Ice Thread Pool Properties

A communicator creates two thread pools: the client thread pool dispatches AMI callbacks and incoming requests on bidirectional connections, and the server thread pool dispatches requests to object adapters.

This page describes configuration properties for the client and server thread pools. These thread pools are named Client and Server, respectively. In the property descriptions below, replace name with Client or Server.

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Ice.ThreadPool.name.Serialize

Synopsis

Ice.ThreadPool.name.Serialize=num

Description

If num is a value greater than zero, the Client or Server thread pool serializes all messages from each connection. It is not necessary to enable this feature in a thread pool whose maximum size is one thread. In a multi-threaded pool, enabling serialization allows requests from different connections to be dispatched concurrently while preserving the order of messages on each connection. Note that serialization has a signficant impact on latency and throughput. If not defined, the default value is zero.

Ice.ThreadPool.name.Size

Synopsis

Ice.ThreadPool.name.Size=num

Description

Thread pools in Ice can grow and shrink dynamically, based on an average load factor. A thread pool always has at least one thread and may grow as load increases up to the maximum size specified by Ice. ThreadPool.name.SizeMax. If SizeMax is not specified, Ice uses the value of num as the pool's maximum size. The Client or Server thread pool is initialized with num active threads, but the pool may shrink to only one thread during idle periods as determined by Ice. ThreadPool.name. ThreadIdleTime.

If not specified, the default value is one for both properties.

An object adapter can also be configured with its own thread pool.

Note that multiple threads for the client thread pool are only required for nested AMI invocations, or to allow multiple AMI callbacks to be dispatched concurrently.

To monitor the thread pool activities of the Ice run time, enable the Ice.Trace.ThreadPool property.

Ice.ThreadPool.name.SizeMax

Synopsis

Ice.ThreadPool.name.SizeMax=num

Description

num is the maximum number of threads for the Client or Server thread pool. Refer to the Ice. ThreadPool.name.Size property for more information on configuring the size of a thread pool.

The default value for SizeMax is the value of Size, meaning the thread pool can never grow larger than its initial size.

To monitor the thread pool activities of the Ice run time, enable the Ice.Trace.ThreadPool property.

Ice.ThreadPool.name.SizeWarn

Synopsis

Ice.ThreadPool.name.SizeWarn=num

Description

Whenever num threads are active in the Client or Server thread pool, a "low on threads" warning is printed. The default value is zero, which disables the warning.

To monitor the thread pool activities of the Ice run time, enable the Ice.Trace.ThreadPool property.

Ice.ThreadPool.name.StackSize

Synopsis

Ice.ThreadPool.name.StackSize=num

Description

num is the stack size (in bytes) of threads in the Client or Server thread pool. The default value is zero, meaning the operating system's default is used

Ice.ThreadPool.name.ThreadIdleTime

Synopsis

Ice.ThreadPool.name.ThreadIdleTime=num

Description

Ice can automatically reap idle threads in the Client or Server thread pool to conserve resources. This property specifies the number of seconds a thread must be idle before it is reaped. If not specified, the default value is 60 seconds.

To disable the reaping of idle threads, set ThreadIdleTime to zero. In this situation, the thread pool is initialized with Ice.ThreadPool.name.Size active threads and may grow to contain Ice.ThreadPool.name.SizeMax active threads, but the size of the pool never decreases.

To monitor the thread pool activities of the Ice run time, enable the Ice.Trace.ThreadPool property.

Ice.ThreadPool.name.ThreadPriority

Synopsis

 ${\tt Ice.ThreadPool.} {\it name.} {\tt ThreadPriority=} {\it number} {\it number} {\tt ThreadPriority=} {\it number} {\it number}$

Description

num specifies a thread priority for the threads in the Client or Server thread pool. Leaving this property unset causes the run time to create threads with the default priority specified by Ice. ThreadPriority.

This property is unset by default.

You can also override the default priority for a specific object adapter using adapter. ThreadPool. ThreadPriority.

Ice.ThreadPriority

Synopsis

Ice.ThreadPriority=num

Description

num specifies a thread priority. Threads created by the Ice run time are created with the specified priority by default. Leaving this property unset causes the run time to create threads with the system default priority. This property is unset by default.

You can separately override the default priorities for the client and server thread pools using Ice. ThreadPool.name. ThreadPriority as well as for a specific object adapter using adapter. ThreadPool. ThreadPriority.