Uses

[Udt].[LastName]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	nvarchar
Length	25

SQL Script

CREATE TYPE [Udt].[LastName] FROM nvarchar (25) NULL
GO

Uses

Udt

Used By

[HumanResources].[Employee]
[JsonOutput].[uvw_HumanResourcesEmployee]

iii [Udt].[Name]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	nvarchar
Length	40

SQL Script

CREATE TYPE [Udt].[Name] FROM nvarchar (40) NULL
GO

Uses

Udt

Used By

[Triggered]. [Audit Triggered Employee History]

[Triggered].[Employee]



Property	Value
Nullability	NULL allowed
Base Type Name	nvarchar
Length	200

SQL Script

CREATE TYPE [Udt].[Note] FROM nvarchar (200) NULL
GO

Uses

Udt

Used By

[Triggered]. [Audit Triggered Employee History]

[Triggered].[Employee]

[Udt].[Percentage]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	numeric
Length	5

SQL Script

CREATE TYPE [Udt].[Percentage] FROM numeric (4, 3) NULL
GO

Uses

Udt

Used By

[Sales].[OrderDetail]
[JsonOutput].[uvw_MongoDBOrderdetail]
[JsonOutput].[uvw_OrderDetail]
[JsonOutput].[MongoOrderDetail]

[Udt].[PostalCode]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	nvarchar
Length	10

SQL Script

CREATE TYPE [Udt].[PostalCode] FROM nvarchar (10) NULL
GO

Uses

Udt

Used By

[HumanResources].[Employee]

[Production].[Supplier]

[Sales].[Customer]

[Sales].[Order]

[JsonOutput].[uvw_HumanResourcesEmployee]

[JsonOutput].[uvw_MongoDBOrder]

[JsonOutput].[uvw_Order]

[JsonOutput].[uvw_ProductionSupplier]

[JsonOutput].[uvw_SalesCustomer]

[JsonOutput].[MongoOrder]

[Udt].[ProductName]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	nvarchar
Length	40

SQL Script

CREATE TYPE [Udt].[ProductName] FROM nvarchar (40) NULL
GO

Uses

Udt

Used By

[Production].[Product]

[JsonOutput].[uvw_ProductionProduct]

[Udt].[QuantitySmall]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	smallint
Length	2

SQL Script

CREATE TYPE [Udt].[QuantitySmall] FROM smallint NULL
GO

Uses

Udt

Used By

[Sales].[OrderDetail]
[JsonOutput].[uvw_MongoDBOrderdetail]
[JsonOutput].[uvw_OrderDetail]
[JsonOutput].[MongoOrderDetail]

🛅 [Udt].[Region]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	nvarchar
Length	15

SQL Script

```
CREATE TYPE [Udt].[Region] FROM nvarchar (15) NULL
GO
```

Uses

Udt

Used By

[HumanResources].[Employee]

[Production].[Supplier]

[Sales].[Customer]

[Sales].[Order]

[JsonOutput].[uvw_HumanResourcesEmployee]

[JsonOutput].[uvw_MongoDBOrder]

[JsonOutput].[uvw_Order]

[JsonOutput].[uvw_ProductionSupplier]

[JsonOutput].[uvw_SalesCustomer]

[JsonOutput].[MongoOrder]



Property	Value
Nullability	NOT NULL
Base Type Name	tinyint
Length	1

SQL Script

CREATE TYPE [Udt].[Score] FROM tinyint NOT NULL
GO

Uses

[Udt].[SequenceNo]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	int
Length	4

SQL Script

CREATE TYPE [Udt].[SequenceNo] FROM int NULL
GO

Uses

Udt

Used By

[Triggered].[AuditTriggeredEmployeeHistory]

[Triggered].[Employee]

[Udt].[ShortDescription]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	nvarchar
Length	15

SQL Script

CREATE TYPE [Udt].[ShortDescription] FROM nvarchar (15) NULL
GO

Uses

[Udt].[StateName]

Properties

Property	Value
Nullability	NOT NULL
Base Type Name	nvarchar
Length	15

SQL Script

CREATE TYPE [Udt].[StateName] FROM nvarchar (15) NOT NULL
GO

Uses

[Udt].[StudentIdentification]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	varchar
Length	10

SQL Script

CREATE TYPE [Udt].[StudentIdentification] FROM varchar (10) NULL
GO

Uses

[Udt].[SurrogateKeyInt]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	int
Length	4

SQL Script

```
CREATE TYPE [Udt].[SurrogateKeyInt] FROM int NULL
GO
```

Uses

Udt

Used By

[dbo].[Nums]

[HumanResources].[Employee]

[Production].[Category]

[Production].[Product]

[Production].[Supplier]

[Sales].[Customer]

[Sales].[Order]

[Sales].[OrderDetail]

[Sales].[Shipper]

[Triggered].[AuditTriggeredEmployeeHistory]

[Triggered].[Employee]

 $[JsonOutput].[uvw_HumanResourcesEmployee]$

 $[JsonOutput].[uvw_MongoDBOrder]$

[JsonOutput].[uvw MongoDBOrderdetail]

[JsonOutput].[uvw Order]

[JsonOutput].[uvw_OrderDetail]

[JsonOutput].[uvw_ProductionCategory]

[JsonOutput].[uvw_ProductionProduct]

[JsonOutput].[uvw_ProductionSupplier]

 $[JsonOutput].[uvw_SalesCustomer]$

[JsonOutput].[uvw_SalesShipper]

[JsonOutput].[MongoOrder]

[JsonOutput].[MongoOrderDetail]

[Udt].[TelephoneNumber]

Properties

Property	Value
Nullability	NULL allowed
Base Type Name	nvarchar
Length	24

SQL Script

CREATE TYPE [Udt].[TelephoneNumber] FROM nvarchar (24) NULL
GO

Uses

Udt

Used By

[HumanResources].[Employee]

[Production].[Supplier]

[Sales].[Customer]

[Sales].[Shipper]

[JsonOutput].[uvw_HumanResourcesEmployee]

[JsonOutput].[uvw_ProductionProduct]

[JsonOutput].[uvw_ProductionSupplier]

[JsonOutput].[uvw_SalesCustomer]

[JsonOutput].[uvw_SalesShipper]

[Udt].[TextKeyVarchar10]

Properties

Property	Value
Nullability	NOT NULL
Base Type Name	varchar
Length	10

SQL Script

CREATE TYPE [Udt].[TextKeyVarchar10] FROM varchar (10) NOT NULL GO

Uses

[Udt].[TimeStampNow]

Properties

Property	Value
Nullability	NOT NULL
Base Type Name	datetime2
Length	8

SQL Script

CREATE TYPE [Udt].[TimeStampNow] FROM datetime2 NOT NULL
GO

Uses

Udt

Used By

[Triggered].[AuditTriggeredEmployeeHistory]

[Triggered].[Employee]

" [Udt].[Title]

Properties

Property	Value
Nullability	NOT NULL
Base Type Name	nvarchar
Length	30

SQL Script

CREATE TYPE [Udt].[Title] FROM nvarchar (30) NOT NULL
GO

Uses

Udt

Used By

[HumanResources].[Employee]
[Sales].[Customer]
[JsonOutput].[uvw_HumanResourcesEmployee]
[JsonOutput].[uvw_SalesCustomer]

[Udt].[TitleOfCourtesy]

Properties

Property	Value
Nullability	NOT NULL
Base Type Name	nvarchar
Length	5

SQL Script

CREATE TYPE [Udt].[TitleOfCourtesy] FROM nvarchar (5) NOT NULL
GO

Uses

Udt

Used By

[HumanResources].[Employee]
[JsonOutput].[uvw_HumanResourcesEmployee]

[Udt].[TriggerOption]

Properties

Property	Value
Nullability	NOT NULL
Base Type Name	char
Length	1

SQL Script

CREATE TYPE [Udt].[TriggerOption] FROM char (1) NOT NULL
GO

Uses

Udt

Used By

[Triggered].[AuditTriggeredEmployeeHistory]



Property	Value
Nullability	NULL allowed
Base Type Name	int
Length	4

SQL Script

CREATE TYPE [Udt].[Version] FROM int NULL
GO

Uses



Property	Value
Nullability	NOT NULL
Base Type Name	nchar
Length	4

SQL Script

CREATE TYPE [Udt].[YYYY] FROM nchar (4) NOT NULL
GO

Uses



Objects

Name	
dbo	
guest	
student	



Property	Value
Туре	SqlUser
Login Name	sa
Default Schema	dbo

Database Level Permissions

Туре	Action
CONNECT	Grant

SQL Script

GO



Property	Value
Туре	SqlUser
Default Schema	guest

SQL Script

GO CONTRACTOR CONTRACT	



Property	Value
Туре	SqlUser
Default Schema	dbo

Database Level Permissions

Туре	Action
CONNECT	Grant

SQL Script

CREATE USER [student] WITHOUT LOGIN
GO

La Database Roles

Objects

Name
db_accessadmin
db_backupoperator
db_datareader
db_datawriter
db_ddladmin
db_denydatareader
db_denydatawriter
db_owner
db_securityadmin
public

♣ db_accessadmin

Properties

Property	Value
Owner	dbo

db_backupoperator

Properties

Property	Value
Owner	dbo

db_datareader

Properties

Property	Value
Owner	dbo

Members

student

SQL Script

ALTER ROLE [db_datareader] ADD MEMBER [student]
GO

Uses

student

♣ db_datawriter

Properties

Property	Value
Owner	dbo

♣ db_ddladmin

Property	Value
Owner	dbo

db_denydatareader

Properties

Property	Value
Owner	dbo

db_denydatawriter

Properties

Property	Value
Owner	dbo

db_owner

Properties

Property Value

er	dbo
----	-----

db_securityadmin

Properties

Property	Value
Owner	dbo

♣ public

Properties

Property	Value
Owner	dbo

△ Schemas

Objects

Name
Audit
DbSecurity
Example
HumanResources
JsonOutput
Production
RelationalCalculii
RelationalCrossJoin
Sales
SystemVersioned
Temporal
Triggered
Udt
Utils



Property	Value
Owner	dbo

SQL Script

CREATE SCHEMA [Audit]
AUTHORIZATION [dbo]
GO

♣ DbSecurity

Properties

Property	Value
Owner	dbo

SQL Script

```
CREATE SCHEMA [DbSecurity]
AUTHORIZATION [dbo]
GO
```

△ Example

Properties

Property	Value
Owner	dbo

SQL Script

CREATE SCHEMA [Example]
AUTHORIZATION [dbo]
GO

△ HumanResources

Properties

Property	Value
Owner	dbo

SQL Script

```
CREATE SCHEMA [HumanResources]
AUTHORIZATION [dbo]
GO
```

Used By

[HumanResources].[Employee]

♣ JsonOutput

Properties

Property	Value
Owner	dbo

SQL Script

```
CREATE SCHEMA [JsonOutput]
AUTHORIZATION [dbo]
GO
```

Used By

[JsonOutput].[uvw_HumanResourcesEmployee]

[JsonOutput].[uvw_MongoDBOrder]

[JsonOutput].[uvw_MongoDBOrderdetail]

[JsonOutput].[uvw_Order]

[JsonOutput].[uvw_OrderDetail]

[JsonOutput].[uvw_ProductionCategory]

[JsonOutput].[uvw_ProductionProduct]

[JsonOutput].[uvw_ProductionSupplier]

[JsonOutput].[uvw_SalesCustomer]

[JsonOutput].[uvw_SalesShipper]

[JsonOutput].[MongoOrder]

[JsonOutput].[MongoOrderDetail]

⚠ Production

Properties

Property	Value
Owner	dbo

SQL Script

```
CREATE SCHEMA [Production]
AUTHORIZATION [dbo]
GO
```

Used By

[Production].[Category] [Production].[Product]

[Production].[Supplier]



Properties

Property	Value
Owner	dbo

SQL Script

CREATE SCHEMA [RelationalCalculii]
AUTHORIZATION [dbo]
GO

⚠ RelationalCrossJoin

Properties

Property	Value
Owner	dbo

SQL Script

CREATE SCHEMA [RelationalCrossJoin]
AUTHORIZATION [dbo]
GO

△ Sales

Properties

Property	Value
Owner	dbo

SQL Script

```
CREATE SCHEMA [Sales]
AUTHORIZATION [dbo]
GO
```

Used By

[Sales].[Customer] [Sales].[Order] [Sales].[OrderDetail] [Sales].[Shipper]

[Sales].[usp_getorders]

Project > 127.0.0.1,13001 > User databases > MidtermDataModelingCSCl381 > Security > Schemas > System-Versioned

△ SystemVersioned

Properties

Property	Value
Owner	dbo

SQL Script

```
CREATE SCHEMA [SystemVersioned]
AUTHORIZATION [dbo]
GO
```

Used By

[SystemVersioned].[Employee]

△ Temporal

Properties

Property	Value
Owner	dbo

SQL Script

```
CREATE SCHEMA [Temporal]
AUTHORIZATION [dbo]
GO
```

⚠ Triggered

Properties

Property	Value
Owner	dbo

SQL Script

```
CREATE SCHEMA [Triggered]
AUTHORIZATION [dbo]
GO
```

Used By

[Triggered].[AuditTriggeredEmployeeHistory]

[Triggered].[Employee]

[Triggered].[utvf_EmployeeCurrentAndHistory]

 $[Triggered]. [utvf_EmployeeCurrentAndHistoryCTE] \\$

Properties

Property	Value
Owner	dbo

SQL Script

```
CREATE SCHEMA [Udt]
AUTHORIZATION [dbo]
GO
```

Used By

[Udt].[Address]

[Udt].[BlobDefinition]

[Udt].[CategoryName]

[Udt].[City]

[Udt].[CompanyName]

[Udt].[ContactName]

[Udt].[ContactTitle]

[Udt].[Country]

[Udt].[Currency]

[Udt].[DateYYYYMMDD]

[Udt].[Description]

[Udt].[FirstName]

[Udt].[FlagBit]

[Udt].[FlagChar]

[Udt].[Grade]

[Udt].[IsDeletion]

[Udt].[LastName]

[Udt].[Name]

[Udt].[Note]

[Udt].[Percentage]

[Udt].[PostalCode]

[Udt].[ProductName]

[Udt].[QuantitySmall]

[Udt].[Region]

[Udt].[Score]

[Udt].[SequenceNo]

[Udt].[ShortDescription]

[Udt].[StateName]

[Udt].[StudentIdentification]

[Udt].[SurrogateKeyInt]

[Udt].[TelephoneNumber]

[Udt].[TextKeyVarchar10]

[Udt].[TimeStampNow]

[Udt].[Title]

[Udt].[TitleOfCourtesy]

[Udt].[TriggerOption]

[Udt].[Version]

[Udt].[YYYY]

⚠ Utils

Properties

Property	Value
Owner	dbo

SQL Script

```
CREATE SCHEMA [Utils]
AUTHORIZATION [dbo]
GO
```

Used By

 $[Utils]. [uvw_FindColumnDefinitionPlusDefaultAndCheckConstraint] \\ [Utils]. [uw_FindAllDatabaseColumnsOnTheServer] \\$