

# Error 17828 - State 3 - The prelogin packet used to open the connection is structurally invalid

Last updated by | Holger Linke | Feb 28, 2023 at 12:46 AM PST

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## Issue

The client application is unable to connect and reports the following error:

Error 17828 State 3

The prelogin packet used to open the connection is structurally invalid; the connection has been closed.  
Please contact the vendor of the client library. [CLIENT: <ipv4 address>]

This error might come with additional driver/provider messages, like:

Protocol error in TDS stream  
Communication link failure

## Investigation / Analysis

The cause is exactly what the error messages states: the pre-login packet sent by the SQL client driver/provider was structurally invalid or had an invalid value in a field.

Important for the investigation is the following distinction:

- Has this worked previously and suddenly started to fail?
- Was there any update in the components, either at the client or the SQL side, in timely relation to the start of the issue? It might be either a change of client driver technology (ODBC <-> JDBC <-> OLE DB) or a recent database upgrade maintenance.
- Or is this a new client configuration that has never worked before?

If this is a new configuration, or if it started to fail after an infrastructure update, then the issue is very likely related to an invalid client library. For example, the JDBC driver might be an old version, and it started to fail after the SQL database was upgraded to the newest server version.

If there was no recent change to either client or SQL database, then the cause might be an issue with the SQL gateway. For example, if there are CPU spikes on a gateway node, it might introduce problems at the network level. The client symptom would be intermittent failures depending on what gateway node is handling the login request.

## Kusto query to validate issue

Use the following Kusto query to narrow down on when the issue has started. You might have to play with the time ranges and column filters to understand the customer scenario. If you have narrowed it down, then create an ASC troubleshooter report and cross-check downtime and provisioning information.

```
// can't filter on database name, as prelogin doesn't provide it
let srv = "servername";
let startTime = datetime(2023-02-23 04:00:00Z);
let endTime = datetime(2023-02-23 16:00:00Z);
let timeRange = ago(1d);
MonLogin
| where TIMESTAMP >= startTime
| where TIMESTAMP <= endTime
//| where TIMESTAMP >= timeRange
| where LogicalServerName =~ srv
| where event == "process_login_finish"
| where is_success == false
| where error == 17828
| project TIMESTAMP,error,state,is_user_error,package,event,sessionName,logical_server_name,database_name,conn
error_code,sql_state,message,type,os_error,sni_error,sni_consumer_error,sni_provider,tds_flags,sql_connection_
control_ring_address, instance_name, instance_port, total_time_ms, total_login_time_ms, sspi_time_ms, applicat
| limit 1000
```

## Mitigation

1. Update SQL client driver if the issue started after a recent client or server/database update.
2. Try to use a different client driver if possible. Change from OLE DB to ODBC. Or install a current version of SSMS on the failing platform and try to connect from there.
3. If this is an intermittent issue without any preceding client or server/database update: Consider opening an ICM with the Gateway team, as this could be an issue with one of the gateway nodes. PG would have the means to investigate further.

## Classification

Root cause tree: Azure SQL DB v2\Connectivity\Login Errors

## How good have you found this content?

