27
Customizing the Use of Strong Authentication

You can configure multiple authentication methods under Oracle Database native network encryption and strong authentication.

- Connecting to a Database Using Strong Authentication
  You can use password authentication to connect to a database that is configured to use strong authentication.
- Disabling Strong Authentication and Native Network Encryption
  You can use Oracle Net Manager to disable strong authentication and native network encryption.
- Configuring Multiple Authentication Methods
  Many networks use more than one authentication method on a single security server.
- Configuring Oracle Database for External Authentication
  You can use parameters to configure Oracle Database for network authentication.

27.1 Connecting to a Database Using Strong Authentication

You can use password authentication to connect to a database that is configured to use strong authentication.

1. To connect to an Oracle database server using a user name and password when an Oracle network and strong authentication method has been configured, disable the external authentication.

   You must first disable strong authentication by disabling the external authentication before you can connect to an Oracle Database server using a user name and password when an Oracle network and strong authentication method has been configured.

2. With the external authentication disabled, connect to the database using the following format:

   ```
   % sqlplus username@net_service_name
   Enter password: password
   ```

   For example:

   ```
   % sqlplus hr@emp
   Enter password: password
   ```

   You can configure multiple authentication methods, including both externally authenticated users and password authenticated users, on a single database.

Related Topics

- Disabling Strong Authentication and Native Network Encryption
  You can use Oracle Net Manager to disable strong authentication and native network encryption.

27.2 Disabling Strong Authentication and Native Network Encryption

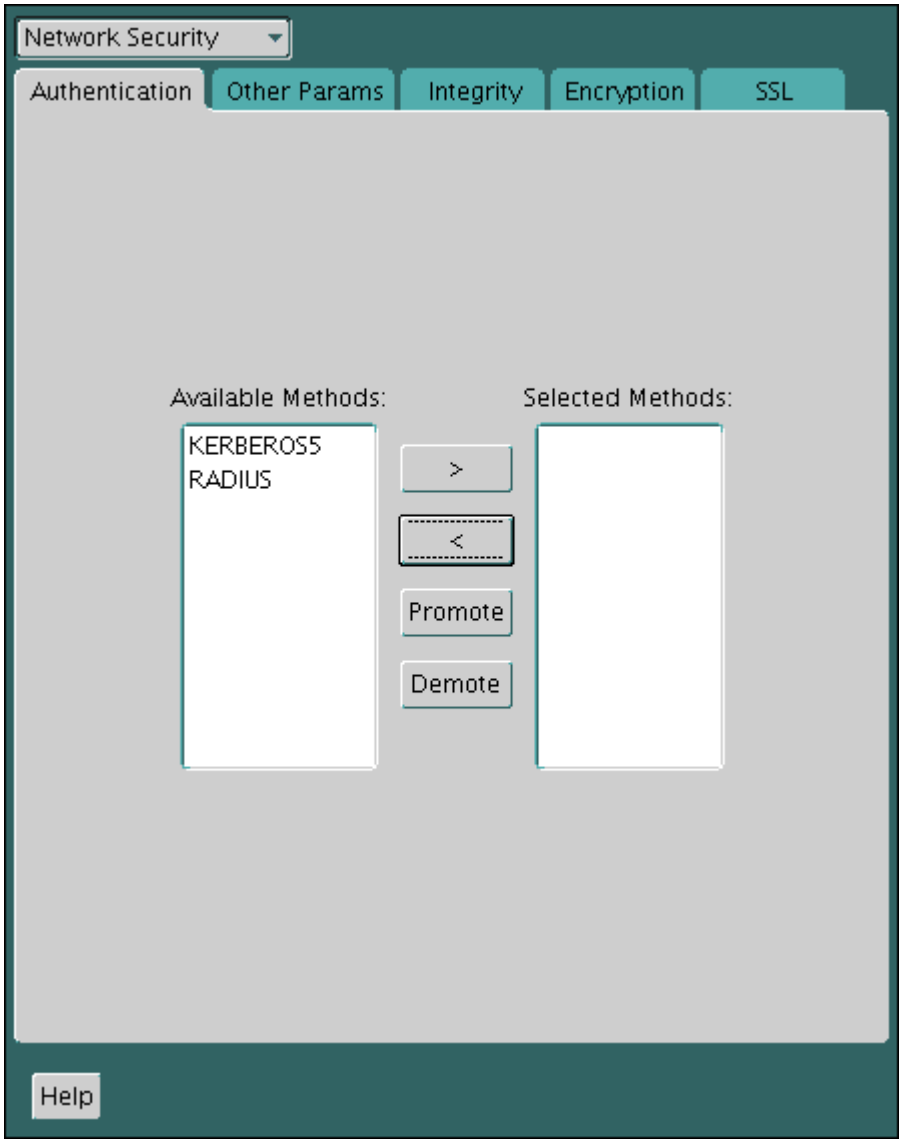
You can use Oracle Net Manager to disable strong authentication and native network encryption.

1. Start Oracle Net Manager.
   - (UNIX) From *$ORACLE_HOME*/bin, enter the following command at the command line:

     ```
     netmgr
     ```

   - (Windows) Select **Start**, **Programs**, **Oracle - HOME_NAME**, **Configuration and Migration Tools**, then **Net Manager**.
2. Expand **Oracle Net Configuration**, and from **Local**, select **Profile**.
3. From the **Naming** list, select **Network Security**.

   The Network Security tabbed window appears.
4. Select the **Authentication** tab (which is selected by default).
5. Sequentially move all authentication methods from the Selected Method list to the Available Methods list by selecting a method and choosing the left arrow [<].



6. Select the **Encryption** tab.
7. Do the following:
   - From the **Encryption** menu, select **SERVER**.
   - Set **Encryption Type** to **rejected**.
   - In the **Encryption Seed** field, enter a valid encryption seed if an encryption seed was used.
   - Under **Select Methods**, move any methods to the **Available Methods** field.
8. Repeat these steps disable native network encryption for the client, by selecting **CLIENT** from the **Encryption** menu.
9. From the **File** menu, select **Save Network Configuration**.

   The `sqlnet.ora` file is updated with the following entries to indicate that strong authentication and native network encryption are disabled:

   Strong authentication:

   ```
   SQLNET.AUTHENTICATION_SERVICES = (NONE)
   ```

If you are using local database password authentication, then you can also set `SQLNET.AUTHENTICATION_SERVICES=(NONE)` in the client. This setting improves client performance.

For native network encryption, you can set it individually, for the server side and for the client side. The following examples show native network encryption being disabled for both the server and the client:

```
SQLNET.ENCRYPTION_SERVER = REJECTED
SQLNET.ENCRYPTION_CLIENT = REJECTED
```

Be aware that the settings in the `sqlnet.ora` file apply to all pluggable databases (PDBs).

Related Topics

- About the Values for Negotiating Encryption and Integrity
  Oracle Net Manager can be used to specify four possible values for the encryption and integrity configuration parameters.

27.3 Configuring Multiple Authentication Methods

Many networks use more than one authentication method on a single security server.

Accordingly, Oracle Database lets you configure your network so that Oracle clients can use a specific authentication method, and Oracle database servers can accept any method specified.

You can set up multiple authentication methods on both client and server systems either by using Oracle Net Manager, or by using any text editor to modify the `sqlnet.ora` file. Use Oracle Net Manager to add authentication methods to both clients and servers.

1. Start Oracle Net Manager.
   - (UNIX) From *`$ORACLE_HOME`*`/bin`, enter the following command at the command line:

     ```
     netmgr
     ```

   - (Windows) Select **Start**, **Programs**, **Oracle - HOME_NAME**, **Configuration and Migration Tools**, then **Net Manager**.
2. Expand **Oracle Net Configuration**, and from **Local**, select **Profile**.
3. From the **Naming** list, select **Network Security**.

   The Network Security tabbed window appears.
4. Select the **Authentication** tab.
5. Select a method listed in the Available Methods list.
6. Sequentially move selected methods to the Selected Methods list by clicking the right arrow (>).
7. Arrange the selected methods in order of desired use.

   To do this, select a method in the Selected Methods list, and select **Promote** or **Demote** to position it in the list.
8. From the **File** menu, select **Save Network Configuration**.

   The `sqlnet.ora` file is updated with the following entry, listing the selected authentication methods:

   ```
   SQLNET.AUTHENTICATION_SERVICES = (KERBEROS5, RADIUS)
   ```

> **Note:**
>
> SecurID functionality is available through RADIUS; RADIUS support is built into the RSA ACE/Server.

Related Topics

- Configuring RADIUS Authentication
  RADIUS is a client/server security protocol widely used to enable remote authentication and access.

27.4 Configuring Oracle Database for External Authentication

You can use parameters to configure Oracle Database for network authentication.

- Setting the SQLNET.AUTHENTICATION_SERVICES Parameter in sqlnet.ora
  The `SQLNET.AUTHENTICATION_SERVICES` parameter defines the authentication method and version to be used.
- Setting OS_AUTHENT_PREFIX to a Null Value
  The `OS_AUTHENT_PREFIX` parameter specifies a prefix that Oracle Database uses to authenticate users who attempt to connect to the server.

27.4.1 Setting the SQLNET.AUTHENTICATION_SERVICES Parameter in sqlnet.ora

The `SQLNET.AUTHENTICATION_SERVICES` parameter defines the authentication method and version to be used.

You must set the `SQLNET.AUTHENTICATION_SERVICES` parameter in the `sqlnet.ora` file for all clients and servers to enable each to use a supported authentication method.

- Set the `SQLNET.AUTHENTICATION_SERVICES` parameter using the following syntax:

  ```
  SQLNET.AUTHENTICATION_SERVICES=(oracle_authentication_method)
  ```

  For example, for all clients and servers using Kerberos authentication:

  ```
  SQLNET.AUTHENTICATION_SERVICES=(KERBEROS5)
  ```

  By default, the `sqlnet.ora` file is located in the *ORACLE_HOME*`/network/admin` directory or in the location set by the `TNS_ADMIN` environment variable. Ensure that you have properly set the `TNS_ADMIN` variable to point to the correct `sqlnet.ora` file.

  If you are only using local database password authentication, then set the `SQLNET.AUTHENTICATION_SERVICES` as follows for better client performance:

  ```
  SQLNET.AUTHENTICATION_SERVICES=(NONE)
  ```

Related Topics

- *SQL*Plus User's Guide and Reference*

27.4.2 Setting OS_AUTHENT_PREFIX to a Null Value

The `OS_AUTHENT_PREFIX` parameter specifies a prefix that Oracle Database uses to authenticate users who attempt to connect to the server.

Authentication service-based user names can be long, and Oracle user names are limited to 128 bytes. Oracle strongly recommends that you set the `OS_AUTHENT_PREFIX` parameter to a null value.

- In the initialization file for the database instance, set `OS_AUTHENT_PREFIX` as follows:

  ```
  OS_AUTHENT_PREFIX=""
  ```

  Note the following:

  - The default value for `OS_AUTHENT_PREFIX` is `OPS$`; however, you can set it to any string.
  - If a database already has the `OS_AUTHENT_PREFIX` set to a value other than `NULL` (" "), then *do not change it,* because it can inhibit previously created, externally identified users from connecting to the Oracle server.

  After you have set `OS_AUTHENT_PREFIX` to null, then you can create external users by using the following syntax:

  ```
  CREATE USER os_authent_prefix_username IDENTIFIED EXTERNALLY;
  ```

  For example, to create the user `king`:

  ```
  CREATE USER king IDENTIFIED EXTERNALLY;
  ```

  The advantage of creating a user in this way is that you no longer need to maintain different user names for externally identified users. This is true for all supported authentication methods.