



Troubleshooting Oracle Connection Errors: ORA- 12514 and ORA-12541

Issue

When attempting to connect to an Oracle database using SQL*Plus with the connection string Aicha/Aicha_2025_Secure\$123@//localhost:1521/ORCLPDB, the following errors occurred:

1. **ORA-12514:** TNS:listener does not currently know of service requested in connect descriptor
2. **ORA-12541:** TNS:no listener (when trying //localhost:1522/orclpdb)

The connection succeeded with Aicha/Aicha_2025_Secure\$123@//192.168.1.111:1522/orclpdb.

Environment

- **Oracle Version:** 21c (21.0.0.0.0, 64-bit Windows)
- **Listener Configuration:** Listener running on 192.168.1.111:1522
- **Service Name:** orclpdb (Pluggable Database)
- **Client:** SQL*Plus on Windows
- **Host:** DESKTOP-B20F656 (resolving to 192.168.1.111 for IPv4, ::1 for IPv6)

Cause

1. **ORA-12514 (Port Mismatch):**
 - The connection string used port 1521, but the Oracle listener was configured to run on port 1522 (confirmed via lsnrctl status).
 - The listener did not recognize any services on port 1521, causing the error.
2. **ORA-12541 (IPv6 vs. IPv4 Issue):**
 - The connection attempt with //localhost:1522/orclpdb failed because localhost resolved to ::1 (IPv6) on the client machine (verified via ping localhost).
 - The listener was bound to 192.168.1.111 (IPv4) and not configured to accept connections on the IPv6 address (::1).
3. **Successful Connection:**
 - The connection to //192.168.1.111:1522/orclpdb worked because it matched the listener's configured IP (192.168.1.111) and port (1522), and the service orclpdb was registered (confirmed via lsnrctl status).

Why It Happened

- **Port Misconfiguration:** The client connection string incorrectly specified port 1521, while the listener was running on 1522, as defined in listener.ora.

- **IPv6 Resolution:** Windows resolved localhost to ::1 (IPv6), but the Oracle listener was bound to an IPv4 address (192.168.1.111). The listener was not configured to handle IPv6 connections.
- **Listener Binding:** The listener.ora file specified HOST = 192.168.1.111, limiting connections to the IPv4 interface and excluding localhost (IPv6).

Solution

Immediate Fix

To resolve the issue and connect successfully:

bash

Copier

```
sqlplus Aicha/Aicha_2025_Secure$123@//192.168.1.111:1522/orclpdb
```

This worked because it used the correct IP (192.168.1.111), port (1522), and service name (orclpdb).

Permanent Fix

To enable connections using localhost and prevent future issues:

1. **Update listener.ora:** Modify the listener.ora file (located at C:\Oracle\base\homes\OraDB21Home3\network\admin\listener.ora) to bind the listener to all interfaces or include localhost:

```
LISTENER =
```

```
(DESCRIPTION_LIST =
```

```
(DESCRIPTION =
```

```
(ADDRESS = (PROTOCOL = TCP)(HOST = 0.0.0.0)(PORT = 1522))
```

```
(ADDRESS = (PROTOCOL = IPC)(KEY = EXTPROC1522))
```

```
)
```

```
)
```

Alternatively, add localhost explicitly:

```
text
```

```
Copier
```

```
LISTENER =
```

```
(DESCRIPTION_LIST =
```

```
(DESCRIPTION =
```

```
(ADDRESS = (PROTOCOL = TCP)(HOST = 192.168.1.111)(PORT = 1522))
```

```
(ADDRESS = (PROTOCOL = TCP)(HOST = localhost)(PORT = 1522))
```

```
(ADDRESS = (PROTOCOL = IPC)(KEY = EXTPROC1522))
```

```
)
```

```
)
```

2. **Reload the Listener:** Apply the changes:

```
lsnrctl reload
```

3. **Test the Connection:** Verify that localhost now works:

```
sqlplus Aicha/Aicha_2025_Secure$123@//localhost:1522/orclpdb
```

4. **Optional: Configure tnsnames.ora:** For simpler connections, add an entry to tnsnames.ora (in C:\Oracle\base\homes\OraDB21Home3\network\admin):

```
ORCLPDB =
```

```
(DESCRIPTION =
```

```
(ADDRESS = (PROTOCOL = TCP)(HOST = 192.168.1.111)(PORT = 1522))
```

```
(CONNECT_DATA =
```

```
(SERVICE_NAME = orclpdb)
```

```
)
```

```
)
```

Connect using:

```
sqlplus Aicha/Aicha_2025_Secure$123@ORCLPDB
```

5. **Optional: Update Hosts File:** To force localhost to resolve to 127.0.0.1 (IPv4) instead of ::1 (IPv6), edit C:\Windows\System32\drivers\etc\hosts:

```
127.0.0.1 localhost
```

```
192.168.1.111 DESKTOP-B20F656
```

Verify with:

```
ping localhost
```

Verification

- Check listener status:

```
lsnrctl status
```

Ensure orclpdb is listed under "Services Summary" and the listener is on port 1522.

- Test connectivity:

```
telnet localhost 1522
```

- Confirm PDB status:

```
sqlplus / as sysdba
```

```
SELECT name, open_mode FROM v$pdb;
```

Ensure orclpdb is in READ WRITE mode.

Additional Notes

- **Firewall:** Ensure port 1522 is open in the Windows firewall:

```
netsh advfirewall firewall add rule name="Oracle 1522" dir=in action=allow protocol=TCP  
localport=1522
```

- **Password:** The password Aicha_2025_Secure\$123 is complex and compliant, but always verify it meets Oracle's security policies.
- **IPv6 Support:** If IPv6 is required, ensure the Oracle listener is configured to handle IPv6 addresses (e.g., HOST = ::1).

Contributing

If you encounter similar issues or have additional solutions, please contribute by submitting a pull request or opening an issue in this repository.