DATA TYPES

VERSION 1.0

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Data Type?

- Indicates the type of data the field will contain.

Data Types

- Numeric data types
- Character data types
- Temporal (date and/or time) data types
- Miscellaneous data types

Precision, Scale, and Length

- **Precision** is the number of digits in a number. **Scale** is the number of digits to the right of the decimal point in a number.
  - For example, the number 123.45 has a precision of 5 and a scale of 2.

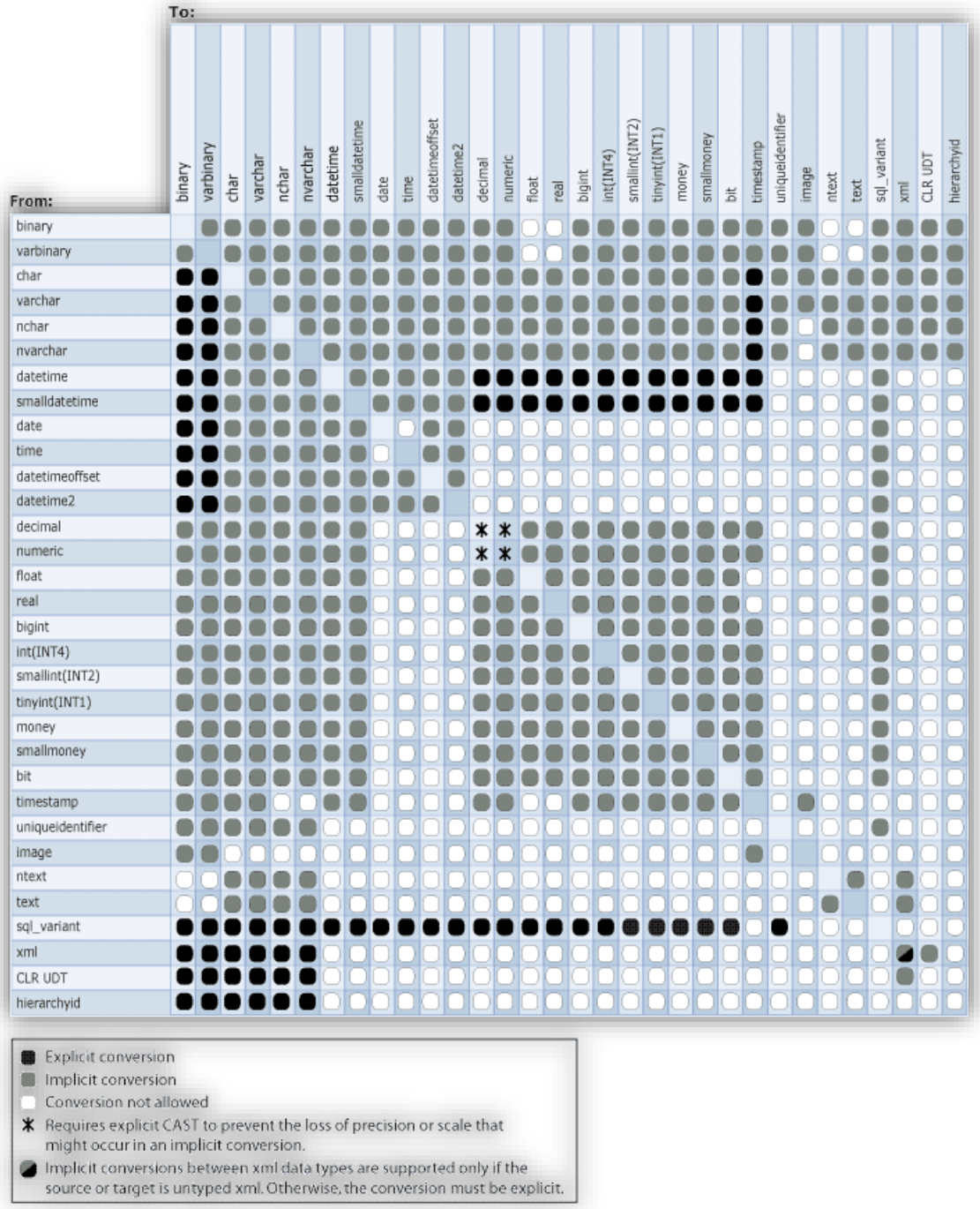
Custom Data Type (Alias)

```
CREATE TYPE dbo.ProjectCode
FROM char(6)
NOT NULL
```

Special Column Types

- Computed columns
  - Virtual columns that are not physically stored in the table
- Identity columns
  - An Identity column is often used for primary key values
- UniqueIdentifier columns
  - Guaranteed to be universally unique
- TimeStamp columns
  - Guaranteed to be unique within a database

Converts an expression of one data type to another.


To:
From:
binary
varbinary
char
varchar
nchar
nvarchar
datetime
smalldatetime
date
time
datetimeoffset
datetime2
decimal
numeric
float
real
bigint
int(INT4)
smallint(INT2)
tinyint(INT1)
money
smallmoney
bit
timestamp
uniqueidentifier
image
ntext
text
sql_variant
xml
CLR UDT
hierarchyid
Explicit conversion
Implicit conversion
Conversion not allowed
Requires explicit CAST to prevent the loss of precision or scale that might occur in an implicit conversion.
Implicit conversions between xml data types are supported only if the source or target is untyped xml. Otherwise, the conversion must be explicit.

Source: MSDN

CAST and CONVERT

- Explicitly converts an expression of one data type to another.

CAST and CONVERT: Syntax

- CAST (expression AS data_type)
- CONVERT (data_type [(length)] , expression [, style])

CAST and CONVERT: DEMO

- PRINT 'Date/time in format MON DD YYYY HH:MI AM (OR PM): ' + CONVERT(CHAR(19),GETDATE())

- PRINT '6) Date/time in format DD MON YYYY HH:MM:SS:MMM(24H): ' + CONVERT(CHAR(24),GETDATE(),113)

```
DECLARE @d DATETIME
SET @d = '2008-02-09 10:31 PM' -- Length 19
SELECT REPLACE(CONVERT(CHAR(16),@d,120),'-','/')
```

- DECLARE @d DATETIME
- SET @d = '2008-02-09 10:31 PM'
- SELECT DATENAME(DAY,@d)

```
DECLARE @id char(4)
SET @id = '123'
SET @id = CAST(@id AS int) + 1
SELECT @id
```

```
SELECT CAST(10.6496 AS int)
```

```
SELECT CAST(15.279769 AS money)
```

References

- Data Types http://technet.microsoft.com/en-us/library/ms187752.aspx
- Cast and Convert http://msdn.microsoft.com/en-us/library/ms187928.aspx