

# IBM Tivoli Netcool OMNibus

## ODBC gateway version 5.0 troubleshooting scenarios



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IBM Tivoli Netcool OMNibus ODBC Gateway version 5.0, ODBC Gateway Troubleshooting Scenarios

## Objectives

When you complete this module, you should be able to perform these tasks:

- Follow recommended Open Database Connectivity (ODBC) gateway troubleshooting steps
- Troubleshoot work region recovery issues
- Troubleshoot open ODBC gateway port issues
- Troubleshoot ODBC gateway database and object server connection issues
- Troubleshoot resynchronization issues
- Verify normal operation of the ODBC gateway
- Collect ODBC gateway software version and configuration file information for IBM customer support

When you finished this training you should be able to:

Follow gateway troubleshooting steps

Troubleshoot work region recovery

Open gateway ports

Reconnect gateway databases to object server connections

Resynchronize backups

Verify the gateway is working properly

Collect software version and configuration file information before contacting IBM support personnel

## ODBC gateway monitoring

Perform to following steps to monitor the ODBC gateway for problem recurrence:

1. Turn on debug logging and wait for problems to recur
  - a) Check for proper work region recovery
  - b) Make sure command, gateway, and statistic ports are opening and closing
  - c) Look for successful database and object server connections
  - d) Ensure ODBC gateway successfully resyncs data from the Object Server
  - e) Make sure the gateway receives IDUC data from the Object Server
  - f) If one of these problems reoccurs in the log then perform the recommended troubleshooting steps for that specific problem
  
2. Start or restart the ODBC gateway

When a problem occurs with the ODBC gateway, the recommended action to take is to enable debug logging and to monitor the ODBC gateway for the problem to recur.

Perform to following steps to monitor the ODBC gateway:

- Turn on debug logging and wait for problems to recur. Debug logging is the highest level of log capture
  - Check for work region recovery problems
  - Make sure command, gateway, and statistic ports are opening and closing
  - Look for database and object server connection problems
  - Ensure the ODBC gateway resyncs all data from the object server
  - Make sure the ODBC gateway receives IDUC from the object server
  - If one of these problems recur in the log then perform the recommended troubleshooting steps for that specific problem
- Start or restart the ODBC gateway to enable logging

## Activate debug logging

Activate debug logging for system monitoring with these command line:

- `$SOMNIHOME/bin/nco_g_odbc -name <name> -propsfile <property file location> -messagelevel debug -logossql TRUE -logstatisticsdata TRUE &`
  - `-name`: Assigned system name
  - `-propsfile`: Location on server of the properties file
  - `-messagelevel`: Change to debug to activate the highest log capture level
  - `-logossql`: Set to TRUE for capture of SQL commands
  - `-logstatisticsdata`: Set to TRUE for capture of statistical data

Activate system monitoring for problems recur with the command line shown. Tailor parts of the command line for your ODBC gateway.

- For the name parameter use your assigned system name
- In propsfile enter the path to the location on the server of the nco\_g\_odbc properties file
- For messagelevel change the logging level to debug to activate the highest log capture level
- In logossql you set the parameter to TRUE for the capture of SQL commands
- Finally, logstatisticsdata is set to TRUE for the capture of statistical data
- These logging options can also be configured in the properties file. A gateway restart is required.

## ODBC gateway operation issues

- On gateway startup, these steps can be seen in the gateway debug log:
  1. Work regions are recovered
  2. Command, statistics and gateway ports are opened
  3. Database connections are made
  4. Object Server connections are made
  5. Gateway sends all data in Object Server which is not in work regions
  6. Gateway receives new inserts, updates and deletes every IDUC cycle

ODBC gateway troubleshooting starts with looking for problems with any of these in the gateway debug log:

- Work regions not recovered
- Ports cannot be opened
- Databases not being able to connect
- Not connecting to Object Servers
- ODBC gateway is not able to resynchronize and send all data currently in the Object Server but not in work regions, and
- ODBC gateway is not receiving the regular cycle of Inserts, Deletes, Updates, and Changes (IDUCs)

## Troubleshooting – work regions not recovered

- Work regions not loaded from disk in \$OMNIHOME/var/nco\_g\_odbc
- Inadequate disk and memory space to recover work regions
  - Disk space available must be  $7 * \text{Gate.RegionHardLimit}$  as the gateway will reserve this space on startup.
  - Memory available must be  $7 * \text{Gate.RegionSoftLimit}$
- Corrupted work regions can be removed
- Gateway will resend all object server data during system restart
- Resend will create database primary key violation errors

If the gateway debug log shows an error in recovering work regions. Check the work regions in the \$OMNIHOME/var/nco\_g\_odbc directory. When this does not occur you must always check to ensure there is adequate disk storage and memory space available for the recovery.

For adequate disk space, available space must be seven times the region hard limit.

For adequate memory, available memory must be seven times the region soft limit.

If the work regions are corrupted in any way then they can be removed. This calls for deleting all files within the \$OMNIHOME/var/ directory. The ODBC gateway will resend all object server data after performing a ODBC gateway restart. When the work regions are removed, this will create database primary key violation errors initially as duplicate entries cannot be inserted until the gateway has retransferred all events in the Object Server.

## Troubleshooting – ports opened

- Command, statistics, and gateway ports are opened
- Ensure ports are not in use when gateway is stopped
  - Gate.GatewayCommandPort : 4600
  - Gate.StatisticsPort : 4500
  - Gate.AllocateDynamicPorts : FALSE
  - [nco\_g\_odbc]
    - {
    - Primary: host name 4300
    - }

If the gateway log reports an error in opening ports, check the port usage. The gateway opens three items: command, statistics, and gateway port. Port 4600 is the gateway command default port and 4500 is the statistics default port. Port 4300 is the default NCO\_GATE gateway port configured in the omni.dat file. These ports should be configured to be unique and, unused ports on the system.

## Troubleshooting scenario – database connections

- ODBC.UserName: In the format <ODBC user>@<Data source name> where ODBC user is a database user and Data source name is a configured data source in the odbc.ini on UNIX or ODBC Data Sources on Windows. For example, db2user@DB2 Wire Protocol
- ODBC.Password: Database user's password. Must be encrypted with nco\_g\_crypt or nco\_aes\_crypt for FIPS mode.
- Check configuration of odbc.ini on UNIX or ODBC Data Sources on Windows
- Install a database client on the gateway server and connect to the database

When the gateway log reports an error in connecting to the target database, check the properties file settings for ODBC.UserName and ODBC.Password. The ODBC.UserName property specifies the username@data source name. The ODBC.Password must be encrypted and not in plain text. Check that the Data Source is defined in the odbc.ini file on UNIX and ODBC Data Sources on Windows systems. Test connectivity by installing a new database client on the gateway server and connecting that client to the database.



## Troubleshooting scenario – object server connections

- Server: Object Server name specified in interfaces
  - [NCOMS]
    - {
      - Primary: host name 4100
}
- Sec.UserName: Object Server username. Must have gateway group membership at a minimum.
- Sec.Password: Object Server user's password. Must be encrypted with nco\_g\_crypt or nco\_aes\_crypt for FIPS mode.

The server in the gateway properties file must also be defined in the local interfaces file. If not then the gateway log reports an object server connection error. The gateway user name properties must be set to a specific object server user. The password must be the encrypted user password and not a plain text password.

## Troubleshooting scenario - resynchronization

Resynchronization problems can be caused by one of these:

- During a resync, the gateway sends data from Object Server which is not currently in the work regions
- Work regions were removed which led to duplicate primary key errors
- Statistic read/write rates for sending of data not comparable

When resynchronization issues occur the problem can be caused by one of these:

During a resync, the gateway sends all data from the Object Server which is not currently in the work regions. This causes duplicate primary key errors. These errors are to be expected if the work regions were deleted.

Statistic read and write rates for sending of data should be comparable. The Batch number should be close. If it is not then the gateway writer is not able to send data to the database at the same rate that the gateway reader is reading from the Object Server.

## Verification of normal operation

- Gateway receives new inserts, updates, deletes and changes every IDUC cycle
- Check statistics rates, ensure gateway is reading events at the same rate as writing events
- Gateway performance improvements.
  - Oracle.BatchSize: Defines the number of events to be sent in a batch to the database. Can be increased to 500 to improve performance.
- Database performance improvements

After the gateway has completed its startup sequence, it subscribes to receive new insert, update, delete, and change notifications from the Object Server. During normal operation, check the gateway statistics rates to ensure the gateway is reading events at the same rate that it is writing to the database. If the current writer batch is far below the reader batch it indicates a performance problem in the gateway. The Oracle.BatchSize setting can be increased up to 500 to improve the performance. If the writer performance is still poor then consult with your database administrator.

## Collecting gateway information – gateway version (1 of 2)

Gateway version – Gives Omnibus version and specific gateway information

```
-bash-3.00# ./nco_g_odbc -version
```

Netcool/OMNibus Version 7.2.1 ODBC Gateway

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Code Revision : Release ID: 5.4.1

ODBC Release: 5.3

If the error encountered is not resolved, there is certain information that should be collected for IBM support. The `nco_g_odbc -version` command will output the current ODBC release version, code release ID, and OMNibus version number.

## Collecting gateway information – gateway version (2 of 2)

### Library Revisions:

**libnetcool: 5.11.49**  
libnipc\_client: 5.11.49  
libnregion: 5.11.49  
libngtk: 5.11.54  
libngobjserv: 5.11.45  
libnstk: 5.11.18  
libnipc: 5.11.49  
libniduc\_client: 5.11.33  
network::ipv6: 5.11.28  
nco\_g\_odbc: Release ID: 5.4.1

Compilation Date: Mon Aug 10 14:31:11 UTC 2009

Compilation Machine: md000002s

Compilation System: AIX 2 5

Code Generation: PRODUCTION

The library revision listing in the gateway version output is for IBM support usage. Library revision lists determine the Omnibus fix pack level.

## Collecting gateway information - version

- `nco_id` – Gives Omnibus version and driver version for Omnibus 7.2.1 and prior  
`-bash-3.00# ./nco_id`  
Netcool/OMNIBus 7.2.1 - April 2009  
**common-libodbc-drivers-1\_0** - Netcool/OMNIBus Library for ODBC Probes & Gateways -  
Installed on Fri Jan 16 11:53:13 PST 2009  
**gateway-nco-g-odbc-5\_4** - IBM Tivoli Netcool/OMNIBus Gateway for ODBC - Installed on  
Mon Aug 10 08:22:40 PDT 2009  
**gateway-nco-g-reporter-scripts-2\_0** - Reporter database creation scripts - Installed on Fri  
Jan 16 11:52:39 PST 2009
- `listIU.sh` – Gives Omnibus version and driver version for Omnibus 7.3 and later  
IU UUID: FA11377B4813481AB03FEE9DFDD4D44B Name: **SIU-gateway-nco-g-odbc**  
**Version: 1.5.10.0**  
IU UUID: 166DB3A7ED2C411EA042BBD4EF1FB413 Name: **SIU-common-libodbc-**  
**driversVersion: 1.1.3.0**

For OMNIBus 7.2.1 and prior, the `nco_id` command gives OMNIBus and libodbc driver version information.

For OMNIBus 7.3 and later, the `listIU.sh` command gives OMNIBus and libodbc driver version information.

## Collecting gateway information – files to collect

- Send the gateway log file \$OMNIBHOME/log/nco\_g\_odbc.log in debug
- Send a copy of the gateway configuration files
  - Gateway properties – nco\_g\_odbc.props (replaces G\_ODBC.conf)
  - Gateway mapping – nco\_g\_odbc.map
  - Gateway startup command – nco\_g\_odbc.startup.cmd
  - Gateway trusted hosts – nco\_g\_odbc.thosts

When contacting IBM support send a copy of the gateway debug log file. Also send the four gateway configuration files – properties, mapping, startup command, and trusted hosts.

## Summary

Now that you have completed this module, you should be able to:

- Troubleshoot work region recovery issues
- Troubleshoot open ODBC gateway port issues
- Troubleshoot ODBC gateway database and object server connection issues
- Troubleshoot resynchronization issues
- Verify regular operation of the ODBC gateway
- Collect ODBC gateway version and file information for IBM customer support

Now that you have completed this module, you should be able to troubleshoot issues involving:

- Work region recovery
- ODBC gateway ports
- Database and Object Server connections
- Object Server resynchronization
- The verification of regular gateway operation
- And the collection of version and file information for IBM support



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