# Rational ClearCase server processes

Rational® ClearCase® is a distributed application. Many of its operations involve several host computers and several server processes on each host.

These servers do not usually need to be explicitly configured, started, stopped, or managed. The information in these topics is intended to help you understand status and error messages that these servers generate, to access server logs, and to understand the role each server process plays in a Rational ClearCase network.

**Two server processes— albd\_server and admin\_server—run on every host that has been configured to support local VOBs and views, regardless of whether any VOBs or views have been created on the host.** Other server processes are started as necessary to manage any VOBs and views that reside on the host.

**Note:** No Rational ClearCase server processes run on a Rational ClearCase client host or on a Rational ClearCase host that has been configured with no support for local VOBs and views.

* [**albd\_server process**](http://pic.dhe.ibm.com/infocenter/cchelp/v8r0m0/topic/com.ibm.rational.clearcase.cc_admin.doc/topics/r_intro_serverprocs_albd.htm)  
  When a client program needs access to a service (a VOB or view server, for example) on a Rational ClearCase server host, it uses a remote procedure call (RPC) to send a request to the **albd\_server** process on that host. The **albd\_server** starts the requested service if it is not already started, and provides the service's port number to the client. Thereafter, the client communicates directly with the service.
* [**admin\_server process**](http://pic.dhe.ibm.com/infocenter/cchelp/v8r0m0/topic/com.ibm.rational.clearcase.cc_admin.doc/topics/r_intro_serverprocs_admin.htm)  
  The Rational ClearCase administration server (**admin\_server**) is invoked as needed by the host’s **albd\_server** process. This short-lived server performs miscellaneous administrative support functions.
* [**credmap\_server process**](http://pic.dhe.ibm.com/infocenter/cchelp/v8r0m0/topic/com.ibm.rational.clearcase.cc_admin.doc/topics/r_intro_serverprocs_credmap.htm)  
  The credentials mapping server, **credmap\_server**, runs on any Rational ClearCase host that is configured to support local VOBs and views. This server handles credentials mapping in environments where users access a common set of VOBs and views from computers running different supported operating systems.
* [**view\_server process**](http://pic.dhe.ibm.com/infocenter/cchelp/v8r0m0/topic/com.ibm.rational.clearcase.cc_admin.doc/topics/r_intro_serverprocs_view.htm)  
  A **view\_server** is a long-lived process that manages activity in a particular view.
* [**vob\_server process**](http://pic.dhe.ibm.com/infocenter/cchelp/v8r0m0/topic/com.ibm.rational.clearcase.cc_admin.doc/topics/r_intro_serverprocs_vob.htm)  
  For each VOB, a long-lived **vob\_server** process runs on the VOB host. The **vob\_server** manipulates data in the VOB storage pools in response to requests from client processes.
* [**db\_server process**](http://pic.dhe.ibm.com/infocenter/cchelp/v8r0m0/topic/com.ibm.rational.clearcase.cc_admin.doc/topics/r_intro_serverprocs_db.htm)  
  The **db\_server** processes manage VOB database transactions on a host in response to requests from client programs.
* [**vobrpc\_server process**](http://pic.dhe.ibm.com/infocenter/cchelp/v8r0m0/topic/com.ibm.rational.clearcase.cc_admin.doc/topics/r_intro_serverprocs_vobrpc.htm)  
  Each VOB server host runs one or more **vobrpc\_server** processes for each of its VOBs.
* [**lockmgr process**](http://pic.dhe.ibm.com/infocenter/cchelp/v8r0m0/topic/com.ibm.rational.clearcase.cc_admin.doc/topics/r_intro_serverprocs_lockmgr.htm)  
  On Windows hosts that are VOB servers, a lock manager arbitrates transaction requests to all VOB databases on that host.

# albd\_server process

When a client program needs access to a service (a VOB or view server, for example) on a Rational® ClearCase® server host, it uses a remote procedure call (RPC) to send a request to the **albd\_server** process on that host. The **albd\_server** starts the requested service if it is not already started, and provides the service's port number to the client. Thereafter, the client communicates directly with the service.

The **albd\_server** handles a variety of tasks on hosts configured to support local VOBs and views:

* Starting and stopping other Rational ClearCase services as needed.
* Setting up network communications between Rational ClearCase clients and servers.
* Managing execution of tasks run by the Rational ClearCase scheduler.
* Responding to requests for registry information on a Rational ClearCase registry server host.
* Responding to requests for licenses on a Rational ClearCase license server host.
* On hosts running Linux or the UNIX system, responding to load-balancing queries from a remote **clearmake** process.

When you start Rational ClearCase, the **albd\_server** starts first and runs with one of the following user identities:

* As **root** on Linux or on the UNIX system
* A specially created privileged user account on Rational ClearCase on Windows

When you stop Rational ClearCase, the **albd\_server** stops all Rational ClearCase services on the host and then exits.

Rational ClearCase services started by the **albd\_server** generally run with the identity of the resource (VOB or view) owner on Linux or the UNIX system, and with the identity of the **albd\_server** on Windows.

## Port assignment

The **albd\_server** process listens for RPCs on a well-known port (port 371) that has been reserved for it by the Internet Assigned Numbers Authority. Rational ClearCase installation verifies that no other service uses this port for UDP or TCP communications. If a conflict is detected, you must assign another port to the conflicting service. If you cannot reconfigure or remove the conflicting service, you must configure the **albd\_server** to use a different UDP port.

* On Linux or the UNIX system, edit the local host's services database or the NIS services map.
* On Windows, create the appropriate entry in the file %SystemRoot%\System32\drivers\etc\services. (If there is no entry for the **albd\_server** in this file, it uses port 371.)

**Note:** All **albd\_server**processes in a community must use the same port number. If you change the **albd\_server** port assignment on any Rational ClearCase host, you must change it on every Rational ClearCase host.

The **albd\_server** reads configuration file albd.conf during startup to determine which services to provide. Do not modify this file.

admin\_server process

The Rational® ClearCase® administration server (**admin\_server**) is invoked as needed by the host’s **albd\_server** process. This **short-lived** server performs miscellaneous administrative support functions.

The **admin\_server** handles the following tasks:

* Retrieving the server log files displayed by the **getlog** command and the Rational ClearCase Administration Console.
* Retrieving and changing the Rational ClearCase properties on the local host when requested by the Rational ClearCaseAdministration Console.
* Moving registry files and reconfiguring clients if the host is a backup registry server.

credmap\_server process

The credentials mapping server, credmap\_server, runs on any Rational® ClearCase® host that is configured to support local VOBs and views. This server handles credentials mapping in environments where users access a common set of VOBs and views from computers running different supported operating systems.

view\_server process

A **view\_server** is a **long-lived process** that manages activity in a particular view.

A **view\_server** is started by the host’s **albd\_server** process whenever a client requests access to a view. A **view\_server** remains active until it is terminated by a **cleartool** **endview** **–server** command, a system shutdown, or an operating system command that terminates the **view\_server** process.

When it begins execution, a **view\_server** reads configuration information from the .view file in the view-storage directory. Values in this file are established by **mkview**, **chview**, and similar commands. Do not modify this file with a text editor.

vob\_server process

For each VOB, a **long-lived** **vob\_server** process runs on the VOB host. The **vob\_server** manipulates data in the VOB storage pools in response to requests from client processes.

The **vob\_server** is the only process that creates or deletes VOB data containers; only the VOB owner or a privileged user can modify VOB data containers and storage pools. For more information, see [The VOB storage directory](http://pic.dhe.ibm.com/infocenter/cchelp/v8r0m0/topic/com.ibm.rational.clearcase.cc_admin.doc/topics/r_vobadm_stgdir.htm#r_vobadm_stgdir).

A **vob\_server** process is started as needed by the**albd\_server** process. It remains active until any of the following events occur:

* The VOB is removed with the **rmvob** command.
* Rational® ClearCase® is stopped on the VOB server host.
* The VOB server host is shut down and restarted.

When it begins execution, the **vob\_server** reads configuration information from the file vob\_server.conf in the VOB storage directory. Values in this file are established by the **vob\_snapshot\_setup** utility and other commands. Do not modify this file.

db\_server process

The **db\_server** processes manage VOB database transactions on a host in response to requests from client programs.

Because client programs cannot access VOB databases directly, they must send database transaction requests to a **db\_server** process when they must create, read, or modify VOB data or metadata.

Each **db\_server** process services a single client at a time, but can operate on any number of VOBs. A client establishes a connection to a **db\_server** with the help of the **albd\_server** on the VOB host. If necessary, the **albd\_server** starts a new **db\_server** process to handle a request. The connection is broken when the client exits or becomes idle (stops requesting database transactions for an extended period). At that point, the **db\_server** becomes available for use by another client. After a period of idleness, an unconnected **db\_server** is terminated by its host’s **albd\_server** process.

vobrpc\_server process

Each VOB server host runs one or more **vobrpc\_server** processes for each of its VOBs.

Each **vobrpc\_server** process handles requests from **view\_server** processes throughout the network. These requests can generate both metadata (VOB database) and file-system data (storage pool) activity. The **vobrpc\_server** process accesses the VOB database in the same way as a **db\_server**; it forwards storage pool access requests to the **vob\_server**.

The **vobrpc\_server** processes are started by the **albd\_server** process, which also routes new requests to the least-busy servers and terminates unneeded **vobrpc\_server** processes when the system is lightly loaded.

lockmgr process

On Windows hosts that are VOB servers, a lock manager arbitrates transaction requests to all VOB databases on that host.

**Note:** See [Configuring database locking parameters on hosts running the UNIX system.](http://pic.dhe.ibm.com/infocenter/cchelp/v8r0m0/topic/com.ibm.rational.clearcase.cc_admin.doc/topics/t_perf_svr_lockmgr_ux_dbsvr.htm) for related information that is applicable to UNIX systems and Linux.

When a process requests VOB data, the **lockmgr** process or the VOB's **db\_server** grants or prohibits access to that data. If the data is available, the transaction proceeds immediately: the data is read or written, and output is returned to the calling program. If the data is unavailable (locked because another caller has been granted write access to the data), the caller waits until the **lockmgr** or **db\_server** grants access to the data.

**Unlike most other Rational® ClearCase® services, the lockmgr process is not started by the albd\_server process. Instead, it is started when the VOB host starts**. Lock manager startup options can be changed if necessary to improve VOB server performance for certain configurations. For more information, see [Modify database locking options](http://pic.dhe.ibm.com/infocenter/cchelp/v8r0m0/topic/com.ibm.rational.clearcase.cc_admin.doc/topics/c_perf_svr_lockmgr.htm#c_perf_svr_lockmgr).