Tivoli Netcool Supports Guide to the ODBC Gateway by Jim Hutchinson Document release: 2.0

IBM

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1 Introduction

1.1 Overview

The ODBC gateway uses the v7 Gateway ToolKit libraries and is now superseded by the JDBC Gateway.
The ODBC Gateway uses the Merant ODBC drivers which have not been updated since 2011.
It is highly recommended that the latest test fix patch for the ODBC Gateway and ODBC library package are requested from support, if you plan to continue to use the ODBC gateway, in preference to the JDBC Gateway.

The gateway is installed in the $OMNIHOME/gates directory as nco_g_odbc and uses the following configuration files;
·   nco_g_odbc.map
·   nco_g_odbc.props
·   nco_g_odbc.startup.cmd
·   nco_g_odbc.thosts

It is recommended that the default odbc directory is copied, and the properties file modified to reflect the gateway specific directory. In addition the odbc.ini file from the ODBC drivers should be stored in the same directory to prevent its alteration during other ODBC integrations.

The main files used for configuration are the mapping and property files, along with the odbc.ini file, which defines the target database system connection. The ODBCINI environment variable is used to define the odbc.ini files location.

Netcool/OMNIbus allows environment variables to be set using a binary environment file which can be created in the $NCHOME/omnibus/platform/<platform>/bin directory.
For example:
```
vi $NCHOME/omnibus/platform/aix5/bin/nco_g_odbc.env
LANG=C
LC_ALL=C
XPG_SUS_ENV="ON"
export LANG LC_ALL XPG_SUS_ENV
#EOF
:wq
```

1.2 Hard and Soft Limits

Please refer to IBM Tivoli Netcool Supports guide to the Oracle Gateway or the Oracle Gateways product manual for a detailed description of these properties;

The ratio of the property settings are;

```
RegionHardLimit:RegionSoftLimit:RegionSoftLimitInc
RegionHardLimit>RegionSoftLimit>RegionSoftLimitInc
```

For example;

These ratio's can also be used to calculate the required setting based on physical limitations of the system;

e.g.
Estimated maximum disk space = 2048Mb => Hard limit = 2048Mb / (6 * 5) = 68 Mb

Maximum memory = 6 * 34 = 204 Mb which yields the following property settings;
```
Gate.RegionSoftLimitInc : 17
Gate.RegionSoftLimit    : 34
Gate.RegionHardLimit    : 68
```

1.3 Gateway Toolkit gateway design overview

Please refer to IBM Tivoli Netcool Supports guide to the Oracle Gateway for a detailed overview of the Gateway Toolkits (GTK) functionality.

Gate.ReaderAfterIDUC

Object Server

G_ODBC

Database

Gate.ReaderFilter
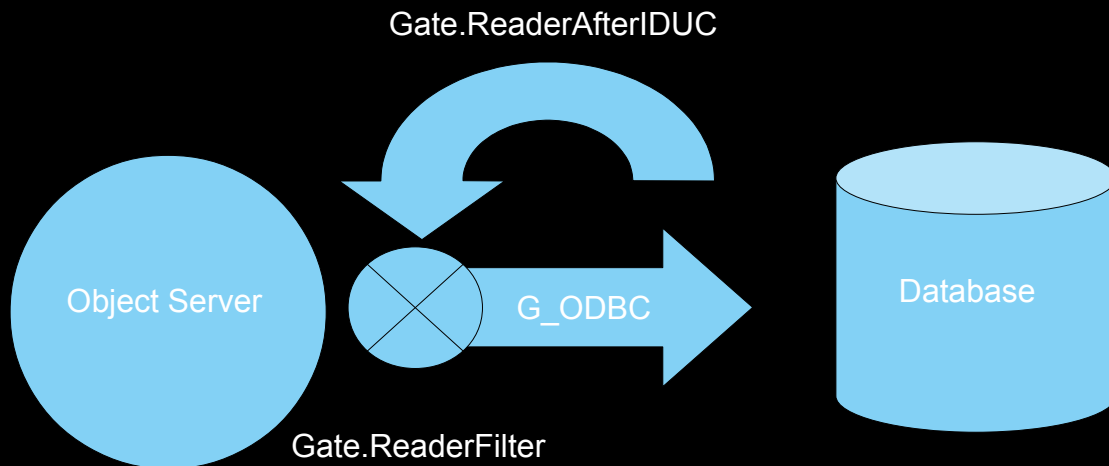
The ODBC gateways connects to the historical database using ODBC drivers. The supported ODBC drivers are provided with the ODBC gateway and ODBC probe. It is recommended that these drivers are used on UNIX, if full support is required and that the latest test fix patch is requested from support. Further details on the drivers used by the ODBC products can be obtained through IBM Tivoli Netcool support or else via the third party vendor's public documentation portal;

http://www.datadirect.com

The ODBC gateway stores the events to be sent to the database in memory, mapping copies of the data to the local hard disk, in case of process failure. The IDUC period defines how long the data is stored before attempting to send the data into the database. Altering the hard and soft limits results in the temporary data storage directory becoming incompatible, and the ODBC gateways storage directory needs to be manually deleted for the gateway to function. The ODBC gateways Gate.LogStatisticsData property can be set to TRUE to log the gateways performance data. If the Reader statistics always exceed the Writer statistics, there is a performance problem with the database, or else the ODBC gateway itself is overloaded. In which case either the amount of data being sent needs to be reduced or the CPU speed of the server needs to be increased, so as to manage the volume of data.

The size of the hard and soft limits depends on how much physical memory is available, how much disk space is available and how long the gateway would be expected to run in the event of a database outage, given the average event throughput.

1.4 ODBC configuration

The configuration of the ODBCINI file allows the ODBC drivers to be used by the ODBC gateway. The default ODBCINI file is provided with the ODBC drivers and can usually be found in the $NCHOME/omnibus/platform/<platform> directory, and is called odbc.ini. This file is a template file for configuring all of the ODBC drivers provided with the ODBC driver package, and must be edited for use with the ODBC gateway. The best method is to copy the file to the ODBC gateways configuration directory and edit the ODBCINI file explicitly for use with the given database. This will prevent issues with respect to sharing an ODBCINI file with other products or the file being overwritten accidentally.

The basic structure of the ODBCINI file has three sections;

1.   ODBC Data Source : A list of Database connection definitions

2.   DATABASE : A Database connection definition

3.   ODBC : Generic ODBC property settings

For example;

```
[ODBC Data Sources]
DATABASE=DataDirect Version DriverName

[DATABASE]
Driver=/opt/netcool/omnibus/platform/solaris2/lib/BMase23.so
Description=DataDirect Version DriverName

[ODBC]
Trace=0
TraceFile=/opt/netcool/omnibus/log/nco_g_odbctrace.out
TraceDll=/opt/netcool/omnibus/platform/solaris2/lib/odbctrac.so
InstallDir=/opt/netcool/omnibus/platform/solaris2/lib
```

In this example the full paths to the files have been entered, with the database connection, **DATABASE**, to be used in the ODBC gateways property file.

1.4.1 ODBC Tracing

If the ODBC gateway log file does not indicate a problem, after an unexpected exit, the ODBC drivers tracing can be enabled in the [ODBC] section of the ODBCINI file;

```
Trace=1
TraceFile=/opt/netcool/omnibus/log/nco_g_odbctrace.out
```

The TraceFile property defines the location of the trace log file. The data written is extremely verbose, and the log file is not truncated or rolled. Therefore it is important to ensure that ODBC tracing is only enabled when required, and turned off afterwards.

2 Example AUDIT Gateway Configuration

2.1 Environment

This example is for an AUDIT gateway installation. It was performed on a Red Hat Linux server. The ODBC gateway connected to a preconfigured database table on a remote Sybase ASE database running on Solaris 8. The target Netcool/OMNIbus installation was v7.2.1 with fix pack 1 installed.

2.2 Installation

The ODBC gateway requires three patches for use with Netcool/OMNIbus v7.2.1;

- ODBC libraries (text='odbc'/search=library)
- ODBC gateway (text='odbc'/search=gateway)
- Either
- AUDIT scripts (text='scripts'/search=audit)
- or
- Reporter scripts (text='reporter'/search=script)

The patches are provided as ZIP files, which can be unzipped and installed using the patch installation notes in the README file provided with each patch.

e.g.
```
$OMNIHOME/install/nco_patch -install omnibus-3.6-linux2x86-gateway-nco-g-audit-scripts-2_0.tar.Z
$OMNIHOME/install/nco_patch -install omnibus-3.6-linux2x86-common-libodbc-drivers-1_0.tar.Z
$OMNIHOME/install/nco_patch -install omnibus-3.6-linux2x86-gateway-nco-g-odbc-5_0.tar.Z
```

2.3 Configuration

- Make a copy the nco_g_odbc directory

```
cp –r $OMNIHOME/gates/nco_g_odbc $OMNIHOME/gates/G_SYBASE
```

- Create a copy of the ODBC.INI file and edit it for your installation

```
cp $OMNIHOME/platform/linux2x86/odbc.ini $OMNIHOME/gates/G_SYBASE
```

Remove all entries from the file except the one's required. Edit the file replacing the example settings with the correct one's. Include full paths to all files and check that they are correct.
e.g.
```
find $NCHOME –name "BMase*"
ls –l /opt/v721/omnibus/platform/linux2x86/lib/BMase23.so
```

- Configure the gateway users environment for the ODBCINI file
e.g.
```
setenv ODBCINI $OMNIHOME/gates/G_SYBASE/odbc.ini
```

- Check connectivity to the database

    - Ping the host
    - Telnet to the port
    - Use a client to connect to the database (if possible)

- Configure the gateways properties file

The name used in the ODBCINI file is used as part of the UserName in the properties file;
e.g. SYBASE
Ensure that the nco_g_crypt encrypted password is used in the Password property.

```
# Authentication details for the target database
ODBC.UserName            : 'odbcgw@SYBASE'
ODBC.Password            : 'ECEDBJAGBJFHGD'
```

- Add the gateway name to the omni.dat file and run nco_igen [for use with nco_g_icmd]

- Run the gateway in debug mode

```
$OMNIHOME/bin/nco_g_odbc –propsfile $OMNIHOME/gates/G_SYBASE/nco_g_odbc.props –messagelevel
debug –messagelog stdout
```

Enable and check the odbc trace log file if there are connection problems or if the gateway log is not verbose enough

2.4 Properties file

Along with the G_SYBASE gateway specific file properties, update the following properties;

```
Name                            : 'G_SYBASE'
Server                          : 'NCOMS'
# These are audit mode mappings
Gate.StatusTableMap             : 'SybaseStatusMap'
Gate.DetailsTableMap            : 'SybaseDetailsMap'
Gate.JournalTableMap            : 'SybaseJournalMap'

# Select reporter or audit mode
ODBC.ODBCGWType                 : 'AUDIT'

# Update with the target table names in the destination database
# See Sybase note below.
ODBC.StatusTableName            : 'audit_status'
ODBC.DetailsTableName           : 'audit_details'
ODBC.JournalTableName           : 'audit_journal'

# Sybase is case sensitive for table and column names
ODBC.ServerSerialField          : 'ServerSerial'
ODBC.ServerNameField            : 'ServerName'

# Authentication details for the target database
ODBC.UserName         : 'odbcgw@SYBASE'
ODBC.Password         : 'ECEDBJAGBJFHGD'
```

2.5 ODBCINI file

```
[ODBC Data Sources]
SYBASE=DataDirect 5.3-SP1 Sybase Wire Protocol

[SYBASE]
Driver=/opt/v721/omnibus/platform/linux2x86/lib/BMase23.so
Description=DataDirect 5.3-SP1 Sybase Wire Protocol
Database=odbc_gw
NetworkAddress=192.168.20.20,1101
EnableDescribeParam=1
EnableQuotedIdentifiers=0
OptimizePrepare=1
RaiseErrorPositionBehavior=0
SelectMethod=0
ApplicationUsingThreads=1

[ODBC]
Trace=0
TraceFile=/opt/v721/omnibus/log/G_SYBASE_odbctrace.out
TraceDll=/opt/v721/omnibus/platform/linux2x86/lib/odbctrac.so
InstallDir=/opt/v721/omnibus/platform/linux2x86/lib
UseCursorLib=0
```

2.6 Mapping file

```
CREATE MAPPING SybaseStatusMap
(
    'ActionTime'        = ACTION_TIME CONVERT TO DATE,
    'ActionCode'        = ACTION_CODE,
    'Identifier'        = '@Identifier',
    'Serial'            = '@Serial' CONVERT TO INTEGER,
    'Node'              = '@Node',
    'NodeAlias'         = '@NodeAlias',
    'Manager'           = '@Manager',
    'Agent'             = '@Agent',
    'AlertGroup'        = '@AlertGroup',
    'AlertKey'          = '@AlertKey',
    'Severity'          = '@Severity' CONVERT TO INTEGER,
    'Summary'           = '@Summary',
    'StateChange'       = '@StateChange'    CONVERT TO DATE,
    'FirstOccurrence'   = '@FirstOccurrence' CONVERT TO DATE,
    'LastOccurrence'    = '@LastOccurrence'  CONVERT TO DATE,
    'InternalLast'      = '@InternalLast'    CONVERT TO DATE,
    'Poll'              = '@Poll' CONVERT TO INTEGER,
    'Type'              = '@Type' CONVERT TO INTEGER,
    'Tally'             = '@Tally' CONVERT TO INTEGER,
    'Class'             = '@Class' CONVERT TO INTEGER,
    'Grade'             = '@Grade' CONVERT TO INTEGER,
    'Location'          = '@Location',
    'OwnerUID'          = '@OwnerUID' CONVERT TO INTEGER,
    'OwnerGID'          = '@OwnerGID' CONVERT TO INTEGER,
    'Acknowledged'      = '@Acknowledged' CONVERT TO INTEGER,
    'Flash'             = '@Flash' CONVERT TO INTEGER,
    'ServerName'        = '@ServerName',
    'ServerSerial'      = '@ServerSerial' CONVERT TO INTEGER
);
```

```
CREATE MAPPING SybaseJournalMap
(
    'Serial'            = '@Serial' CONVERT TO INTEGER,
    'UID'               = '@UID' CONVERT TO INTEGER,
    'Chrono'            = '@Chrono'          CONVERT TO DATE,
    'Text1'             = '@Text1',
    'Text2'             = '@Text2',
    'Text3'             = '@Text3',
    'Text4'             = '@Text4',
    'Text5'             = '@Text5',
    'Text6'             = '@Text6',
    'Text7'             = '@Text7',
    'Text8'             = '@Text8',
    'Text9'             = '@Text9',
    'Text10'            = '@Text10',
    'Text11'            = '@Text11',
    'Text12'            = '@Text12',
    'Text13'            = '@Text13',
    'Text14'            = '@Text14',
    'Text15'            = '@Text15',
    'Text16'            = '@Text16',
    'ServerName'        = SERVER_NAME,
    'ServerSerial'      = SERVER_SERIAL CONVERT TO INTEGER
);

CREATE MAPPING SybaseDetailsMap
(
    'Identifier'        = '@Identifier',
    'AttrVal'           = '@AttrVal' CONVERT TO INTEGER,
    'Sequence'          = '@Sequence' CONVERT TO INTEGER,
    'Name'              = '@Name',
    'Detail'            = '@Detail',
    'ServerName'        = SERVER_NAME,
    'ServerSerial'      = SERVER_SERIAL CONVERT TO INTEGER
);
```

3 Example REPORTER gateway configuration

Please refer to the previous chapter for general configuration.

3.1 Environment

This example is for an REPORTER gateway installation. It was performed on a Sun Solaris server. The ODBC gateway connected to a preconfigured database table on a local DB2 v9.5 database. The target Netcool/OMNIbus installation was v7.3 with fix pack 5 installed.

3.2 Installation

The Netcool/OMNIbus packages are installed using nco_install_integration script, run from the products extract directory. The REPORTER gateway requires all the same files except the AUDIT scripts package, which is replaced by the REPORTER scripts package. The two packages may be installed on the same installation. For Netcool/OMNIbus v7.3 and above, all the supporting packages are included in the main product package [except scripts], so the ODBC drivers only need to be installed if there is a newer package available or a test fix package was provided.

As the Netcool/OMNIbus v7.3 installation user:-

```
cd /opt/nrv73
mkdir tmp
cd tmp
mkdir g_odbc reporter_scripts
cd g_odbc
gzcat /tmp/PACKAGE.tar.gz | tar xvf -
pwd
/opt/nrv73/tmp/g_odbc
$NCHOME/omnibus/install/nco_install_integration -i console
<enter the local directory when requested to>
```

Repeat for the other products.

The packages install files in the $NCHOME/gates directory and the products platform library directory.

3.3 Configuration

The REPORTER scripts include the SQL scripts used to create Netcool/Reporter products database schema.
e.g.
Location : /opt//nrv73/omnibus/gates/reporter/db2
File : db2.reporter.sql

For a REPORTER gateway, only the three main dynamic tables need to be created;

1. REPORTER_STATUS

2. REPORTER_DETAILS

3. REPORTER_JOURNAL

The other tables can be removed from the SQL schema creation script before execution. The DBA for the database should review the SQL schema creation scripts, and size the system according to the expected usage and local security policies.

For DB2 v9.5 the installation user of DB2 is usually used as the ODBC gateways user, ODBC.UserName, unless otherwise required.

If the ODBC gateway is installed on the same server as the DB2 database, the 'db2' command can be used to check access, whilst logged in as the ODBC gateways DB2 user.

e.g.
```
db2 connect to reporter
db2 get connection state
db2 list tables
db2 describe table reporter_status
```

The ODBC gateway configuration is created from the template scripts;

e.g.
```
cd /opt/nrv73/omnibus/gates
cp -r /opt/nrv73/omnibus/gates/reporter/nco_g_odbc G_ODBC
cp /opt/nrv73/omnibus/platform/solaris2/odbc.ini G_ODBC
cd G_ODBC
```

Edit the files, including the nco_g_odbc.map and nco_g_odbc.thosts files, as required for the Netcool/OMNIbus installation.

An entry for the ODBC gateway [G_ODBC] must be added to the omni.dat file and the nco_igen script run to create the interfaces file if the command line interface is required.

3.4 Properties file

```
Name                           : 'G_ODBC'
Server                         : 'REPORTER'
# Authentication details for the ObjectServer
Sec.UserName                   : 'root'
Sec.Password                   : ''
# Statistics settings
MessageLevel                   : 'warn'
Gate.LogStatisticsData         : TRUE
# Configuration
Gate.MapFile                   : '$OMNIHOME/gates/G_ODBC/nco_g_odbc.map'
Gate.StartupCmdFile            : '$OMNIHOME/gates/G_ODBC/nco_g_odbc.startup.cmd'
Gate.TrustedHostsFile          : '$OMNIHOME/gates/G_ODBC/nco_g_odbc.thosts'
MessageLog                     : '$OMNIHOME/log/G_ODBC.log'
# These are reporter mode mappings
Gate.StatusTableMap            : 'StatusMap'
Gate.DetailsTableMap           : 'DetailsMap'
Gate.JournalTableMap           : 'JournalMap'
# Select REPORTER mode
ODBC.ODBCGWType                : 'REPORTER'
# Update with the target table names
ODBC.StatusTableName           : 'REPORTER_STATUS'
ODBC.DetailsTableName          : 'REPORTER_DETAILS'
ODBC.JournalTableName          : 'REPORTER_JOURNAL'
# Authentication details for the target database
ODBC.UserName                  : 'db2v95@DB2'
ODBC.Password                  : 'ECEDBJAGBJFHGD'
#ODBC.Password                 : 'netcool'
# Only the data that is required
Gate.ForwardDetails            : FALSE
Gate.ForwardHistoricDetails    : FALSE
Gate.ForwardHistoricJournals   : FALSE
Gate.ForwardJournals           : FALSE
#EOF
```

3.5 ODBCINI file

```
[ODBC Data Sources]
DB2=DataDirect 5.3 DB2 Wire Protocol

[ODBC]
IANAAppCodePage=4
InstallDir=/opt/nrv73/omnibus/platform/solaris2
Trace=0
TraceFile=/opt/nrv73/omnibus/log/G_ODBC_odbctrace.out
TraceDll=/opt/nrv73/omnibus/platform/solaris2/lib/odbctrac.so

[DB2]
Driver=/opt/nrv73/omnibus/platform/solaris2/lib/BMdb223.so
Description=DataDirect 5.3 DB2 Wire Protocol
AddStringToCreateTable=
AlternateID=
AlternateServers=
ApplicationUsingThreads=1
AuthenticationMethod=0
CatalogSchema=
CharsetFor65535=0
ConnectionRetryCount=0
ConnectionRetryDelay=3
Database=REPORTER
DefaultIsolationLevel=1
DynamicSections=200
EncryptionMethod=0
GrantAuthid=PUBLIC
GrantExecute=1
GSSClient=native
HostNameInCertificate=
IpAddress=19.168.20.20
LoadBalancing=0
#LogonID=
#Password=
PackageCollection=NULLID
PackageOwner=
ReportCodePageConversionErrors=0
TcpPort=50000
TrustStore=
TrustStorePassword=
UseCurrentSchema=1
ValidateServerCertificate=1
WithHold=1
XMLDescribeType=-10
#EOF
```

4 Example REPORTER gateway on AIX configuration

For this example the ODBC Gateway is on an AIX5 system and connecting to a DB9.7 database.

4.1 Environment settings

The ODBC Gateway on AIX may require additional settings to be configured, for example the LDR_CNTRL memory setting. The best way to do this is using the nco_g_odbc.env file.

e.g.

```
vi $NCHOME/omnibus/platform/aix5/bin/nco_g_odbc.env
# Added maximum memory allocation
export LDR_CNTRL
LDR_CNTRL=MAXDATA=0x80000000
LANG=C
LC_ALL=C
XPG_SUS_ENV="ON"
export LANG LC_ALL XPG_SUS_ENV
#EOF
:wq
```

The values for LDR_CNTRL on 32-bit AIX are:

LDP_CNTRL	Segments	Process Memory Limit
Unset	0 (default)	256.00 MB
LDR_CNTRL=MAXDATA=0x10000000	1	512.00 MB
LDR_CNTRL=MAXDATA=0x20000000	2	768.00 MB
LDR_CNTRL=MAXDATA=0x30000000	3	1.00 GB
LDR_CNTRL=MAXDATA=0x40000000	4	1.25 GB
LDR_CNTRL=MAXDATA=0x50000000	5	1.50 GB
LDR_CNTRL=MAXDATA=0x60000000	6	1.75 GB
LDR_CNTRL=MAXDATA=0x70000000	7	2.00 GB
LDR_CNTRL=MAXDATA=0x80000000	8	2.25 GB

4.2 Properties

The ODBC Gateway can be used to only forward the alerts.status table, to reduce the amount of data being stored. Under these circumstances new fields should be added to the Object Server to record key data in the events life-cycle.

```
Name                           : 'G_ODBC'
Server                         : 'NCOMS'
MessageLevel                   : 'warn'
Sec.UserName                   : 'root'
Sec.Password                   : ''
MessageLevel                   : 'informational'
Gate.LogStatisticsData         : TRUE
Gate.MapFile                   : '$OMNIHOME/gates/G_ODBC/nco_g_odbc.map'
Gate.StartupCmdFile            : '$OMNIHOME/gates/G_ODBC/nco_g_odbc.startup.cmd'
Gate.TrustedHostsFile          : '$OMNIHOME/gates/G_ODBC/nco_g_odbc.thosts'
MessageLog                     : '$OMNIHOME/log/G_ODBC.log'
Gate.StatusTableMap            : 'StatusMap'
Gate.DetailsTableMap           : 'DetailsMap'
Gate.JournalTableMap           : 'JournalMap'
ODBC.ODBCGWType                : 'REPORTER'
ODBC.StatusTableName           : 'REPORTER_STATUS'
ODBC.DetailsTableName          : 'REPORTER_DETAILS'
ODBC.JournalTableName          : 'REPORTER_JOURNAL'
ODBC.UserName                  : 'reporter@DB2'
ODBC.Password                  : 'EGEDBFBCBMFMFMGD'
Gate.ForwardDetails            : FALSE
Gate.ForwardHistoricDetails    : FALSE
Gate.ForwardHistoricJournals   : FALSE
Gate.ForwardJournals           : FALSE
ODBC.SetDeletedAtToNULL        : TRUE
Gate.RegionSoftLimit           : 200
Gate.RegionHardLimit           : 200
Gate.RegionSoftLimitInc        : 10
#EOF
```

4.3 ODBCINI file

```
[ODBC Data Sources]
DB2=DataDirect 5.3 DB2 Wire Protocol

[ODBC]
IANAAppCodePage=4
InstallDir=/opt/nrv73/netcool/omnibus/platform/aix5
Trace=0
TraceFile=/opt/nrv73/netcool/omnibus/log/G_odbctrace.out
TraceDll=/opt/nrv73/netcool/omnibus/platform/aix5/lib/odbctrac.so

[DB2]
Driver=/opt/nrv73/netcool/omnibus/platform/aix5/lib/BMdb223.so
Description=DataDirect 5.3 DB2 Wire Protocol
Database=ODBCGW
IpAddress=<database hostname>
TcpPort=50000
ApplicationUsingThreads=1
AuthenticationMethod=0
CharsetFor65535=0
ConnectionRetryCount=0
ConnectionRetryDelay=3
DefaultIsolationLevel=1
DynamicSections=200
EncryptionMethod=0
GrantAuthid=PUBLIC
GrantExecute=1
GSSClient=native
LoadBalancing=0
PackageCollection=NULLID
ReportCodePageConversionErrors=0
UseCurrentSchema=1
ValidateServerCertificate=1
WithHold=1
XMLDescribeType=-10
#EOF
```

5 DB2 REPORTER Database Configuration

The following steps are provided for guidance only and a DB2 administrator should be involved in any production deployments.

5.1 DB2 installation

The installation of DB2 requires locating the DB2 Enterprise Server Edition package from the downloads web site, extracting the package to a temporary directory and installing the product as the DB2 administrator using the DB2 installer [db2_install].

Before installation the required users must be added to the system [please refer to the DB2 installation guide];

e.g.

/etc/passwd
```
db2inst1:x:1009:100::/opt/db2/db2inst1:/bin/sh
db2fenc1:x:1010:103::/opt/db2/db2fenc1:/bin/sh
db2v95:x:110:2:DB2 v95 admin:/opt/db2v95:/bin/csh
```

/etc/group
```
bin::2:root,daemon,db2inst1
db2admin::101:root,db2v95
db2iadm1::100:
db2fadm1::103:
```

5.2 Useful DB2 commands

Command	Action
db2 connect to **reporter**	Connects to database **reporter**
db2 get connection state	Shows current connection status
db2 list db directory	Lists instance details
db2 list tablespaces	Lists all tablespaces
db2 list tables	Lists all user tables
db2 describe table **reporter_status**	Lists the contents of the given table
db2 get instance	Shows the database manager instance
db2 get dbm cfg | grep SVCE	Displays the databases SVCENAME
db2 disconnect **reporter**	Disconnects from database **reporter**

Note : db2v95 would be *db2admin* in a default installation.

5.3 4.3   *Configuring TCP/IP*

The DB2 database requires to be configured to allow TCP/IP access, which is used by the ODBC gateway. The default name for the instance is db2c_db2inst1 and its default port is 50000.

```
db2set DB2COMM=tcpip
db2set -g DB2COMM=tcpip
db2set -g DB2INSTDEF=db2inst1
db2set -all

[i] DB2COMM=tcpip
[g] DB2SYSTEM=hostname.domain.com
[g] DB2INSTDEF=db2inst1
[g] DB2COMM=tcpip


grep -i db2 /etc/services
db2c_db2inst1  50000/tcp
db2j_db2inst1   55000/tcp


db2
update dbm cfg using svcename db2c_db2inst1
update database manager configuration using svcename db2c_db2inst1

db2 get dbm cfg | grep SVCE
 TCP/IP Service name             (SVCENAME) = db2c_db2inst1

db2stop
db2start
```

5.3.1 Debugging configuration problems

As the DB2 administrator [installation user];
```
db2 update dbm cfg using diaglevel 4
```

Logging is sent to;
~db2admin/sqllib/db2dump/db2diag.log

To rollback debugging;
```
db2 update dbm cfg using diaglevel 3
```

Note: For the example installation *~db2admin* is replaced by ~db2v95

5.3.2 DB2 Login Permission Issue

If the user is not able to login to the DB2 server, either through the ODBC gateway or other ODBC client, try setting the permissions in the db2ckpw command.

As root;
```
cd ~db2inst1/sqllib/security
ls -l

-r-s--x--x   1 db2v95   bin 2016568 db2ckpw
```

change the permissions for files that exist;

```
chown root db2chpw
chown root db2ckpw
chmod 4511 db2chpw
chmod 4511 db2ckpw

ls -lt
-r-s--x--x   1 root     bin 2016568 db2ckpw
```

Restart the DB2 instance, and try to login
```
db2stop
db2start
```

Note: For the example installation *~db2instl* is replaced by ~db2v95

6 ODBC Gateways Command Line Interface

The ODBC gateways command line interface is installed using the nco_install_integration scripts, as with other Netcool/OMNIbus 7.3 integration packages.

$NCHOME/omnibus/install/nco_install_integration -i console

The package installs the nco_g_icmd binary and creates the nco_g_icmd directory, in which a template nco_g_icmd.props file can be found;

Location : /opt/jhutchin/nrv73/omnibus/gates/nco_g_icmd

File : nco_g_icmd.props

The username used to login to the ODBC gateway is authenticated via the object server;

```
Name                    : 'nco_g_icmd'
UserName                : 'root'
Password                : ''
Gate.Hostname           : 'localhost'
Gate.CmdPort            : 4600
PropsFile               : '/opt/nrv73/omnibus/gates/G_ODBC/nco_g_icmd.props'
```

The default ODBC gateway properties are;
```
# Gate.AllocateDynamicPorts     : FALSE
# Gate.GatewayCommandPort       : 4600
```

The ODBC gateway allows only hosts defined in the file nco_g_odbc.thosts to connect to the gateways command port.

e.g.

```
localhost
```

Logging into the ODBC gateway;
```
nco_g_icmd –props /opt/nrv73/omnibus/gates/G_ODBC/ nco_g_icmd.props
1>
```

Once connected the available commands are;
- GET CONFIG
- SET LOG LEVEL TO
- TRANSFER
- ALTER
- ALTER STATISTICS COUNTERS RESET