The OMNI Naming Service

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1 Introduction

The OMNI Naming Service (*omniNames*) is an omniORB2 implementation of the OMG's COS Naming Service Specification. It offers a way for a client to turn a human-readable name into an object reference, on which the client can subsequently invoke operations in the normal way. See the OMG specification for full details of the functionality provided by the Naming Service.

The Naming Service stores a set of bindings of names to objects. These bindings can be arranged as an arbitrary directed graph, although they are often arranged in a tree hierarchy. Each node in the graph is a *naming context*. There is a "root" context at which name lookups usually start. This is the object returned by the call to `CORBA::ORB::resolve_initial_references("NameService")`.

2 Log file

The Naming Service is often part of the bootstrapping process of other CORBA programs. For this reason, if an instance of omniNames crashes (or the machine on which it runs is rebooted), it is important that certain aspects of its operation persist upon restarting. Firstly the root context of the Naming Service should always be accessible through the same object reference. This helps the ORB to implement the `resolve_initial_references` call by allowing the object reference to be stored in a configuration file, for example. Secondly, the naming graph with all its bindings should persist between invocations.

To achieve this, omniNames generates a log file, to which it writes out an entry every time a change is made to the naming graph. The directory in which this log file is written can be specified with the `OMNINAMES_LOGDIR` environment variable. When omniNames is restarted it uses the log file so that it can regenerate the naming graph.

Periodically the log file is checkpointed, removing unnecessary operations from the log file. The idle time between checkpoints can be set with the `OMNINAMES_ITBC` environment variable. It defaults to 15 minutes.

3 Starting omniNames and setting omniORB.cfg

When starting omniNames for the first time, you must specify the TCP port number on which it should listen. This is written to the log file so that on subsequent invocations it will listen on the same port number and thus can be accessible through the same object reference. When omniNames starts up successfully it writes the stringified object reference for its root context on standard error.

At startup the omniORB runtime tries to read the configuration file `omniORB.cfg` to obtain the object reference to the root context of the Naming Service. This object reference is returned by the call `resolve_initial_references("NameService")`. Once you have started omniNames for the first time you have to copy the stringified object reference printed on standard error into `omniORB.cfg`. The format of the entry is the word `NAMESERVICE` followed by space and the stringified IOR all on one line. For example:

```
NAMESERVICE IOR:000000000000002049444c3a436f734e616d696e672f4e616d696e674
36f6e746578743a312e300000000001000000000000002c000100000000000012776962626c
652e776f62626c652e636f6d0004d20000000c3371b8c09528a18700000001
```