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31: Library Configuration

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Overview

The overview for this chapter consists of the following topics:

- Introduction
- Chapter Outline

Introduction

This chapter describes the run-time configuration parameters of the NCBI C++ Toolkit libraries. Such parameters change the default behavior of applications built using the Toolkit.

Configuration parameters can be set by environment variables, entered into a configuration file, defined by code, or any combination of those methods. Note: If a parameter is specified in both a configuration file and the environment, the environment takes precedence. The methods supported by each library and application are described below.

Chapter Outline

The following is an outline of the topics presented in this chapter:

- Defining and Using Parameters
  - CParam
  - Registry
  - Environment
- Non-Specific Parameters
  - Logging
  - Diagnostic Trace
  - Run-Time
  - Abnormal Program Termination
  - NCBI
- Library-Specific Parameters
  - Connection
  - CGI and FCGI
  - Serial
    - Data Initialization Verification
  - Objects, Object Manager, Object Tools
  - DBAPI
  - Eutils
- Internal Application-Specific Parameters

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Defining and Using Parameters

The following sections discuss the methods that libraries can use to define configuration parameters, and the corresponding methods that client applications can use to specify values for those parameters.

- CParam
- Registry
- Environment

CParam

Note: The preferred way for libraries to define their configuration parameters is with the macros in the CParam class (e.g. NCBI_PARAM_DECL). More details on the CParam class and its macros are presented in an earlier chapter. Libraries that use CParam can get configuration parameters using either the registry or the environment. Also, the CParam value can be stored and accessed on different levels: globally (application wide) and/or per-thread (TLS-like) and/or locally (cached within a CParam instance). Note that the name of an environment variable linked to a CParam can be customized or follow the default naming convention, so you have to look up the actual name used in the tables below before setting a configuration parameter using the environment.

Registry

If the CParam class cannot be used, the registry (configuration file) may be used to load, access, modify and store the values read from a configuration file. For libraries that use the registry, client applications can set the library configuration parameters using either the registry or the environment. In these cases the environment variable must follow the default naming convention.

These environment variables can be used to specify where to look for the registry.

The registry is case-insensitive for section and entry names. More details on the registry are presented in an earlier chapter.

Environment

For configuration parameters defined by either CParam or the registry, there is an equivalent environment variable having the form NCBI_CONFIG__<section>__<name> (note the double-underscores preceding <section> and <name>). The equivalent form is all uppercase.

Note: Environment variables may not contain dots (a.k.a. period or full stop) on many platforms. However, dots are allowed in registry section and entry names. The equivalent environment variable for parameters containing a dot in the section or entry name is formed by replacing the period with _DOT_. For example, the equivalent environment variable for [FastCGI]
WatchFile.Name is NCBI_CONFIG__FASTCGI__WATCHFILE_DOT_NAME.

Note: Environment variables are case-sensitive on many platforms. Therefore, when setting a configuration parameter via the environment, be sure to use the case shown in the tables below.

Some libraries check the environment directly for configuration parameters. For example, the serial library checks directly for SERIAL_SKIP_UNKNOWN_MEMBERS and others. In these case, there are no corresponding registry entries that can be used to set the configuration parameter.

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Non-Specific Parameters

The following sections discuss configuration parameters that are not library-specific.

- Logging
- Diagnostic Trace
- Run-Time
- Abnormal Program Termination
- NCBI

Logging

The application log consists of diagnostic messages. Some of them are available only in debug builds. Others - namely, those produced by the ERR_POST or LOG_POST macros - can be redirected into a file. Normally, the name and location of the application log is specified using the logfile command-line argument.

These parameters tune the usage and behavior of the application log file.

Diagnostic Trace

These parameters tune the visibility and contents of diagnostic messages produced by _TRACE or ERR_POST macros.

See Table 3.

Run-Time

Run-time configuration parameters allow specifying memory size limit, CPU time limit, and memory allocation behavior. Note: not all operating systems support these parameters.

Abnormal Program Termination

These parameters specify how to handle abnormal situations when executing a program.

NCBI

These parameters tune generic NCBI C++ Toolkit-wide behavior.

Library-Specific Parameters

The following sections discuss library-specific configuration parameters.

- Connection
- CGI and FCGI
- Serial
  - Data Initialization Verification
- Objects, Object Manager, Object Tools
- DBAPI
- Eutils

Connection

These parameters affect various aspects of internet connections established by the connection library.

Note 1: All service-specific parameters shown in the Table 7 (except one) have corresponding global parameters - i.e. parameters that apply to all services. For these global parameters, the registry section name is CONN; the registry entry name doesn't have the CONN_ prefix; and the environment variable doesn't have the <service>_ prefix. For example, the service-specific parameter specified by the CONN_ARGS entry in a given [<service>] section of the registry (or by the <service>_CONN_ARGS environment variable) corresponds to the global parameter specified by the ARGS entry in the [CONN] section of the registry (or by the CONN_ARGS environment variable).

When both a service-specific parameter and its corresponding global parameter are set, the service-specific parameter takes precedence.

Note 2: Environment variable names for service-specific parameters are formed by capitalizing the service name.

CGI and FCGI

These parameters tune the behavior of CGI and FCGI applications and built with the NCBI C++ Toolkit libraries. See Table 10 for CGI Load balancing configuration parameters.

Serial

These parameters tune the behavior of the Serial library.

Data Initialization Verification

These parameters tune the Serial library behavior when verifying that all mandatory primitive data members of serial objects are given a value. This includes: verification on an attempt to access such a data member; on an attempt to write it to an object stream; and on an attempt to read it from an input stream.

Objects, Object Manager, Object Tools

These parameters tune the behavior of the Objects-related libraries, including the Object Manager and loader and reader libraries.

DBAPI

These parameters tune the behavior of the DBAPI library.

Eutils

These parameters tune the behavior of the Eutils library.

Internal Application-Specific Parameters

These parameters tune the behavior of the specific internal applications.

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Table 1. Registry configuration parameters

Purpose	**Environment variable**	**Valid values**
If this variable is defined, the value is an extra-high-priority configuration file whose entries override those from other configuration files.	NCBI_CONFIG_OVERRIDES	a valid path
If this variable is defined, use it exclusively as the registry search path.	NCBI_CONFIG_PATH	a valid path
If this variable is **not** defined, append the current directory and home directory to the registry search path (after NCBI_CONFIG_PATH).	NCBI_DONT_USE_LOCAL_CONFIG	anything
If this variable is defined, append the value to the registry search path (after the home directory).	NCBI	a valid path
For Windows: If this variable is defined, append the value to the registry search path (after NCBI). For non-Windows, this variable is not checked and /etc is appended to the registry search path (after NCBI).	SYSTEMROOT	a valid path
If this variable is **not** defined, attempt to load a low-priority system-wide registry (ncbi.ini on Windows; .ncbirc on non-Windows). Note: the system-wide registry will not be loaded if it contains the DONT_USE_NCBIRC entry in the NCBI section.	NCBI_DONT_USE_NCBIRC	anything

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Table 2. Log file configuration parameters

Purpose	**[Registry section]** **Registry name** **Environment variable**	**Valid values**	**Default**
Used by logging framework if the real client IP can not be obtained.	[LOG] Client_Ip NCBI_LOG_CLIENT_IP	a valid IPv4 or IPv6 address	""
Reset the log file to the specified file.	[LOG] File NCBI_CONFIG__LOG__FILE [c]	a valid file name	""
Specify when to use the File, NoCreate, Truncate, and TryRootLogFirst registry parameters shown in this table. Note: those parameters will only be used if the log file has not been set already or if IgnoreEnvArg is set to true.	[LOG] IgnoreEnvArg NCBI_CONFIG__LOG__IGNOREENVARG [c]	Boolean [a]	false
The listed environment variables will be logged as an 'extra' after each 'request-start' message. The extra message starts with a "LogEnvironment=true" pair.	[LOG] LogEnvironment DIAG_LOG_ENVIRONMENT [sic]	space separated list of environment variable names	""
The listed registry entries will be logged as an 'extra' after each 'request-start' message. The extra message starts with a "LogRegistry=true" pair.	[LOG] LogRegistry DIAG_LOG_REGISTRY [sic]	space separated list of registry section:name values	""
Do not create the log file if it does not exist already.	[Log] NoCreate NCBI_CONFIG__LOG__NOCREATE [c]	Boolean [b]	false
Turn performance logging on or off (globally).	[Log] PerfLogging LOG_PerfLogging [c]	Boolean [b]	false
Defines the default session ID, which is used for any request which has no explicit session ID set.	[Log] Session_Id NCBI_LOG_SESSION_ID	any valid session ID string	""
If this parameter is defined, use the CSysLog facility setting when posting.	[LOG] SysLogFacility NCBI_CONFIG__LOG__SYSLOGFACILITY [c]	any non-empty string	(none)
Truncate the log file – i.e. discard the contents when opening an existing file.	[Log] Truncate LOG_TRUNCATE	Boolean [b]	false
Specify whether to try creating the log file under /log before trying other locations (e.g. a location specified by the registry or by NCBI_CONFIG__LOG__FILE).	[LOG] TryRootLogFirst NCBI_CONFIG__LOG__TRYROOTLOGFIRST [c]	Boolean [a]	false

[a] case-insensitive: true, t, yes, y, false, f, no, n

[b] case-insensitive: true, t, yes, y, 1, false, f, no, n, 0

[c] environment variable name formed from registry section and entry name

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Table 3. Diagnostic trace configuration parameters

Purpose	**[Registry section]** **Registry name** **Environment variable**	**Valid values**	**Default**
Specify a file that stores a mapping of error codes to their descriptions.	[DEBUG] MessageFile NCBI_CONFIG__DEBUG__MessageFile [c]	a valid file name	(none)
Specify the severity level threshold for posting diagnostic messages – i.e. less severe messages will not be posted. Note: If the parameter is set then the function ncbi::SetDiagPostLevel() is disabled - except for setting the level to eDiag_Trace.	[DEBUG] DIAG_POST_LEVEL DIAG_POST_LEVEL	CI [b]: Info, Warning, Error, Critical, Fatal, Trace	(none)
Diagnostic trace will be enabled if this parameter is given any value.	[DEBUG] DIAG_TRACE NCBI_CONFIG__DEBUG__DIAG_TRACE [c]	any non-empty string	(none)
Specify a diagnostics post filter string (see an earlier chapter for more detail on filtering).	[DIAG] POST_FILTER NCBI_CONFIG__DIAG__POST_FILTER [c]	see the syntax rules	(none)
Defines the maximum number of entries to be listed in a stack trace. All stack trace entries above the specified level are not printed.	[DIAG] Stack_Trace_Max_Depth DEBUG_STACK_TRACE_MAX_DEPTH	a positive integer	200
Specify a diagnostics trace filter string (see an earlier chapter for more detail on filtering).	[DIAG] TRACE_FILTER NCBI_CONFIG__DIAG__TRACE_FILTER [c]	see the syntax rules	(none)
Specify the maximum number of messages that can be posted to the AppLog within the AppLog period.	[Diag] AppLog_Rate_Limit DIAG_APPLOG_RATE_LIMIT	unsigned integer	50000
Specify the AppLog period in seconds.	[Diag] AppLog_Rate_Period DIAG_APPLOG_RATE_PERIOD	unsigned integer	10
Specify whether context properties should be automatically printed when set or changed.	[Diag] AutoWrite_Context DIAG_AUTOWRITE_CONTEXT	Boolean [a]	false
Specify the maximum number of diagnostic messages to collect. Messages beyond the limit will result in erasing the oldest message.	[Diag] Collect_Limit DIAG_COLLECT_LIMIT	size_t	1000
Specify the maximum number of messages that can be posted to the ErrLog within the ErrLog period.	[Diag] ErrLog_Rate_Limit DIAG_ERRLOG_RATE_LIMIT	unsigned integer	5000
Specify the ErrLog period in seconds.	[Diag] ErrLog_Rate_Period DIAG_ERRLOG_RATE_PERIOD	unsigned integer	1

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Limit the log file size, and rotate the log when it reaches the limit.	[Diag] Log_Size_Limit DIAG_LOG_SIZE_LIMIT	non-negative long integer	0
Use the old output format if the flag is set.	[Diag] Old_Post_Format DIAG_OLD_POST_FORMAT	Boolean [a]	true
Print the system TID rather than CThread::GetSelf().	[Diag] Print_System_TID DIAG_PRINT_SYSTEM_TID	Boolean [a]	false
Specify the minimum severity that will activate Tee_To_Stderr. See the Tee Output to STDERR section.	[Diag] Tee_Min_Severity DIAG_TEE_MIN_SEVERITY	CI [b]: Info, Warning, Error, Critical, Fatal, Trace	Warning (debug); Error (release)
Duplicate messages to stderr. See the Tee Output to STDERR section.	[Diag] Tee_To_Stderr DIAG_TEE_TO_STDERR	Boolean [a]	false
Specify the maximum number of messages that can be posted to the TraceLog within the TraceLog period.	[Diag] TraceLog_Rate_Limit DIAG_TRACELOG_RATE_LIMIT	unsigned integer	5000
Specify the TraceLog period in seconds.	[Diag] TraceLog_Rate_Period DIAG_TRACELOG_RATE_PERIOD	unsigned integer	1

[a] case-insensitive: true, t, yes, y, 1, false, f, no, n, 0

[b] CI = case-insensitive

[c] environment variable name formed from registry section and entry name

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Table 4. Run-time configuration parameters

Purpose	**[Registry section]** **Registry name** **Environment variable**	**Valid values**	**Default**
Set a CPU time limit for the application in seconds.	[NCBI] CpuTimeLimit NCBI_CONFIG__NCBI__CPUTIMELIMIT [b]	non-negative integer	0
Set a memory size limit for the application in MB.	[NCBI] MemorySizeLimit NCBI_CONFIG__NCBI__MEMORYSIZELIMIT [b]	non-negative integer	0
Specify the method for filling allocated memory.	[NCBI] MEMORY_FILL NCBI_MEMORY_FILL	CI [a]: none, zero, pattern	pattern

[a] CI = case-insensitive

[b] environment variable name formed from registry section and entry name

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Table 5. Abnormal program termination configuration parameters

Purpose	**[Registry section]** **Registry name** **Environment variable**	**Valid values**	**Default**
If this parameter is defined, abort the program if a CException is thrown.	[DEBUG] ABORT_ON_THROW NCBI_CONFIG__DEBUG__ABORT_ON_THROW [c]	any non-empty string	(none)
Specify whether the NCBI application framework should catch exceptions that are not otherwise caught.	[Debug] Catch_Unhandled_Exceptions DEBUG_CATCH_UNHANDLED_EXCEPTIONS	Boolean [a]	true
Specify whether ncbi::Abort() will call _ASSERT (false). Note: this only applies to MSVC.	[Diag] Assert_On_Abort DIAG_ASSERT_ON_ABORT	Boolean [a]	false
If this parameter is true, abort the program if a CObjectException is thrown.	[NCBI] ABORT_ON_COBJECT_THROW NCBI_ABORT_ON_COBJECT_THROW	Boolean [a]	false
If this parameter is true, abort the program on an attempt to access or release a NULL pointer stored in a CRef object.	[NCBI] ABORT_ON_NULL NCBI_ABORT_ON_NULL	Boolean [a]	false
Specify what to do when ncbi::Abort() is called. When the variable is set to a "yes" value, Abort() will call exit(255). When the variable is set to a "no" value, Abort() will call abort(). When the variable is not set, Abort() will call exit(255) for release builds and abort() for debug builds - unless compiled with MSVC and the DIAG_ASSERT_ON_ABORT parameter is true, in which case Abort() will call _ASSERT(false).	[N/A] N/A DIAG_SILENT_ABORT	Boolean [b]	(none)

[a] case-insensitive: true, t, yes, y, 1, false, f, no, n, 0

[b] case-insensitive: y, 1, n, 0

[c] environment variable name formed from registry section and entry name

Table 6. NCBI C++ Toolkit-wide configuration parameters

Purpose	**[Registry section]** **Registry name** **Environment variable**	**Valid values**	**Default**
Specify whether throwing an exception of at least Critical severity will cause an immediate abort().	[EXCEPTION] Abort_If_Critical EXCEPTION_ABORT_IF_CRITICAL	Boolean [a]	false
Specify the minimum severity that will result in the stack trace being added to exceptions.	[EXCEPTION] Stack_Trace_Level EXCEPTION_STACK_TRACE_LEVEL	CI [b]: Trace, Info, Warning, Error, Critical, Fatal	Critical
A single path to check for common data files via g_FindDataFile(). Takes a lower precedence than paths in NCBI_DATA_PATH.	[NCBI] Data NCBI_CONFIG__NCBI__DATA [c]	a valid path	""
A list of paths (delimited in the style of the OS) to check for common data files via g_FindDataFile().	[NCBI] DataPath NCBI_DATA_PATH	a delimited list of valid paths	""
Specify how read-only files are treated on Windows during a remove request.	[NCBI] DeleteReadOnlyFiles NCBI_CONFIG__DELETEREADONLYFILES	Boolean [a]	false
Specify whether the API classes should have logging turned on.	[NCBI] FileAPILogging NCBI_CONFIG__FILEAPILOGGING	Boolean [a]	DEFAULT_LOGGING_VALUE
Declare how umask settings on Unix affect creating files/ directories in the File API.	[NCBI] FileAPIHonorUmask NCBI_CONFIG__FileAPIHonorUmask	Boolean [a]	false
Specify whether to load plugins from DLLs.	[NCBI] Load_Plugins_From_DLLs NCBI_LOAD_PLUGINS_FROM_DLLS	Boolean [a]	LOAD_PLUGINS_FROM_DLLS_BY_DEFAULT
Specify the directory to use for temporary files.	[NCBI] TmpDir NCBI_CONFIG__NCBI__TMPDIR [c]	a valid path	""
Specify the file name of a Unicode-to-ASCII translation table.	[NCBI] UnicodeToAscii NCBI_CONFIG__NCBI__UNICODETOASCII [c]	a valid path	""

[a] case-insensitive: true, t, yes, y, 1, false, f, no, n, 0

[b] CI = case-insensitive

[c] environment variable name formed from registry section and entry name

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Table 7. Connection library configuration parameters

Purpose	**[Registry section]** **Registry name** **Environment variable**
Service-specific parameters follow this form. **(See also Note 1 above.)**	**[<service>]** **CONN_<param_name>** **<service>_CONN_<param_name>**
Global parameters follow this form. **(See also Note 1 above.)**	**[CONN]** **<param_name>** **CONN_<param_name>**
Specify arguments for the given service. (See also Note 1 above.)	[<service>] CONN_ARGS <service>_CONN_ARGS
Specify how much debug information will be output. (See also Note 1 above.)	[<service>] CONN_DEBUG_PRINTOUT <service>_CONN_DEBUG_PRINTOUT
If this parameter is true, the network dispatcher will be disabled. (See also Note 1 above.)	[<service>] CONN_DISPD_DISABLE <service>_CONN_DISPD_DISABLE
If this parameter is true, the Firewall mode will be enabled. (See also Note 1 above.)	[<service>] CONN_FIREWALL <service>_CONN_FIREWALL
Set the dispatcher host name. (See also Note 1 above.)	[<service>] CONN_HOST <service>_CONN_HOST
Set the HTTP proxy server. (See also Note 1 above.)	[<service>] CONN_HTTP_PROXY_HOST <service>_CONN_HTTP_PROXY_HOST
Set the HTTP proxy server port number. This will be set to zero if <service>_CONN_HTTP_PROXY_HOST is not set. (See also Note 1 above.)	[<service>] CONN_HTTP_PROXY_PORT <service>_CONN_HTTP_PROXY_PORT
Set a custom user header. This is rarely used, and then typically for debugging purposes. (See also Note 1 above.)	[<service>] CONN_HTTP_USER_HEADER <service>_CONN_HTTP_USER_HEADER
Prohibit the use of a local load balancer. Note: This parameter is discouraged for performance reasons - please use <service>_CONN_LBSMD_DISABLE instead. (See also Note 1 above.)	[<service>] CONN_LB_DISABLE <service>_CONN_LB_DISABLE
Prohibit the use of a local load balancer. This should be used instead of <service>_CONN_LB_DISABLE. (See also Note 1 above.)	[<service>] CONN_LBSMD_DISABLE <service>_CONN_LBSMD_DISABLE

Enable the use of locally configured services. See <service>_CONN_LOCAL_SERVER_<n>. (See also Note 1 above.)	[<service>] CONN_LOCAL_ENABLE <service>_CONN_LOCAL_ENABLE
Create a service entry for service, where n is a number from 0 to 100 (not necessarily sequential). The value must be a valid server descriptor, as it would be configured for the load balancing daemon (LBSMD). This is a quick way of configuring locally used services (usually, for the sole purposes of debugging / development) without the need to edit the actual LBSMD tables (which become visible for the whole NCBI). See <service>_CONN_LOCAL_ENABLE. Note: This parameter has no corresponding global parameter. (See also Note 1 above.)	[<service>] CONN_LOCAL_SERVER_<n> <service>_CONN_LOCAL_SERVER_<n>
Maximum number of attempts to establish connection. Zero means use the default. (See also Note 1 above.)	[<service>] CONN_MAX_TRY <service>_CONN_MAX_TRY
Specify a password for the connection (only used with <service>_CONN_USER). (See also Note 1 above.)	[<service>] CONN_PASS <service>_CONN_PASS
Set the path to the service. (See also Note 1 above.)	[<service>] CONN_PATH <service>_CONN_PATH
Set the dispatcher port number. (See also Note 1 above.)	[<service>] CONN_PORT <service>_CONN_PORT
Set a non-transparent CERN-like firewall proxy server. (See also Note 1 above.)	[<service>] CONN_PROXY_HOST <service>_CONN_PROXY_HOST
Set the HTTP request method. (See also Note 1 above.)	[<service>] CONN_REQ_METHOD <service>_CONN_REQ_METHOD
Specify a connection transport scheme. (See also Note 1 above.)	[<service>] CONN_SCHEME <service>_CONN_SCHEME
Redirect connections to <service> to the specified alternative service. See Service Redirection. (See also Note 1 above.)	[<service>] CONN_SERVICE_NAME <service>_CONN_SERVICE_NAME
Set to true if the client is stateless. (See also Note 1 above.)	[<service>] CONN_STATELESS <service>_CONN_STATELESS
Zero means no waiting but polling (may not work well with all connections); "infinite" means no timeout, and to wait for I/O indefinitely. (See also Note 1 above.)	[<service>] CONN_TIMEOUT <service>_CONN_TIMEOUT
Specify a username for the connection (see <service>_CONN_PASS). Only necessary for connections requiring authentication. (See also Note 1 above.)	[<service>] CONN_USER <service>_CONN_USER

Set the level of logging detail that GNUTLS should produce about secure transactions. Log levels greater than 7 also dump scrambled data from GNUTLS.	[CONN] GNUTLS_LOGLEVEL CONN_GNUTLS_LOGLEVEL
A true value enables HTTP connections to dump headers of error server responses only (successful responses do not get logged).	[CONN] HTTP_ERROR_HEADER_ONLY CONN_HTTP_ERROR_HEADER_ONLY
A true value enables HTTP connections to follow http->https transitions.	[CONN] HTTP_INSECURE_REDIRECT CONN_HTTP_INSECURE_REDIRECT
Set a default referer (applies to all HTTP connections).	[CONN] HTTP_REFERER CONN_HTTP_REFERER
A list of identifiers to be treated as local services defined in the registry / environment. This parameter is optional and is used only for reverse address-to-name lookups.	[CONN] LOCAL_SERVICES CONN_LOCAL_SERVICES
Set the mail gateway host.	[CONN] MX_HOST CONN_MX_HOST
Set the mail gateway port.	[CONN] MX_PORT CONN_MX_PORT
Set the mail gateway communication timeout in seconds.	[CONN] MX_TIMEOUT CONN_MX_TIMEOUT
	[netcache_api] cache_input NCBI_CONFIG__NETCACHE_API__CACHE_INPUT
	[netcache_api] cache_output NCBI_CONFIG__NETCACHE_API__CACHE_OUTPUT
Can be used to override NCBI_CONFIG__NETSERVICE_API__COMMUNICATION_TIMEOUT. Please see that entry for details.	[netcache_api] communication_timeout NCBI_CONFIG__NETCACHE_API__COMMUNICATION_TIMEOUT [e]
Can be used to override NCBI_CONFIG__NETSERVICE_API__CONNECTION_TIMEOUT. Please see that entry for details.	[netcache_api] connection_timeout NCBI_CONFIG__NETCACHE_API__CONNECTION_TIMEOUT [e]
	[netcache_api] max_connection_time NCBI_CONFIG__NETCACHE_API__MAX_CONNECTION_TIME

	[netcache_api] nclient_name NCBI_CONFIG__NETCACHE_API__NCLIENT_NAME
	[netcache_api] protocol NCBI_CONFIG__NETCACHE_API__PROTOCOL
	[netcache_api] rebalance_bytes NCBI_CONFIG__NETCACHE_API__REBALANCE_BYTES
	[netcache_api] rebalance_requests NCBI_CONFIG__NETCACHE_API__REBALANCE_REQUESTS
	[netcache_api] rebalance_time NCBI_CONFIG__NETCACHE_API__REBALANCE_TIME
	[netcache_api] service NCBI_CONFIG__NETCACHE_API__SERVICE
	[netcache_api] throttle_by_connection_error_rate NCBI_CONFIG__NETCACHE_API__THROTTLE_BY_CONNECTION_ERROR_RATE
	[netcache_api] throttle_by_subsequent_connection_failures NCBI_CONFIG__NETCACHE_API__THROTTLE_BY_SUBSEQUENT_CONNECTION_
	[netcache_api] throttle_forced_rebalance NCBI_CONFIG__NETCACHE_API__THROTTLE_FORCED_REBALANCE
	[netcache_api] throttle_hold_until_active_in_lb NCBI_CONFIG__NETCACHE_API__THROTTLE_HOLD_UNTIL_ACTIVE_IN_LB
	[netcache_api] throttle_relaxation_period NCBI_CONFIG__NETCACHE_API__THROTTLE_RELAXATION_PERIOD
	[netcache_api] tmp_dir NCBI_CONFIG__NETCACHE_API__ TMP_DIR
	[netcache_api] tmp_path NCBI_CONFIG__NETCACHE_API__TMP_PATH

Direct requests to the specified server if the configured LBSMD servers are down or not accessible - only for new BLOB requests.	[netcache_api] fallback_server NCBI_CONFIG__NETCACHE_API__FALLBACK_SERVER [e]
A true value enables an alternative method for finding a BLOB. If the standard method is not available on the server, the alternative method may be used even if this parameter is false.	[netcache_api] use_hasb_fallback NCBI_CONFIG__NETCACHE_API__USE_HASB_FALLBACK [e]
	[netschedule_api] queue_name NCBI_CONFIG__NETSCHEDULE_API__QUEUE_NAME
	[netschedule_api] client_name NCBI_CONFIG__NETSCHEDULE_API__CLIENT_NAME
	[netschedule_api] client_name NCBI_CONFIG__NETSCHEDULE_API__CLIENT_NAME
	[netschedule_api] client_name NCBI_CONFIG__NETSCHEDULE_API__CLIENT_NAME
	[netschedule_api] client_name NCBI_CONFIG__NETSCHEDULE_API__CLIENT_NAME
	[netschedule_api] client_name NCBI_CONFIG__NETSCHEDULE_API__CLIENT_NAME
	[netschedule_api] client_name NCBI_CONFIG__NETSCHEDULE_API__CLIENT_NAME
Can be used to override NCBI_CONFIG__NETSERVICE_API__COMMUNICATION_TIMEOUT. Please see that entry for details.	[netschedule_api] communication_timeout NCBI_CONFIG__NETSCHEDULE_API__COMMUNICATION_TIMEOUT [e]
Can be used to override NCBI_CONFIG__NETSERVICE_API__CONNECTION_TIMEOUT. Please see that entry for details.	[netschedule_api] connection_timeout NCBI_CONFIG__NETSCHEDULE_API__CONNECTION_TIMEOUT [e]
Fail the request if the network I/O is inactive (blocked waiting for the communication channel to become readable or writable) for more than the specified timeout. Can be overridden by NCBI_CONFIG__NETCACHE_API__COMMUNICATION_TIMEOUT or NCBI_CONFIG__NETSCHEDULE_API__COMMUNICATION_TIMEOUT.	[netservice_api] communication_timeout NCBI_CONFIG__NETSERVICE_API__COMMUNICATION_TIMEOUT [e]
The maximum number of times the API will retry a communication command on a socket.	[netservice_api] connection_max_retries NCBI_CONFIG__NETSERVICE_API__CONNECTION_MAX_RETRIES [e]

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The timeout for establishing a **new** connection to a server. Can be overridden by NCBI_CONFIG__NETCACHE_API__CONNECTION_TIMEOUT or NCBI_CONFIG__NETSCHEDULE_API__CONNECTION_TIMEOUT.	[netservice_api] connection_timeout NCBI_CONFIG__NETSERVICE_API__CONNECTION_TIMEOUT [e]
If zero, the server will grow the connection pool as necessary to accomodate new connections. Otherwise, when all connections in the pool are used, new connections will be created and destroyed.	[netservice_api] max_connection_pool_size NCBI_CONFIG__NETSERVICE_API__MAX_CONNECTION_POOL_SIZE [e]
The maximum number of attempts to resolve the LBSMD service name. If not resolved within this limit an exception is thrown.	[netservice_api] max_find_lbname_retries NCBI_CONFIG__NETSERVICE_API__MAX_FIND_LBNAME_RETRIES [e]
The delay in seconds between retrying a command.	[netservice_api] retry_delay NCBI_CONFIG__NETSERVICE_API__RETRY_DELAY [e]
By default, the Linux kernel delays releasing ports for a certain period after close () because there might be a delayed arrival of packets. Setting this parameter to true disables that behavior and therefore allows faster recycling of ports. This is important when the server is handling a large number of connections due to the limited number of ports available.	[netservice_api] use_linger2 NCBI_CONFIG__NETSERVICE_API__USE_LINGER2 [e]
Deprecated.	[server] allow_implicit_job_return NCBI_CONFIG__SERVER__ALLOW_IMPLICIT_JOB_RETURN [e]
Causes the worker node to shut down if any jobs fail.	[server] stop_on_job_errors NCBI_CONFIG__SERVER__STOP_ON_JOB_ERRORS [e]

[a] CI = case-insensitive

[b] case-insensitive: true, t, yes, y, 1, false, f, no, n, 0

[c] case-insensitive: true values are { 1, on, yes, true }; false is anything else

[d] whitespace can be any number of spaces and/or tabs

[e] environment variable name formed from registry section and entry name

Table 8. CGI-related configuration parameters

Purpose	**[Registry section]** **Registry name** **Environment variable**	**Valid values**	**Default**
Set to the user agent string you would like to be used by the web server.	[N/A] N/A HTTP_USER_AGENT	A valid user agent string.	(none)
Add to the user agent list of bot names. This parameter affect only CCgiUserAgent::IsBot().	[CGI] Bots NCBI_CONFIG__CGI__BOTS [f]	Delimited list [b] of bot names, e.g. "Googlebot Scooter WebCrawler Slurp".	(none)
According to RFC-2109, cookies should not be encoded. Instead, they should be just quoted. However, for backward compatibility with code that decodes incoming cookies, both quoted cookies and encoded cookies can be parsed. This setting controls which method of encoding/decoding is used.	[CGI] Cookie_Encoding CGI_COOKIE_ENCODING	"Url", "Quote"	"Url"
Severity level for cookie-related error messages.	[CGI] Cookie_Error_Severity CGI_Cookie_Error_Severity	CI [c]: Info, Warning, Error, Critical, Fatal, Trace	Error
Defines which characters cannot be used in cookie names.	[CGI] Cookie_Name_Banned_Symbols CGI_Cookie_Name_Banned_Symbols	A string of banned characters.	" ,;="
Set to true to make the application count the amount of data read/ sent. The numbers are then printed in request stop log messages.	[CGI] Count_Transfered CGI_COUNT_TRANSFERED	Boolean [c]	false
Set the name of an environment variable, which in turn specifies a prefix that will be added to all diagnostic messages issued during HTTP request processing.	[CGI] DiagPrefixEnv NCBI_CONFIG__CGI__DIAGPREFIXENV [f]	a valid environment variable name	(none)
Set to true to disable the creation of a tracking cookie during session initialization.	[CGI] DisableTrackingCookie NCBI_CONFIG__CGI__DISABLETRACKINGCOOKIE [f]	Boolean [c]	false
Set to true to enable logging.	[CGI] Log NCBI_CONFIG__CGI__LOG [f]	CI [e]: On => enabled; True => enabled; OnError => enabled for errors; OnDebug => enabled (debug builds only)	disabled
An ampersand-delimited string of GET and/or POST arguments to exclude from the log (helps limit the size of the log file)	[CGI] LOG_EXCLUDE_ARGS CGI_LOG_EXCLUDE_ARGS	valid format: arg1&arg2...	(none)

Allows specifying limits for multiple GET and/or POST arguments in one parameter string.	[CGI] LOG_LIMIT_ARGS CGI_LOG_LIMIT_ARGS	valid format: arg1:size1&arg2:size2...&*:size special argument: * means all unspecified arguments; special limits: -2 means exclude; -1 means no limit	*:1000000
Enable logging of CGI request parameters. Only the specified parameters will be logged.	[CGI] LogArgs NCBI_CONFIG__CGI__LOGARGS [f]	Delimited list [b] of environment variables (optionally aliased on output for shortening logs, e.g. envvar=1).	(none)
Specify additional mobile device names. This parameter affect only CCgiUserAgent::IsMobileDevice ().	[CGI] MobileDevices NCBI_CONFIG__CGI__MobileDevices [f]	Delimited list [b] of additional device names.	(none)
Set to true to merge log lines.	[CGI] Merge_Log_Lines CGI_MERGE_LOG_LINES	Boolean [c]	true
Add to the user agent list of names that aren't bots. This parameter affect only CCgiUserAgent::IsBot().	[CGI] NotBots NCBI_CONFIG__CGI__NotBots [f]	Delimited list [b] of names that aren't bots.	(none)
Add to the user agent list of names that aren't mobile devices. This parameter affect only CCgiUserAgent::IsMobileDevice ().	[CGI] NotMobileDevices NCBI_CONFIG__CGI__NotMobileDevices [f]	Delimited list [b] of names that aren't bots.	(none)
Control error handling of incoming cookies (doesn't affect outgoing cookies set by application).	[CGI] On_Bad_Cookie CGI_ON_BAD_COOKIE	CI [e]: Throw, SkipAndError, Skip, StoreAndError, Store	Store
Specifies whether to print the referer during LogRequest().	[CGI] Print_Http_Referer CGI_PRINT_HTTP_REFERER	Boolean [c]	true
Specifies whether to print the URL during LogRequest().	[CGI] Print_Self_Url CGI_PRINT_SELF_URL	Boolean [c]	true
Specifies whether to print the user agent during LogRequest().	[CGI] Print_User_Agent CGI_PRINT_USER_AGENT	Boolean [c]	true
Set the size of CGI request buffer that is printed when the request cannot be parsed.	[CGI] RequestErrBufSize NCBI_CONFIG__CGI__REQUESTERRBUFSIZE [f]	buffer size in bytes	256
Specify the registry section name for the result cache.	[CGI] ResultCacheSectionName NCBI_CONFIG__CGI__RESULTCACHESECTIONNAME [f]	valid section name	result_cache

Enable statistics logging.	[CGI] StatLog NCBI_CONFIG__CGI__STATLOG [f]	Boolean [d]	false
Controls whether the output stream will throw for bad states.	[CGI] ThrowOnBadOutput NCBI_CONFIG__CGI__THROWONBADOUTPUT [f]	Boolean [c]	true
Log start time, end time, and elapsed time.	[CGI] TimeStamp NCBI_CONFIG__CGI__TIMESTAMP [f]	Boolean [d]	false
Disable statistics logging if the CGI request took less than the specified number of seconds.	[CGI] TimeStatCutOff NCBI_CONFIG__CGI__TIMESTATCUTOFF [f]	non-negative integer (zero enables logging)	0
Specify the domain for the tracking cookie.	[CGI] TrackingCookieDomain NCBI_CONFIG__CGI__TRACKINGCOOKIEDOMAIN [f]	valid domain	.nih.gov
Specify the tracking cookie name.	[CGI] TrackingCookieName NCBI_CONFIG__CGI__TRACKINGCOOKIENAME [f]	valid cookie name	ncbi_sid
Specify the path for the tracking cookie.	[CGI] TrackingCookiePath NCBI_CONFIG__CGI__TRACKINGCOOKIEPATH [f]	valid path	/
Defines the **name** of the NCBI tracking cookie (session ID cookie).	[CGI] TrackingTagName CGI_TrackingTagName	Any valid cookie name.	"NCBI-SID"

[a] List may be delimited by semicolon, space, tab, or comma.

[b] List may be delimited by semicolon, space, tab, vertical bar, or tilde.

[c] case-insensitive: true, t, yes, y, 1, false, f, no, n, 0

[d] case-insensitive: true, t, yes, y, false, f, no, n

[e] CI = case-insensitive

[f] environment variable name formed from registry section and entry name

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Table 9. FCGI-related configuration parameters

Purpose	**[Registry section]** **Registry name** **Environment variable**	**Valid values**	**Default**
A true value enables logging of current iteration, max iterations, and process ID during the FastCGI run.	[FastCGI] Debug NCBI_CONFIG__FASTCGI__DEBUG [b]	Boolean [a]	false
A true value enables termination of a FastCGI application by the presence of the request entry "exitfastcgi".	[FastCGI] HonorExitRequest NCBI_CONFIG__FASTCGI__HONOREXITREQUEST [b]	Boolean [a]	false
Specify the number of requests that the FCGI application will process before exiting.	[FastCGI] Iterations NCBI_CONFIG__FASTCGI__ITERATIONS [b]	positive integer	10
Make the FastCGI application run as a stand-alone server on a local port. The value is a UNIX domain socket or a MS Windows named pipe, or a colon followed by a port number	[FastCGI] StandaloneServer FCGI_STANDALONE_SERVER	valid local port or named socket	(none)
Make the FastCGI application stop if an error is encountered.	[FastCGI] StopIfFailed NCBI_CONFIG__FASTCGI__STOPIFFAILED [b]	Boolean [a]	false
Make the FastCGI application exit if the named file changes.	[FastCGI] WatchFile.Name NCBI_CONFIG__FASTCGI__WATCHFILE_DOT_NAME [b]	valid file name	(none)
The number of bytes to read from the watch file to see if it has changed.	[FastCGI] WatchFile.Limit NCBI_CONFIG__FASTCGI__WATCHFILE_DOT_LIMIT [b]	positive integer (non-positives trigger default)	1024
The period in seconds between checking the watch file for changes.	[FastCGI] WatchFile.Timeout NCBI_CONFIG__FASTCGI__WATCHFILE_DOT_TIMEOUT [b]	positive integer (non-positives trigger default, which is to disable the watch file checking)	0

[a] case-insensitive: true, t, yes, y, false, f, no, n

[b] environment variable name formed from registry section and entry name

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Table 10. CGI Load balancing configuration parameters

Purpose	**[Registry section]** **Registry name** **Environment variable**	**Valid values**	**Default**
Specify the internet domain.	[CGI-LB] Domain NCBI_CONFIG__CGI-LB__DOMAIN [b]	a valid domain	.ncbi.nlm.nih.gov
Specify the host IP address.	[CGI-LB] Host NCBI_CONFIG__CGI-LB__HOST [b]	a valid host IP	(none)
Specify the cookie expiration period in seconds.	[CGI-LB] LifeSpan NCBI_CONFIG__CGI-LB__LIFESPAN [b]	integer	0
Specify the name of the load balancing cookie in the HTTP response.	[CGI-LB] Name NCBI_CONFIG__CGI-LB__NAME [b]	a valid cookie name	(none)
Specify the cookie path.	[CGI-LB] Path NCBI_CONFIG__CGI-LB__PATH [b]	a valid path	(none)
Specify the cookie security mode.	[CGI-LB] Secure NCBI_CONFIG__CGI-LB__SECURE [b]	Boolean [a]	false

[a] case-insensitive: true, t, yes, y, false, f, no, n

[b] environment variable name formed from registry section and entry name

Table 11. Serial library configuration parameters

Purpose	**[Registry section]** **Registry name** **Environment variable**	**Valid values**	**Default**
If true, causes CObjectOStream::WriteDouble() to use fast conversion.	[SERIAL] FastWriteDouble NCBI_CONFIG__SERIAL__FastWriteDouble [b]	Boolean [c]	true
While reading binary ASN.1 data allow plain string tag where UTF8 string tag is expected by specification.	[SERIAL] READ_ANY_UTF8STRING_TAG SERIAL_READ_ANY_UTF8STRING_TAG	Boolean [c]	true
Specify how to handle unknown variants when reading Object streams.	[SERIAL] SKIP_UNKNOWN_VARIANTS NCBI_CONFIG__SERIAL__SKIP_UNKNOWN_VARIANTS [b]	CI [a]: no (throw an exception), never (even if set to skip later), yes (skip), always (even if set to not skip later)	no
While writing binary ASN.1 data issue UTF8 string tag as determined by specification, otherwise issue plain string tag.	[SERIAL] WRITE_UTF8STRING_TAG SERIAL_WRITE_UTF8STRING_TAG	Boolean [c]	false

[a] CI = case-insensitive

[b] environment variable name formed from registry section and entry name

[c] case-insensitive: true, t, yes, y, 1, false, f, no, n, 0

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Table 12. Data initialization verification configuration parameters

Purpose	**[Registry section]** **Registry name** **Environment variable**	**Valid values**	**Default**
Skip unknown data members in the input stream, or throw an exception.	[N/A] N/A SERIAL_SKIP_UNKNOWN_MEMBERS	CI [a]: yes, no, never, always	no (throw)
Throw an exception on an attempt to access an uninitialized data member.	[N/A] N/A SERIAL_VERIFY_DATA_GET	CI [a]: yes, no, never, always, defvalue, defvalue_always	yes
Throw an exception if a mandatory data member is missing in the input stream.	[N/A] N/A SERIAL_VERIFY_DATA_READ	CI [a]: yes, no, never, always, defvalue, defvalue_always	yes
Throw an exception on an attempt to write an uninitialized data member.	[N/A] N/A SERIAL_VERIFY_DATA_WRITE	CI [a]: yes, no, never, always, defvalue, defvalue_always	yes

[a] CI = case-insensitive

Table 13. Objects-related configuration parameters

Purpose	**[Registry section]** **Registry name** **Environment variable**	**Valid values**	**Default**
A non-zero value turns on debugging messages about GenBank loader's interaction with cache.	[GENBANK] CACHE_DEBUG GENBANK_CACHE_DEBUG	>=0, currently only zero and non-zero are distinguished	0
Specify whether an attempt should be made to recompress the cache.	[GENBANK] CACHE_RECOMPRESS GENBANK_CACHE_RECOMPRESS	Boolean [a]	true
A non-zero value turns on debugging messages about opening/closing connections to ID1/ID2 services.	[GENBANK] CONN_DEBUG GENBANK_CONN_DEBUG	>=0, currently only zero and non-zero are distinguished	0
Disable attaching WGS master descriptors when retrieving ASN.1 blobs using the CPubseqReader and CPubseq2Reader classes.	[GENBANK/PUBSEQOS] or [GENBANK/PUBSEQOS2] EXCLUDE_WGS_MASTER NCBI_CONFIG__GENBANK_PUBSEQOS__EXCLUDE_WGS_MASTER or NCBI_CONFIG__GENBANK_PUBSEQOS2__EXCLUDE_WGS_MASTER	Boolean [b]	false
Set the severity level for ID1 debug tracing.	[GENBANK] ID1_DEBUG GENBANK_ID1_DEBUG	int: 0 = none, 1 = error, 2 = open, 4 = conn, 5 = asn, 8 = asn data	0
Specify the ID1 reader service name. Note: The services can be redirected using generic Service Redirection technique.	In priority order: [GENBANK] ID1_SERVICE_NAME, [NCBI] SERVICE_NAME_ID1 In priority order: GENBANK_ID1_SERVICE_NAME, GENBANK_SERVICE_NAME_ID1	a valid reader service name	ID1 (see API)
Specify the ID2 reader service name. Note: The services can be redirected using generic Service Redirection technique.	In priority order: [GENBANK] ID2_CGI_NAME, [GENBANK] ID2_SERVICE_NAME, [NCBI] SERVICE_NAME_ID2 In priority order: GENBANK_ID2_CGI_NAME, GENBANK_ID2_SERVICE_NAME, GENBANK_SERVICE_NAME_ID2	a valid reader service name	ID2 (see API)

Set the severity level for ID2 debug tracing.	[GENBANK] ID2_DEBUG GENBANK_ID2_DEBUG	int: 0 = none, 1 = error, 2 = open, 4 = conn, 5 = asn, 8 = blob, 9 = blob data	debug: none release: error (see API)
Number of chunks allowed in a single request.	[GENBANK] ID2_MAX_CHUNKS_REQUEST_SIZE GENBANK_ID2_MAX_CHUNKS_REQUEST_SIZE	int: 0 = unlimited request size; 1 = do not use packets or get-chunks requests	100
Maximum number of requests packed in a single ID2 packet.	[GENBANK] ID2_MAX_IDS_REQUEST_SIZE GENBANK_ID2_MAX_IDS_REQUEST_SIZE	>=0	100
The maximum number of connections the reader can establish to the data source. This is run-time limited to 1 for single threaded clients and for all clients using the cache or gi reader, and to 5 for multi-threaded clients using the id1, id2, pubseqos, and pubseqos2 readers.	[GENBANK] MAXIMUM_NUMBER_OF_CONNECTIONS	int	3 for id1 and id2; 2 for pubseqos and pubseqos2
See MAXIMUM_NUMBER_OF_CONNECTIONS	[GENBANK] NO_CONN		
See OPEN_TIMEOUT_INCREMENT	[GENBANK] OPEN_INCREMENT		
See OPEN_TIMEOUT_MAX	[GENBANK] OPEN_MAX		
See OPEN_TIMEOUT_MULTIPLIER	[GENBANK] OPEN_MULTIPLIER		
The OPEN_TIMEOUT* parameters describe the timeout for opening a GenBank connection. The timeout allows the server a reasonable time to respond while providing a means to quickly abandon unresponsive servers.	[GENBANK] OPEN_TIMEOUT	floating point >= 0.0	5 seconds
OPEN_TIMEOUT_MULTIPLIER and OPEN_TIMEOUT_INCREMENT specify the way the open timeout is increased if no response is received (next_open_timeout = prev_open_timeout * multiplier + increment).	[GENBANK] OPEN_TIMEOUT_INCREMENT	floating point >= 0.0	0 seconds
The limit of increasing the open timeout using OPEN_TIMEOUT_MULTIPLIER and OPEN_TIMEOUT_INCREMENT.	[GENBANK] OPEN_TIMEOUT_MAX	floating point >= 0.0	30 seconds
See OPEN_TIMEOUT_INCREMENT	[GENBANK] OPEN_TIMEOUT_MULTIPLIER	floating point >= 0.0	1.5
Turns on different levels of debug messages in PubSeqOS reader. A value >=2 means debug opening connections while >=5 means debug results of Seq-id resolution requests. Note: only applies to debug builds.	[GENBANK] PUBSEQOS_DEBUG GENBANK_PUBSEQOS_DEBUG	>=0	0

Whether to open first connection immediately or not.	[GENBANK] preopen NCBI_CONFIG__GENBANK__PREOPEN [c]	Boolean [b]	true
Specify the level of reader statistics to collect.	[GENBANK] READER_STATS GENBANK_READER_STATS	int: 0 = none, 1 = verbose	0
Prioritized list of drivers to try for the reader.	Sources searched for list: [GENBANK] ReaderName, [GENBANK] LOADER_METHOD, default Sources searched for list: GENBANK_LOADER_METHOD, default	list items are semicolon-delimited; each item is a colon-delimited list of drivers. valid drivers: id1, id2, cache, pubseqos	"ID2:PUBSEQOS:ID1", or "ID2:ID1" (see API)
Specify whether the reader manager should automatically register ID1, ID2, and cache.	[GENBANK] REGISTER_READERS GENBANK_REGISTER_READERS	Boolean [a]	true
Specify whether the blob stream processor should try to use string packing.	[N/A] N/A NCBI_SERIAL_PACK_STRINGS	Boolean [d]	true
On some platforms, equal strings can share their character data, reducing the required memory. Set this parameter to true to have the GenBank loader try to use this feature if it is available.	[GENBANK] SNP_PACK_STRINGS GENBANK_SNP_PACK_STRINGS	Boolean [a]	true
In ID1/PubSeqOS readers present SNP data as ID2-split entries to reduce memory usage.	[GENBANK] SNP_SPLIT GENBANK_SNP_SPLIT	Boolean [a]	true
Storing all the SNPs as plain ASN.1 objects would require a huge amount of memory. The SNP table is a compact way of storing SNPs to reduce memory consumption. Set this parameter to true to have the object manager try to use the SNP table.	[GENBANK] SNP_TABLE GENBANK_SNP_TABLE	Boolean [a]	true
Set to a positive integer to enable dumping (to stderr in text ASN.1 form) all the SNPs that don't fit into the SNP table. Note: this is only available in debug mode.	[GENBANK] SNP_TABLE_DUMP GENBANK_SNP_TABLE_DUMP	int	0
Set this parameter to true to dump (to stdout) some statistics on the process of storing SNPs into the SNP table. This option may help determine why not all the SNPs could fit in the table.	[GENBANK] SNP_TABLE_STAT GENBANK_SNP_TABLE_STAT	Boolean [a]	false
Specify whether SNP statistics should be kept.	[GENBANK] SNP_TABLE_STAT	Boolean [a]	false
Specify whether to use a memory pool.	[GENBANK] USE_MEMORY_POOL GENBANK_USE_MEMORY_POOL	Boolean [a]	true

The WAIT_TIME* parameters describe the wait time before opening new GenBank connections in case of communication errors. The wait time is necessary to allow network and/or GenBank servers to recover. WAIT_TIME is the initial wait after the first error. See also: GenBank reader configuration.	[GENBANK] WAIT_TIME	floating point >= 0.0	1 second
Specifies for how many sequential communication errors the response should be to use wait time, before trying to open a new connection instead.	[GENBANK] WAIT_TIME_ERRORS	int	2 errors
WAIT_TIME_MULTIPLIER and WAIT_TIME_INCREMENT specify the way wait time is increased if errors continue to happen (next_wait_time = prev_wait_time * multiplier + increment).	[GENBANK] WAIT_TIME_INCREMENT	floating point >= 0.0	1 second
The limit of increasing wait time using WAIT_TIME_MULTIPLIER and WAIT_TIME_INCREMENT.	[GENBANK] WAIT_TIME_MAX	floating point >= 0.0	30 seconds
See WAIT_TIME_INCREMENT	[GENBANK] WAIT_TIME_MULTIPLIER	floating point >= 0.0	1.5
Prioritized list of drivers to try for the writer.	Sources searched for list: [GENBANK] WriterName, [GENBANK] LOADER_METHOD, default Sources searched for list: GENBANK_LOADER_METHOD, default	list items are semicolon-delimited; each item is a colon-delimited list of drivers. valid drivers: id1, id2, cache, pubseqos	"ID2:PUBSEQOS:ID1", or "ID2:ID1" (see API)
If non-zero, reserve Dense-seg vectors using predefined pre-read hook.	[OBJECTS] DENSE_SEG_RESERVE OBJECTS_DENSE_SEG_RESERVE	int	1
If non-zero, reserve Seq-graph vectors using predefined pre-read hook.	[OBJECTS] SEQ_GRAPH_RESERVE OBJECTS_SEQ_GRAPH_RESERVE	int	1
If non-zero, reserve Seq-table vectors using predefined pre-read hook.	[OBJECTS] SEQ_TABLE_RESERVE OBJECTS_SEQ_TABLE_RESERVE	int	1
Specify whether Seq-id general trees are packed.	[OBJECTS] PACK_GENERAL OBJECTS_PACK_GENERAL	int: 0 = no, other = yes	1
Specify whether Seq-id text-seq trees are packed.	[OBJECTS] PACK_TEXTID OBJECTS_PACK_TEXTID	int: 0 = no, other = yes	1
Specify whether empty Seq-descr's will be allowed (or throw if not).	[OBJECTS] SEQ_DESCR_ALLOW_EMPTY OBJECTS_SEQ_DESCR_ALLOW_EMPTY	Boolean [a]	false

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Sets the maximum number of master TSE blobs that will be cached.	[OBJMGR] BLOB_CACHE OBJMGR_BLOB_CACHE	unsigned int	10
Specify whether the scope can be auto-released.	[OBJMGR] SCOPE_AUTORELEASE OBJMGR_SCOPE_AUTORELEASE	Boolean [a]	true
Specify the size of the scope auto-release.	[OBJMGR] SCOPE_AUTORELEASE_SIZE OBJMGR_SCOPE_AUTORELEASE_SIZE	unsigned int	10
Specify whether the new FASTA implementation will be used.	[READ_FASTA] USE_NEW_IMPLEMENTATION NCBI_CONFIG__READ_FASTA__USE_NEW_IMPLEMENTATION [c]	Boolean [a]	true

[a] case-insensitive: true, t, yes, y, 1, false, f, no, n, 0

[b] case-insensitive: true, t, yes, y, false, f, no, n

[c] environment variable name formed from registry section and entry name

[d] case-insensitive: true values are { yes | 1 }; anything else is false

Table 14. DBAPI configuration parameters

Purpose	**[Registry section]** **Registry name** **Environment variable**	**Valid values**	**Default**
If RESET_SYBASE is true, the Sybase client path will be set to the value in the SYBASE variable.	[N/A] N/A RESET_SYBASE	Boolean [a]	(none)
If RESET_SYBASE is true, the Sybase client path will be set to the value in the SYBASE variable.	[N/A] N/A SYBASE	a path containing a Sybase client	(none)
The version of the TDS protocol to use with the CTLIB driver.	[CTLIB] TDS_VERSION CTLIB_TDS_VERSION	an installed TDS version	125 (see API)
The version of the TDS protocol to use with the FTDS driver.	[FTDS] TDS_VERSION FTDS_TDS_VERSION	0 (auto-detect), 50 (Sybase or Open Server), 70 (SQL Server)	0
Whether to encrypt login data.	[dbapi] conn_use_encrypt_data NCBI_CONFIG__DBAPI__CONN_USE_ENCRYPT_DATA [c]	Boolean [b]	false
The maximum number of simultaneously open connections to database servers.	[dbapi] max_connection NCBI_CONFIG__DBAPI__MAX_CONNECTION [c]	unsigned int	100
The maximum number of connection attempts that will be made for any server.	[DB_CONNECTION_FACTORY] MAX_CONN_ATTEMPTS NCBI_CONFIG__DB_CONNECTION_FACTORY__MAX_CONN_ATTEMPTS [c]	unsigned int	1
The maximum number of validation attempts that will be made for each connection.	[DB_CONNECTION_FACTORY] MAX_VALIDATION_ATTEMPTS NCBI_CONFIG__DB_CONNECTION_FACTORY__MAX_VALIDATION_ATTEMPTS [c]	unsigned int	1
The maximum number of servers to try to connect to for each service name.	[DB_CONNECTION_FACTORY] MAX_SERVER_ALTERNATIVES NCBI_CONFIG__DB_CONNECTION_FACTORY__MAX_SERVER_ALTERNATIVES [c]	unsigned int	32

The maximum number of connections to be made to one particular server (when several connections to the same service name are requested) before an attempt to connect to another server will be made. A value of 0 means connect to the same server indefinitely.	[DB_CONNECTION_FACTORY] MAX_DISPATCHES NCBI_CONFIG__DB_CONNECTION_FACTORY__MAX_DISPATCHES [c]	unsigned int	0
The timeout, in seconds, to be used for all connection attempts (0 means to use either the default value or a value set specifically for the driver context).	[DB_CONNECTION_FACTORY] CONNECTION_TIMEOUT NCBI_CONFIG__DB_CONNECTION_FACTORY__CONNECTION_TIMEOUT [c]	unsigned int	30
The timeout, in seconds, to be used while logging into the server for all connection attempts (0 means to use either the default value or a value set specifically for the driver context).	[DB_CONNECTION_FACTORY] LOGIN_TIMEOUT NCBI_CONFIG__DB_CONNECTION_FACTORY__LOGIN_TIMEOUT [c]	unsigned int	30
If DBAPI resolved the passed name as a service name and then couldn't connect to any server associated with that service name, then this parameter determines whether DBAPI should also try to resolve the passed name as a server name (a database alias from “interfaces” file or a DNS name). See also: database load balancing.	[DB_CONNECTION_FACTORY] TRY_SERVER_AFTER_SERVICE NCBI_CONFIG__DB_CONNECTION_FACTORY__TRY_SERVER_AFTER_SERVICE [c]	Boolean [a]	false
See 'PRAGMA cache_size' in the SQLite documentation.	[LDS2] SQLiteCacheSize LDS2_SQLITE_CACHE_SIZE	any valid cache size for an SQLite database	2000

[a] case-insensitive: true, t, yes, y, false, f, no, n

[b] case-insensitive: true, t, yes, y, 1, false, f, no, n, 0

[c] environment variable name formed from registry section and entry name

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Table 15. eutils library configuration parameters

Purpose	**[Registry section]** **Registry name** **Environment variable**	**Valid values**	**Default**
Specify the base URL for Eutils requests.	[Eutils] Base_URL EUTILS_BASE_URL	a valid URL	http://eutils.ncbi.nlm.nih.gov/entrez/eutils/ (see API)

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Table 16. seqfetch.cgi application configuration parameters

Purpose	**[Registry section]** **Registry name** **Environment variable**	**Valid values**	**Default**
Point to the current script.	[SeqFetch] Viewer_fcgi_path SEQFETCH_VIEWER_FCGI_PATH	a valid path	/sviewer/viewer.fcgi
Name the current load-balanced proxy.	[SeqFetch] Viewer_fcgi_proxy SEQFETCH_VIEWER_FCGI_PROXY	a valid proxy name	sviewer_lb