Authentication and Authorization

Module Overview

- Authentication
- Authorization
- Accessing SQL Server Resources

Lesson 1: Authentication

- Process of Authentication
- Windows Authentication
- SQL Server Authentication

Process of Authentication

- SQL Server has a very secure entry point.
- This means no access without the correct credentials.

Windows Authentication

- Windows Authentication uses Kerberos security protocol
- Provides password policy enforcement
- Windows Authentication is sometimes called a “trusted connection”

```
USE master
GO
  CREATE LOGIN [DBSERVER\DBA]
  FROM WINDOWS
  DEFAULT_DATABASE=[AdventureWorks2012]
GO
```

SQL Server Authentication

- Logins are created in SQL Server that are not based on Windows user accounts.
- User name and the password are created by using SQL Server and stored in SQL Server.

```
USE master
GO
CREATE LOGIN [DBA]
  WITH PASSWORD='S0m3C00lPa$$'
  MUST_CHANGE,
  CHECK_EXPIRATION=ON,
  CHECK_POLICY=ON
```

Database Authentication

- A new way to authenticate users at the database-level
- Tightly connected with the new SQL Server feature named “contained database“
- Helps users to isolate their database from the instance

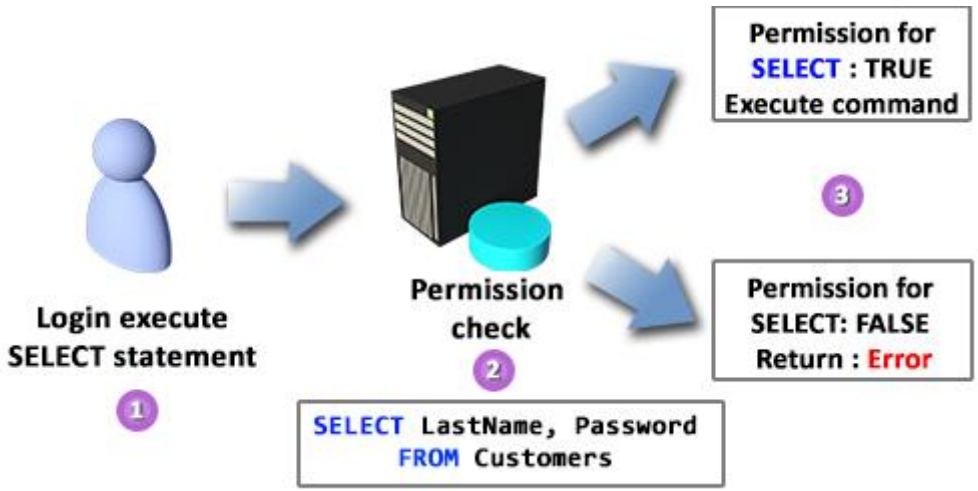
```
USE [ContainedDB]
GO
CREATE USER ContainedUser
WITH PASSWORD='S0m3C00lPa$$'
GO
```

Lesson 2: Authorization

- Process of Authorization
- Mapping Login to User
- Default Database Users

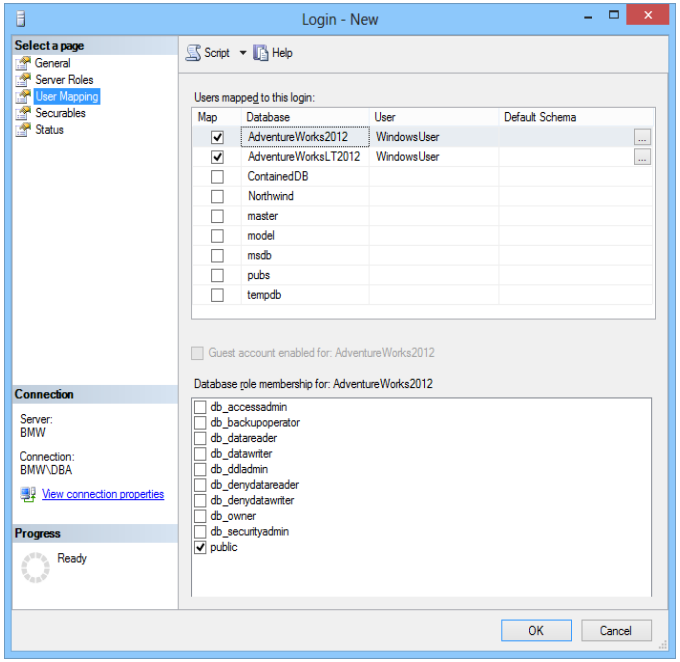
Process of Authorization

- In this phase, SQL Server will check the login policy to determine if there are any access rights to the server- and/or database-level.



Mapping Login to User

- **The terms “login” and “user” are to be used very carefully, as they are not the same.**
  - Login is the authentication part
  - User is the authorization part




```
CREATE USER DataReader

  FOR LOGIN [SomeDomain\Imran]
```

Default Database Users

- **Default users depend on your configuration, but the following two names are pre-set in all databases:**
  - Guest
  - dbo
- **Each database includes a guest**
  - Denied by default
- **Database Owner (dbo) is a default user in all databases**

Lesson 3: Accessing SQL Server Resources

- Server-Side Security
- Database Security
- Schema Separation

Server-Side Security

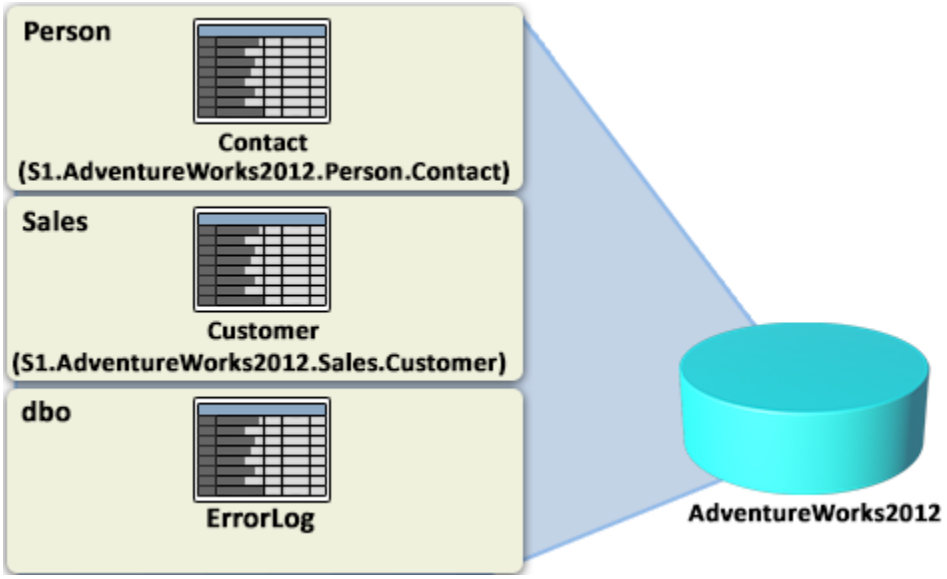
- **SQL Server provides nine fixed server roles.**
  - sysadmin
  - serveradmin
  - securityadmin
  - processadmin
  - setupadmin
  - bulkadmin
  - diskadmin
  - dbcreator
  - public
- **The permissions that are granted to the fixed server roles cannot be changed.**
- **With SQL Server 2012, you can create user-defined server roles**

Database Security

- **Fixed database roles are defined at the database-level and exist in each database**
- **Database-level Role Name**
  - db_owner
  - db_securityadmin
  - db_accessadmin
  - db_backupoperator
  - db_ddladmin
  - db_datawriter
  - db_datareader
  - db_denydatawriter
  - db_denydatareader

Schema Separation

- A schema is a collection of database objects that are owned by a single principal and form a single namespace.



Questions