Environment-Specific Considerations

Natural SQL Gateway can be run in the TP-monitor environments CICS and Com-plete and in TSO and as well as in a z/OS batch environment.

This section covers the following topics:

- Natural SQL Gateway under CICS

- Natural SQL Gateway under Com-plete

- Natural SQL Gateway under TSO

Natural SQL Gateway under CICS

This section covers the following topics:

- Natural SQL Gateway Server deployment

- CICS Transactions and SQL Database Transactions

- File Server under CICS

Natural SQL Gateway Server deployment

In order to access SQL tables from a CICS environment via Natural SQL Gateway, the Natural SQL Gateway Server has to be deployed. The `NDBPARM` parameters `NSBAHOST` and `NSBAPORT` are used to specify the address and port number of the Natural SQL Gateway server.

CICS Transactions and SQL Database Transactions

Under CICS, a Natural program which accesses a SQL table can also be run in pseudo-conversational mode (Natural profile parameter `PSEUDO=ON`). In this case, at the end of a CICS task, all SQL cursors are closed - there is no way to reposition a SQL cursor when the task is resumed – and the SQL database transaction is commited.

To circumvent the problem of CICS terminating a pseudo-conversational transaction during loop processing and thus causing all SQL cursor to close and lose all selection results, NSB either uses the file server to support the Natural transaction logic or switches from pseudo-conversational mode to conversational mode for the duration of a Natural loop which accesses a DB2 table.

If the file server is not used and the parameter `CONVERS=ON` is set, Natural SQL Gateway switches to conversational mode whenever a terminal I/O takes place during an open database loop.

To enable multiple Natural sessions to run concurrently, all Natural areas are written to the threads just before a terminal I/O operation is executed. When the terminal input is received, storage is acquired again, and all Natural areas are read from the threads.

In order to support applications, which do not deploy the implicit commit at CICS terminal I/O and which instead code explicit `ROLLBACK` or `COMMIT` to end their database transaction, a conversational mode 2 has been introduced.

Conversational mode 2 means that a SQL update transaction is spawned across CICS terminal I/Os until an explicit `COMMIT` or `ROLLBACK` is issued.

Conversational mode 2 could be requested by the parameter `CONVRS2=ON` or it can dynamically set or rest by calling the `CALLNAT` program `NDBCONV`.

> ⚠ **Warning:**
> **These kinds of application tend to tie up CICS and DB2 resources, as the resources are not freed across terminal I/O!**

File Server under CICS

In a CICS environment, the file server is an optional feature to relieve the problems of switching to conversational processing. Before a screen I/O, Natural detects if there are any open cursors and if so, saves the data contained by these cursors into the file server. With the file server, database loops can be continued across terminal I/Os, but database modifications made before a terminal I/O can no longer be backed out.

For a detailed description of the file server, refer to the section *Natural File Server* for DB2.

Natural SQL Gateway under Com-plete

- Natural SQL Gateway Server deployment

Natural SQL Gateway Server deployment

In order to access SQL tables from a CICS environment via Natural SQL Gateway, the Natural SQL Gateway server has to be deployed. The `NDBPARM` parameters `NSBAHOST` and `NSBAPORT` are used to specify the address and port number of the Natural SQL Gateway server.

Natural SQL Gateway under TSO

Natural SQL Gateway can run under TSO without requiring any changes to the Natural/TSO interface. Just supply the `hlq.RCI.LOAD` library from the CXX Adabas precompiler installation in the JCL.

Apart from z/OS Batch, the batch environment for Natural can also be the TSO background, which invokes the TSO terminal monitor program by an `EXEC PGM=IKJEFT01` statement in a JCL stream.

File Server under TSO

In a TSO environment, the file server is an optional feature to be able to emulate during development status a future CICS production environment.

With each terminal I/O, Natural issues a `COMMIT WORK` command to simulate CICS or IMS TM syncpoints. Therefore, database modifications made before a terminal I/O can no longer be backed out.

For a detailed description of the file server, refer to the section *Natural File Server*.

Natural SQL Gateway in Batch mode

Natural SQL Gateway can run in a z/OS batch environment. Just supply the `hlq.RCI.LOAD` library from the CXX Adabas precompiler installation in the JCL.