Telelogic Synergy

Administration Guide for UNIX on Oracle

Release 7.0

Before using this information, be sure to read the general information under Appendix D, "Notices" on page 139.

This edition applies to **VERSION 7.0, Telelogic Synergy Administration Guide for UNIX on Oracle (product number 5724V66)** and to all subsequent releases and modifications until otherwise indicated in new editions.

Table of Contents

1 Introduction

The *Telelogic® Synergy™ Administration Guide for UNIX®* contains complete administrative command descriptions and step-by-step instructions for administering Telelogic Synergy.

For installation and upgrade instructions, see the following documents:

- *Telelogic Synergy Installation Guide for UNIX*
- *Telelogic Synergy Installation Guide for Windows®*
- *Telelogic Synergy Upgrade Instructions for UNIX*
- *Telelogic Synergy Upgrade Instructions for Windows*

You can obtain this guide in PDF format on the Documentation section of the DVD, the Telelogic Synergy Support Web site (located at http://support.telelogic.com/synergy). Also, see "Obtain additional information" on page 8.

Information in this guide may be superseded by information in the *Readme* files, which are shipped with the product. The latest updates to the *Readme* are available on the IBM Rational Software Support Web site.

Who should use this guide

This guide is intended for change management (CM) administrators. The *CM administrator* should have experience creating Oracle® databases and setting up UNIX system files.

The *CM administrator* also must have the *root* password on each machine used by Telelogic Synergy and must be able to set the user to *ccm_root*.

Telelogic Synergy administrator's road map

The following items briefly describe the tasks you need to complete to prepare the Telelogic Synergy environment for your team's use. This road map assumes that you have already installed Telelogic Synergy.

- Read the *Readme,* located on the Telelogic Synergy Support Web site, for any last-minute information.
- Install the Telelogic® License Server™ and the license.

  This procedure is described in the *Telelogic Lifecycle Solutions - Licensing Guide*.
- Unpack a database.

  This procedure is described in "Create a database" on page 52.
- Add users to the database.

  This procedure is described in "Add users or change user roles in a Telelogic Synergy database" on page 12.
- Coordinate the customization of local types with your site's type developer.
- Devise a database backup plan.

  Guidelines for doing this are in "Back up a database" on page 48 and "Schedule and script backups" on page 130.
- Monitor space to plan for growth.

  This procedure is described in "Monitor processes" on page 29.

About Telelogic Synergy

This release supports UNIX clients, engines, and database servers on a variety of UNIX operating systems. UNIX clients can be used only with UNIX servers. However, Windows can run with a UNIX server. For the most current list of supported platforms, see the *Readme*.

When you run Telelogic Synergy, the client, engine, and database all must be at the same release level. Do not mix components from different Telelogic Synergy releases. This means that you must install this release of Telelogic Synergy clients on all Windows client machines that will access a UNIX server. See the *Telelogic Synergy Installation Guide for Windows* and the *Telelogic Synergy Administration Guide for Windows* on the Telelogic Synergy Support Web site for information about installing and administering Windows clients.

Conventions

The following conventions are used in this guide.

Shell conventions

All command-line instructions and examples are shown for the standard Bourne shell, `/bin/sh`. If you use an alternative shell, such as the C shell, you must make the appropriate changes to execute the commands.

For example, add `/usr/local/ccm70` to the path using the `sh` shell as follows:

```
PATH=/usr/local/ccm70/bin:$PATH; export PATH
```

Add `/usr/local/ccm70` to the path using the `csh` shell as follows:

```
setenv PATH /usr/local/ccm70/bin:$PATH
```

Fonts and symbols

The table below describes the typeface and symbol conventions used in this guide.

Typeface	Description
Italic	Used for book titles and terminology. Also designates names of roles (*developer*), states (*working*), groups (*ccm_root*), and users (*laura*).
Bold	Used for dialog box names and options, items that you can select and menu paths, also used for emphasis.
`Courier`	Used for commands, filenames, and directory paths. Represents command syntax to be entered verbatim. Signifies computer output that displays on-screen. Also used for the names of attributes (`modify_time`), functions (`remote_type`), and types (`csrc`).
`Courier Italic`	Represents values in a command string that you supply. For example, (*`drive`*`:\`*`username`*`\`*`commands`*).

This document also uses the following conventions:

Note Contains information that should not be overlooked.

Caution Contains critical information that must be observed to avoid damaging the database or system.

Command line interface

The command line interface (CLI) is supported on all UNIX platforms. You can execute any Telelogic Synergy command from the command prompt.

Prompt

This guide uses the dollar-sign prompt (`$`).

Options delimiter

Telelogic Synergy supports the dash (`-`) option delimiter for all UNIX platforms.

Location of $CCM_HOME

`$CCM_HOME` is the Telelogic Synergy product installation directory. Many procedures shown in this guide require that you change a file somewhere in the `$CCM_HOME` directory hierarchy.

Default text editor

The default Telelogic Synergy UNIX text editor is `vi`. You can change the default text editor (described in "Default Settings" in Telelogic Synergy CLI Help).

New in Telelogic Synergy release 7.0

This section describes the new features of Telelogic Synergy 7.0.

Web mode and traditional mode

Telelogic Synergy 7.0 improves wide area network (WAN) performance by introducing a new architecture where Telelogic Synergy clients communicate to a Web-based Telelogic Synergy server using the HTTP protocol. This architecture reduces the dependency on network latency by using parallel, asynchronous network communication between the client and server.

Rather than replacing the original network communication with this new technique, Telelogic Synergy 7.0 introduces the new technique as Web mode. The previous RFC architecture, which is referred to as traditional mode, is still available for use by some users.

Most developers and build managers will be able to use the Web mode. Users who need administration capabilities or other advanced features can use the traditional mode instead. The traditional mode behaves as it did in Telelogic Synergy 6.5.

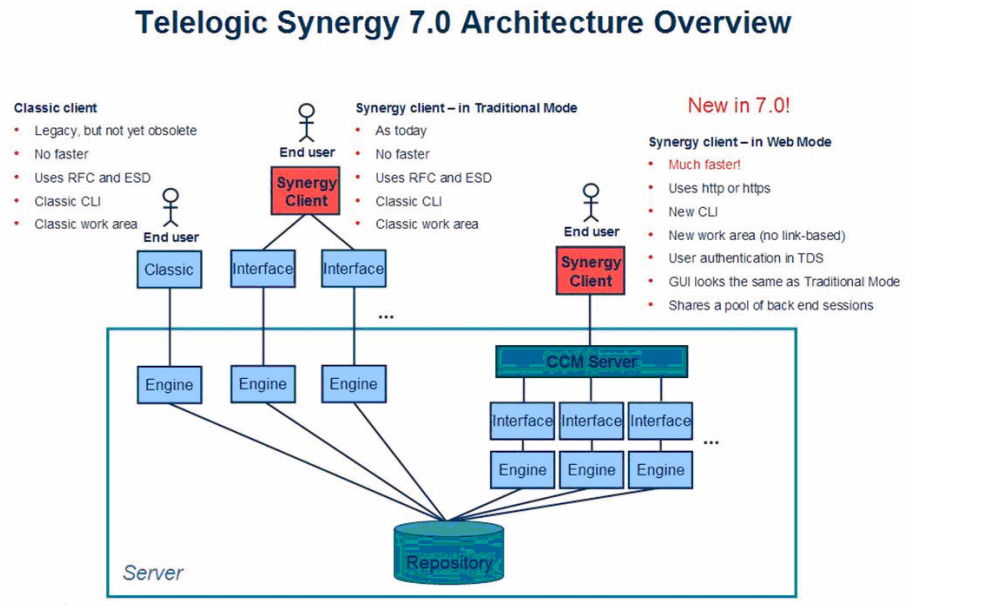
Users who work with link based work areas on UNIX must use the traditional mode Telelogic Synergy GUI or the Classic CLI or GUI.

Users will need to use one of the Telelogic Synergy Classic clients (CLI or GUI) for the following reasons:

- Administrative operations
- Data migration
- Save offline and delete

Telelogic Synergy 7.0 Architecture

The following picture shows the Telelogic Synergy 7.0 architecture for the Web mode and the traditional mode.



Web mode clients connect to a Telelogic Synergy Web server via HTTP. The Telelogic Synergy server manages a pool of back-end sessions, which all run on the server system.

The Web mode and traditional mode differ in some ways that are important for the *CM administrator* to understand.

- **CCM server**—Web mode introduces a new Web server called the CCM server. This process manages back-end Telelogic Synergy sessions on the server system. This document provides information about configuring and administering the CCM server.

  For more information on administering the CCM server, see "CCM Server Administration" on page 41.

- **Authentication**—Web mode users are authenticated via the Telelogic® Directory Server™ (TDS). Telelogic Synergy can share a single TDS lightweight directory access protocol (LDAP) installation with Telelogic® Change™ and other software tools. TDS is installed and administered

separately from Telelogic Synergy. For more information, see the *Telelogic Directory Server Administration Guide* and the *Telelogic Directory Server Install Guide* on the Lifecycle Solutions Support Web site.

In addition to defining users in TDS, the *CM Administrator* must add user IDs and their associated roles to each Telelogic Synergy databases in which they will work, in order to identify which databases they can access and the privileges they have in each databases.

Traditional mode users are authenticated using OS authentication, as in previous releases. On UNIX operating systems, it is possible to configure PAM to authenticate users via TDS. TDS can also be configured to authenticate users against the operating system.

For more information on authentication, see the *Telelogic Directory Server Administration Guide*.

- **Session start**—To start a Web mode session, users must specify a URL rather than a host name for the server. The *CM administrator* can provide the appropriate startup information for different sets of users.

  Note You will be able to start only a Telelogic Synergy client or Telelogic Synergy CLI in Web mode. Neither the Classic GUI nor the Classic CLI can be started in Web mode.

  - To start a Telelogic Synergy GUI session in Web mode, in the **Start Telelogic Synergy** dialog box, type the CCM server URL in **Server**, rather than typing the hostname.

    Typing the hostname as in previous releases starts a session in traditional mode.

  - To start a Telelogic Synergy CLI session in Web mode, type the CCM server URL, including the `-s` flag.

    For example:

    ```
    $ ccm start -d /vol/vod/ccmdb/mydb -s http://
    vod:8400
    ```

    Typing the `-h` flag with the hostname, as in previous releases, starts a Classic CLI session in traditional mode.

- **Scripting**—Telelogic Synergy 7.0 introduces a new CLI. Starting in release 7.0, the new CLI is referred to as Telelogic Synergy CLI, and the original CLI is referred to as Classic CLI.
  - The new Telelogic Synergy CLI runs only in the Web mode
  - The Classic CLI runs only in the traditional mode.

  The new Telelogic Synergy CLI is not as complete compared to the Classic CLI, but it provides equivalent commands for most functions available in the Telelogic Synergy GUI. Most administration commands are not supported in the new Telelogic Synergy CLI yet, including those described in this book.

  You may choose to continue running your existing scripts in the Classic CLI, or port them to the new Telelogic Synergy CLI if it includes all of the functionality needed by your scripts. Because the Telelogic Synergy CLI runs in Web mode, it is faster than the Classic CLI, but the Classic CLI continues to run as it has in previous releases.

Obtain additional information

Readme

The Telelogic Synergy *Readme* describes the new features in Telelogic Synergy, provides updates to the documentation, and contains sections on troubleshooting, contacting support, and known errors. See the *Readme* for the latest updates to the installation documentation.

The *Readme* is available in HTML on the documentation DVD and on the IBM Rational Software Support Web site.

The *Readme* can be available to all users by mounting the DVD on a shared drive. The *Readme* is available to Telelogic Synergy GUI users from the **Welcome** page. To display the **Welcome** page, from the main menu, select **Help** > **Welcome**.

Information in the *Readme* takes precedence over information in the documentation or in any of the Telelogic Synergy Help systems.

Contacting IBM Rational Software Support

Support and information for Telelogic products is currently being transitioned from the Telelogic Support site to the IBM Rational Software Support site. During this transition phase, your product support location depends on your customer history.

Product support

- If you are a heritage customer, meaning you were a Telelogic customer prior to November 1, 2008, please visit the Telelogic Synergy Support Web site.

  Telelogic customers will be redirected automatically to the IBM Rational Software Support site after the product information has been migrated.
- If you are a new Rational customer, meaning you did not have Telelogic-licensed products prior to November 1, 2008, please visit the IBM Rational Software Support site.

Before you contact Support, gather the background information that you will need to describe your problem. When describing a problem to an IBM software support specialist, be as specific as possible and include all relevant background information so that the specialist can help you solve the problem efficiently. To save time, know the answers to these questions:

- What software versions were you running when the problem occurred?
- Do you have logs, traces, or messages that are related to the problem?
- Can you reproduce the problem? If so, what steps do you take to reproduce it?
- Is there a workaround for the problem? If so, be prepared to describe the workaround.

Other information

- For Rational software product news, events, and other information, visit the IBM Rational Software Web site.

2 General System Administration

General system administration for Telelogic Synergy includes the following tasks:

Database terminology

The term Telelogic Synergy database is used throughout this document.

- Telelogic Synergy database is used to refer to the CM schema and meta-data that can be stored in an Oracle database, as well as the corresponding source file data that is stored in the file system.
- Oracle database refers to the actual Oracle database.

Utilities are provided to administer Telelogic Synergy databases, but not to administer Oracle databases. Oracle databases must be created and administered manually. Users should see the documentation for the Oracle product for Oracle database administration.

Add users or change user roles in a Telelogic Synergy database

Each Telelogic Synergy database has a list of users. After you unpack a database from `base.cpk`, the list contains suggestions of user roles that you might want to give to users of a database. Each user list must contain the team members who can use the database. You need to add user names to the list of users for each Telelogic Synergy database, and give each user at least one role to define his capabilities within a Telelogic Synergy database.

Before you assign user names, consider whether you are going to use automatic email notification. If this is the case, the user's UNIX login name must also be the same as the email address (and must be the same as the Telelogic Synergy user name). However, the UNIX login name can be an alias or a forwarding name.

A user can have multiple roles within a single database. For example, user *sue* could have the role of *writer* and *developer*.

Roles identify which privileges a user has within a database. For example, if user *sue* is only given the *developer* role, she can perform all *developer* operations, but she cannot perform any *build_mgr* operations. The *ccm_admin* role is only used in Telelogic Synergy Classic and CLI.

> **Caution!** Users with the *ccm_admin* role can perform administrative actions on a database, and **have the right to modify any and every object in a database**. You should limit access to this role, and also to the *ccm_root* user, to those who specifically need this level of access.
>
> Note that *ccm_root* has all roles. However, it might or might not display in the users file list of roles.

1. Set user to *ccm_root*.

   ```
   $ su - ccm_root
   Password: *****
   ```

   Note The first time you add users to a database, you need to do so as user *ccm_root*. Once you establish who the administrative user will be (the user with *ccm_admin* role), then he can add users to the user list while logged in as himself.

   If `CCM_HOME` and `PATH` were not set up for user *ccm_root* during installation, set these environment variables now.

   See "Set up ccm_root users and Oracle variables" on page 16.

2. Start a Telelogic Synergy session in the *ccm_admin* role.

   ```
   $ ccm start -nogui -r ccm_admin -d database_path
   ```

3. Open the `users` file.

   ```
   $ ccm users
   ```

4. Add the user and the user's roles.

   You can add or remove users from this file, or change a user's role. The user roles are predefined according to the Base Model. To add a user, read through the user list, then give users the appropriate role or roles.

   Additionally, you can add comments and blank lines.

   If you want to use the automatic notification of task assignment feature, the user name must be the same as the email address. The list of users will look similar to the following:

   ```
   user john= build_mgr developer;
   user sue= ccm_admin developer;
   user bob= writer developer;
   user tom= developer;

   #testing group
   user linda= tester;
   user joe= tester;
   user ann= tester;
   user jane= tester;
   user bill= tester;

   user user1= developer;
   user user2= developer;
   ```

   In the example above, *john*, *sue*, *bob*, and *tom* are the users' login names. *sue* has the roles of *ccm_admin* and *developer*, *john* has *build_mgr* and *developer* roles, *bob* has *writer* and *developer* roles, while *tom* has *developer* role only. Below the first group of users, a second group, including only testers, is defined.

   Note Create only one line, with all the user's roles, for each user. Also, end each line with a semicolon.

   Additionally, user names in databases on UNIX servers must not be longer than eight characters, must not contain spaces, and must start with an alphabetical character.

5. Stop the Telelogic Synergy session.

   ```
   $ ccm stop
   ```

6. Log out from user *ccm_root*.

Users who will run Web mode sessions must be added to the TDS and to the Telelogic Synergy databases. For information about adding users to TDS, see the *Telelogic Directory Server Administration Guide*.

Set up the Telelogic Synergy environment

The following sections explain how to set up user environments.

Include Telelogic Synergy in the user's path

If a user wants to use a different installation of Telelogic Synergy, or if a user is new to Telelogic Synergy, set CCM_HOME to the path to the installation directory. (e.g., `/usr/local/ccm70`). Then, set PATH to include `$CCM_HOME/bin`.

CCM_HOME and PATH typically are defined in one of the following files:

- For C shell users, the `.login` or `.cshrc` file
- For Bourne and Korn shell users, the `.profile` file

Set user defaults

Telelogic Synergy Classic users can set their own defaults for engine host, database, browser, and other options.

Initialization files (e.g., users' `.ccm.ini` files) are usually the files used to customize defaults. (The `.ccminit` file contains the Telelogic Synergy Classic commands that are executed at startup.)

- Telelogic Synergy does not use the settings in the `.ccm.ini` file. See the next section, "Set Telelogic Synergy options."
- See Telelogic Synergy CLI Help for information about default Telelogic Synergy options and settings.

Set Telelogic Synergy options

Telelogic Synergy has options that can be configured for the interface and for the server.

- `ccm.user.properties`

  This file provides local workstation settings, such as work area options for the Telelogic Synergy interface. The file is located in the user's home directory. Most user settings can also be configured using the **Options** dialog box.

- `ccm.server.properties`

  This file provides settings for tuning the server for the Telelogic Synergy interface. The file is located in `$CCM_HOME/etc`.

- `ccm.system_info.txt`

  This file provides settings for configuring the Telelogic Synergy installation system information. The file is located in the `$CCM_HOME/etc` directory and includes the following settings:

  - PROBLEM_SUBMIT_EMAIL—Email address to which problem information will be sent from the **Submit Request** dialog box in the Telelogic Synergy GUI. This option should be set to an internal email address so that the Telelogic Synergy experts at your company can review end-user requests to ensure they are valid and do not contain company-confidential information before passing them on to IBM Support.

    For more information, see "Contacting IBM Rational Software Support" on page 9.

  - LICENSE_SERVER—Host and port where the license server is running.

    For possible formats of the license server address, see the *Telelogic License Server* documentation.

  - HELP_SERVER—URL where you wish the ccm server to use to serve help pages.
  - TELELOGIC_DIRECTORY_SERVER—Host and port where the TDS is running.

    For possible formats of the license server address, see the *Telelogic License Server* documentation.

Set up ccm_root users and Oracle variables

You can set the environment variables on the command line or in the users' profiles. The following steps show how to set the environment variables in the *ccm_root* or Oracle profiles.

1. Add CCM_HOME to the path for user *ccm_root*.

   ```
   $ su - ccm_root
   Password: *****
   $ vi .profile
   ```

   If the `.profile` file is not the correct file for your shell, use the correct file (e.g., `.cshrc` or `.login`).

   Add the following lines, and then exit from user *ccm_root*:

   ```
   CCM_HOME=$CCM_HOME; export CCM_HOME
   PATH=$CCM_HOME/bin
   export PATH
   $ exit
   CCM_HOME=$CCM_HOME; export CCM_HOME
   export PATH
   $ exit
   ```

2. Set up a system identifier for the Oracle database.

   Oracle uses a system identifier to identify an Oracle database instance. This is known as the Oracle SID. The environment variable `ORACLE_SID` should be set as the system identifier for an Oracle database. You need the `ORACLE_SID` for the server to be correctly identified in any Telelogic Synergy command that uses the `-server` *`servername`* argument.

Set up Oracle user privileges

So that the `ccmdb` commands work correctly, you must set up an Oracle user who has the privileges to perform the tasks involved. Do one of the following:

- Have the `sys` or `system` user do the setup
- Give the Oracle user the following privileges:

```
CREATE USER
DROP USER
CREATE ANY INDEX
DROP ANY INDEX
CREATE ANY SEQUENCE
ALTER ANY TABLE
CREATE ANY TABLE
INSERT ANY TABLE
DROP ANY TABLE
DELETE ANY TABLE
SELECT ANY TABLE
UPDATE ANY TABLE
GRANT ANY OBJECT PRIVILEGE
SELECT ANY SEQUENCE
```

Log security messages

One audit log is maintained per database and contains security-related messages from all Telelogic Synergy processes accessing the database. The log's default location is *`database_path`*`/audit_log`. Contact IBM Rational Software Support if you want to change the location of the audit log.

Access Telelogic Synergy logs

Telelogic Synergy produces a series of log files in one of the following locations:

- **UNIX Server**—`$CCM_HOME/log/`*`synergy_host_port.log`*
- **UNIX client**—`$HOME/ccmlog/synergy.log`
- **Windows Server**—`$CCM_HOME\log\synergy_host_port.log`
- **Windows client**—*`<Application Data>`*`\Telelogic\Synergy\synergy.log`

As each log file grows past a configurable limit, the files are rotated, producing log files such as `synergy1.log`, `synergy2.log`, and so forth, for the older versions. The size of each generation and the number of generations kept may be configured in the `$CCM_HOME/etc/logging.properties` file, with the properties `com.telelogic.cm.logging.TLogFileHandler.limit` and `com.telelogic.cm.logging.TLogFileHandler.count`. The default file size limit is 4MB, and the default number of files kept is 4.

On the server side, logs for the back-end sessions supporting Web mode clients are produced in the `$CCM_HOME/log` directory, using names in the format `username_ui.log` and `username_eng.log`, for each client user name.

Telelogic License Server installation

The Telelogic License Server installation is described in the *Telelogic License Server* documentation. See this document for step-by-step instructions.

Manage the Telelogic Synergy daemons

The Telelogic Synergy daemons must be running for you to start a session: `router` (the message router), `objreg` (the object registrar), server (the CCM server that serves Web mode Telelogic Synergy sessions as well as help requests), and, if used, `esd` (the engine startup daemon).

Telelogic Synergy supports all daemon processes (router, object registrar, engine startup service, and CCM server) and engine processes running on machines with more than one IP address.

If the interface process will not start and the router is running on a machine that has multiple IP addresses, you may need to modify the `.router.adr` file. The additional IP addresses need to be appended to the end of the `.router.adr` file. The format for machines with a host name is:

```
hostname:port[:IP]*
```

The format for machines with no known host name is:

```
ip:port[:IP]*
```

where `[:IP]*` represents zero or more IP addresses separated by colons.

Message router (router)

The message router registers and requests information from other processes so that those processes can communicate with one another.

The router allows the maximum number of file descriptors (i.e., sessions) allowed by the system, with an upper limit of 4096. Your system administrator can change the number of file descriptors in the kernel parameters if an insufficient number is allowed.

You must run one **router** process per network installation, on the router host specified during the installation. Start this process by executing the `ccm_router` or `ccm_start_daemons` command.

The default log file for the router is `$CCM_HOME/log/ccm_router.log`.

Additionally, see "Start or stop the router (router)" on page 25.

Object registrar (objreg)

The object registrar registers all changes made to Telelogic Synergy database objects so that each user's view of the database stays up to date.

You must run one `objreg` process per database host, at all times, on the database server machine. (Determine on which host you should be running a database's object registrar by executing the `ccmdb info` *`database_path`* `-k HOSTNAME` command.)

Start this process by executing the `ccm_objreg` or `ccm_start_daemons` command.

The default log file for the object registrar is `$CCM_HOME/log/ccm_objreg.log`.

Additionally, see "Start or stop the object registrar (objreg)" on page 26.

Engine startup daemon (esd)

Telelogic Synergy clients may be configured to use the engine startup daemon to start sessions. The `esd` allows users to start Telelogic Synergy engines on a remote server without using `rsh` (remote shell) or `rexec` (remote execution) utilities. The `esd` process runs on the server. If you have configured any client to use `esd`, you must run one `esd` process on any machine where you will run Telelogic Synergy engines.

You can start this process by executing the `ccm_esd` or `ccm_start_daemons` command.

Note Telelogic Synergy Web mode sessions do not required ESD.

The default log file for the engine startup daemon is `$CCM_HOME/log/ccm_esd_hostname.log`.

Additionally, see "Start or stop the engine startup daemon (esd)" on page 27. For information about configuring the `esd.adr` port file, see "ccm_esd" on page 83.

Set up esd security

On Solaris™ and Linux® systems, the `esd` uses pluggable authentication modules (PAM) to authenticate users. The PAM service name is `cmsynergy`. To allow the `esd` to authenticate users, the PAM configuration must be updated to specify the authentication methods to use for the `cmsynergy` service, unless a reasonable default already exists.

The following are sample additions to a Solaris `/etc/pam.conf` file:

```
cmsynergy   auth    required    pam_unix_auth.so.1
cmsynergy   account required    pam_unix_account.so.1
```

The following are sample additions to a Linux `/etc/pam.d/cmsynergy` file:

```
auth     required   /lib/security/pam_stack.so service=system-
auth
auth     required   /lib/security/pam_nologin.so
account  required   /lib/security/pam_stack.so service=system-
auth
```

AIX® has its own configuration scheme instead of using PAM. AIX authentication is through its base operating system.

For additional information about configuring PAM, refer to your system's documentation.

Set up the esd client

You must tell the client to connect to `esd` rather than use the normal engine startup procedure. This is done by editing the `ccm.ini` file in the client Telelogic Synergy installation's `etc` directory to specify how the engine is started.

You must add the following line to the first section of the `ccm.ini` file:

```
engine_daemon = TRUE
```

You can change either the `$CCM_HOME/etc/ccm.ini` file, or your own `.ccm.ini` file, which takes precedence.

Configure for trusted users

Note This section does not apply to Web mode users.

This option allows users to start a client without providing a password. When using this option, sessions on UNIX databases must be started using ESD.

To enable this feature, the administrator needs to create a file named `trusted_clients` on the router machine's `$CCM_HOME/etc` directory. The file must have the following format:

`hostname1` [`user_name1`]

`hostname2` [*`user_name2`*]

Where the *`hostname`* is the client's hostname and the *`user_name`* is the client's login user name.

Both *`hostname`* and *`user_name`* fields accept `+` (plus sign) for ANY hosts or ANY user.

If the *`user_name`* field is missing, it has the same meaning as *`user_name`* set to `+`.

If the client is trusted, Telelogic Synergy displays the following behavior.

Telelogic Synergy Classic:
On the startup dialog, **User name** and **Password** are disabled, and **User name** displays the OS user name.

If the user name is specified from the command line (`-n` option), the client is no longer considered trusted and will behave like non-trusted clients.

Telelogic Synergy Command Line Interface (CLI):
The CLI will not prompt for the password if the client is trusted.

If the user name is specified from the command line (`-n` option), the client is no longer consider trusted and will behave like non-trusted clients.

Telelogic Synergy:
The login pane will not display **UserID** or **Password** (like Telelogic Synergy on UNIX), and the User name displays the OS user name.

If the user name is specified from the command line (`-u` option), the client is no longer considered trusted and will behave like non-trusted clients.

Set up ccm set_password

Use the `ccm set_password` command to store encrypted password(s) when you use the esd service. Build managers commonly use this command to start Telelogic Synergy sessions from scripts without being prompted for passwords.

The following is the usage form for this command:

```
$ ccm set_password host
```

where *`host`* is the destination host.

The `ccm set_password` command stores your password(s) in an encrypted file (`.ccmrc`) under your home directory. You can specify different passwords for different destination hosts. If you do not provide a destination host name, the password entered is treated as the default password for all destination machines that do not have an explicit password.

Help server

Telelogic Synergy uses a Web server to serve Telelogic Synergy Web mode sessions and help requests from users' sessions.

See "CCM Server Administration" on page 41 for information about configuring and managing the CCM server.

Start or stop all daemons

Start or **stop** all daemons by performing the following steps.

To kill the ESD process, you must be logged in as *root*.

1. Set user to *ccm_root*.

   ```
   $ su - ccm_root
   Password: *****
   ```

   If CCM_HOME and PATH were not set up for user *ccm_root* during installation, set these environment variables now. See "Set up ccm_root users and Oracle variables" on page 16.

2. Start or stop the daemons.

   ```
   $ ccm_start_daemons
   ```

   OR

   ```
   $ ccm_stop_daemons
   ```

   Note If all of the daemons do not start when you run *ccm_start_daemons*, you must stop all of the daemons before attempting to start them again using ccm_start_daemons. Otherwise, you can start individual daemons at any time without having to shut down all of the daemons first.

3. Exit from user *ccm_root*.

   ```
   $ exit
   ```

Start or stop the router (router)

Start the message router daemon by performing the following steps.

1. Set user to *ccm_root*.

   ```
   $ su - ccm_root
   Password: *****
   ```

   If CCM_HOME and PATH were not set up for user *ccm_root* during installation, set these environment variables now. See "Set up ccm_root users and Oracle variables" on page 16.)

2. Start the router.

   ```
   $ ccm_router
   ```

3. Exit from user *ccm_root*.

Stop the message router daemon by performing the following steps.

1. Set user to *ccm_root*.

   ```
   $ su - ccm_root
   Password: *****
   ```

   If CCM_HOME and PATH were not set up for user *ccm_root* during installation, set these environment variables now. See "Set up ccm_root users and Oracle variables" on page 16.)

2. Find the `router` process ID.

   ```
   $ ccm monitor -process router
   ```

   You should see output similar to the following:

```
Telelogic Synergy process monitor...1 process(es) located:
user      process  host       port      pid   database path
----      -------  ----       ----      ---   -------------
ccm_root  router   galaxy     1514      12220  -
```

   Note the `router`'s process ID (e.g., `12220`).

3. Kill the router process.

   ```
   $ kill process_ID
   ```

4. Exit from user *ccm_root*.

Start or stop the object registrar (objreg)

Start the object registrar by performing the following steps.

1. Set user to *ccm_root*.

   ```
   $ su - ccm_root
   Password: *****
   ```

   If CCM_HOME and PATH were not set up for user *ccm_root* during installation, set these environment variables now. See "Set up ccm_root users and Oracle variables" on page 16.

2. Start the object registrar.

   ```
   $ ccm_objreg
   ```

3. Exit from user *ccm_root*.

Stop the object registrar by performing the following steps.

1. Set user to *ccm_root*.

   ```
   $ su - ccm_root
   Password: *****
   ```

   If CCM_HOME and PATH were not set up for user *ccm_root* during installation, set these environment variables now. See "Set up ccm_root users and Oracle variables" on page 16.

2. Find the `objreg` process ID.

   ```
   $ ccm monitor -process objreg
   ```

   You should see output similar to the following:

```
Telelogic Synergy process monitor...1 process(es) located:
user      process  host       port      pid   database path
----      -------  ----       ----      ---   -------------
ccm_root  objreg    orbit     34525     7288   -
```

   Note the process ID of the `objreg` (e.g., `7288`).

3. Kill the object registrar process.

   ```
   $ kill process_ID
   ```

4. Exit from user *ccm_root*.

Start or stop the engine startup daemon (esd)

Start the engine startup daemon by performing the following steps.

To kill the ESD process, you must be logged in as *root*.

1. Set user to *ccm_root*.

   ```
   $ su - ccm_root
   Password: *****
   ```

   If CCM_HOME and PATH were not set up for user *ccm_root* during installation, set these environment variables now. See "Set up ccm_root users and Oracle variables" on page 16.

2. Start the engine startup daemon.

   ```
   $ ccm_esd
   ```

3. Exit from user *ccm_root*.

Stop the engine startup daemon by performing the following steps.

1. Set user to *ccm_root*.

   ```
   $ su - ccm_root
   Password: *****
   ```

   If CCM_HOME and PATH were not set up for user *ccm_root* during installation, set these environment variables now. See "Set up ccm_root users and Oracle variables" on page 16.

2. Find the `esd` process ID.

   ```
   $ ccm monitor -process esd
   ```

   You should see output similar to the following:

```
Telelogic Synergy process monitor...1 process(es) located:
user      process  host       port   pid   database path
----      -------  ----       ----   ---   -------------
ccm_root   esd    galaxy      57235  5238  -
```

   Note the process ID of the `esd` (e.g., 5238).

3. Kill the engine startup daemon process.

   ```
   $ kill process_ID
   ```

4. Exit from user *ccm_root*.

Start or stop the CCM server

Start the CCM server by performing the following steps.

1. Set user to *ccm_root*.

   ```
   $ su - ccm_root
   Password: *****
   ```

   If CCM_HOME and PATH were not set up for user *ccm_root* during installation, set these environment variables now. See "Set up ccm_root users and Oracle variables" on page 16.

2. Start the CCM server.

   ```
   $ ccm_server
   ```

3. Exit from user *ccm_root*.

Stop the CCM server by performing the following steps.

1. Set user to *ccm_root*.

   ```
   $ su - ccm_root
   Password: *****
   ```

   If CCM_HOME and PATH were not set up for user *ccm_root* during installation, set these environment variables now. See "Set up ccm_root users and Oracle variables" on page 16.

2. Stop the CCM server.

   ```
   $ ccm_server -stop
   ```

3. Exit from user *ccm_root*.

For more information, see "CCM Server Administration" on page 41.

Broadcast system messages

The `ccm message` command enables you to communicate with specific users or groups of users for administrative purposes. For example, you can send a message to a Telelogic Synergy specific user on a specific Telelogic Synergy database, or to all users on a specific Telelogic Synergy host.

For information about all `ccm message` options, see "ccm message" on page 74.

The following are examples of `ccm message`.

- Send a message to all users of all databases.

  ```
  $ ccm message -d "?" "CM Server will be rebooted at noon"
  ```

- Send a message to user *joe* about his system.

  ```
  $ ccm message -user joe "Your system will be upgraded at 2 pm"
  ```

- Send a shutdown message to all `project1` database users.

  ```
  $ ccm message -database /vol/hydra/ccmdb/project1 \
  "Bringing project1 database down now!"
  ```

Monitor processes

The following sections show how to monitor Telelogic Synergy processes and their related information.

Monitor processes using ccm monitor

The `ccm monitor` command provides a dynamic, network-wide view of all Telelogic Synergy processes and installation area. The information is displayed in a dynamically updated list, and you can limit the information you are viewing by adding options to the command.

The `ccm monitor` command displays a continuously updated list showing the processes' users, process types (engine, user interface, router, or object registrar), host name, process IDs, port number, and the associated database paths.

To exit from the command, press **CTRL-c**.

For Web mode users, the `ccm monitor` command shows the CCM server as **server**, and the right most column shows the URL that they can use to start sessions.

For more information about `ccm monitor`, see "ccm monitor" on page 76.

Monitor users

The following examples show how to monitor users.

- Display all the processes being run by user *ccm_root*.

```
$ ccm monitor -user ccm_root
```

- Show all users active on a database named `ann_test`.

```
$ ccm monitor -database /vol/hydra/ccmdb/ann_test
```

Monitor engines

The following example shows all interfaces with engines running on host `vod`.

```
$ ccm monitor -host vod -process engine
```

Note that you can use a string or an ACCENT regular expression in the value fields for any of these arguments. (Ensure that the argument starts with `?"` to indicate that it is a regular expression.)

The `ccm ps` command is similar to `ccm monitor`, but it lists more information about each process and does not loop continuously.

Monitor process status using ccm ps

The `ccm ps` command provides network-wide process status information about Telelogic Synergy users and processes. The `ccm ps` command is a maximum verbosity, single-pass version of `ccm monitor`.

For example, show the processes running on `benji`, on any model database, by executing the following command:

```
$ ccm ps -database "?model" -host benji
```

For more information about `ccm ps`, see "ccm ps" on page 79.

Monitor the database server using ccmsrv status

The `ccmsrv status` command shows the status of a database server. This command's information complements the information provided by the `ccm monitor` and `ccm ps` commands.

To use this command, you must have already set the `ORACLE_HOME` and the `ORACLE_SID` environment variables, or you must specify the `ORACLE_SID` as the `-s` *`servername`* argument.

For example, show the status of the `vod` server by executing the following command:

```
$ ccmsrv status -s vod
```

Monitor the Telelogic Synergy daemons log files

The Telelogic Synergy router, object registrar, and engine startup daemons write output to log files in the `$CCM_HOME/log` directory. To monitor the `ccm_router.log`, `ccm_objreg.log`, and `ccm_esd_`*`hostname`*`.log` daemons' log files, use the following Telelogic Synergy equivalents of the `tail -f` command:

```
$ ccm_router_tail
$ ccm_objreg_tail
```

Check access to automounted file systems

Telelogic Synergy can run with an automounted installation area and automounted databases. The following sections discuss some issues you should consider when using the automounter with Telelogic Synergy.

- "File systems automatically unmounted" on page 32
- "Paths passed to machines not running the automounter" on page 33
- "Automounted databases' paths" on page 33
- "Indirect automounter maps" on page 33

File systems automatically unmounted

Automounted file systems may be automatically unmounted after a specified time. If a program attempts to access a file by the path it previously obtained using the *pwd* command or `getwd` system call and the file system has been unmounted, the file is not found.

To avoid this problem, perform the following steps:

1. Set user to *ccm_root*.

   ```
   $ su - ccm_root
   Password: *****
   ```

   If CCM_HOME and PATH were not set up for user *ccm_root* during installation, set these environment variables now. See "Set up ccm_root users and Oracle variables" on page 16.

2. View the official path.

   The official path (DBPATH) is set when the database is created. Note the path name.

   ```
   $ ccmdb info database_path
   ```

   The information you receive looks similar to the following:

   ```
   sargasso:ccm_root{3}ccmdb info /vol/sargasso1/ccmdb/base70
   VERSION=7.0
   PLATFORM=solaris
   HOSTNAME=sargasso
   ORHOST=sargasso
   DBPATH=/vol/sargasso1/ccmdb/base70/db
   DATABASE=oracle
   PROTECT=unprotected
   ACTIVE=NO (database is inactive)
   CASE=PRESERVE
   SIZE=20480 KBYTES
   SCHEMA=0111
   ```

   The path is specified by DBPATH. After you have created a database, check the messages from the `create` or `unpack` commands. The messages show the DBPATH set for the database. If the DBPATH is not set to an absolute path that all machines can recognize, use the `ccmdb info` command to change it.

   For example, set the `newdb` database's path to `/vol/vod1/ccmdb/newdb/db`.

   ```
   $ ccmdb info -k DBPATH -v /vol/vod1/ccmdb/newdb/db newdb
   ```

3. Exit from user *ccm_root*.

Paths passed to machines not running the automounter

When a `pwd or getwd` command is executed on an automounted file system, the resulting path often is prepended with `/tmp_mnt`. Among programs running on machines with the same file system automounted, the paths are recognized. However, if that same path is passed to a program on a machine on which the file system is not automounted, the program cannot recognize the path.

Telelogic Synergy solves this problem by stripping the `/tmp_mnt` prefix from automounted file systems' paths. Telelogic Synergy also strips any prefix set using the `AUTOMOUNT_FIX` environment variable.

Automounted databases' paths

An automounted database's path must be accessible using the same path on the GUI interface and engine machines.

Verify that a database's path is accessible by changing directories to the official database path on the GUI interface and engine machines.

Indirect automounter maps

If you use an indirect automounter map, you might have to set the environment variable `AUTOMOUNT_FIX` in the environments of all users.

> **Note** You can use the `AUTOMOUNT_FIX` environment variable to resolve any potential automounter-related problems. If `AUTOMOUNT_FIX` is set to a string, Telelogic Synergy strips that string from the beginning of any path. For example, if `AUTOMOUNT_FIX` is not set, the default is to strip `/tmp_mnt`.

Setting `AUTOMOUNT_FIX` is appropriate only if both of the following are true:

- The automounter uses a path other than `/tmp_mnt` for mounting file systems.
- The same path is used everywhere.

You may need to create symbolic links on some machines to ensure that files on the automounted file system are accessible on all machines by the same path. If you are unsure of how to do this, refer to your automounter documentation.

Set up for remote command execution

The following sections describe how to set up remote execution methods for DCM.

See the *Telelogic® Synergy Distributed™* document for more information.

Set up remote execution methods

For each DCM destination host, add an execution method to the `$CCM_HOME/etc/remexec.cfg` file. Each entry in this file contains the host name and its corresponding remote execution method.

1. Set user to *ccm_root*.

   ```
   $ su - ccm_root
   Password: *****
   ```

   If CCM_HOME and PATH were not set up for user *ccm_root* during installation, set these environment variables now. See "Set up ccm_root users and Oracle variables" on page 16.

2. Edit the remote execution configuration file.

   ```
   $ cd $CCM_HOME/etc
   $ vi remexec.cfg
   ```

3. Add the method for each host.

   Specify the source host, destination host, purpose, environment variables, and command using the following syntax:

   ```
   source_host   dest_host   [%purpose envvar]   command
   ```

   where *source_host* is the name of the source host machine.

   dest_host is the name of the destination host machine.

   purpose is an optional remote execution purpose, normally either `DCM` or `DEFAULT`. If specified, the purpose must include a leading percent symbol (%) so that `ccm_remexec` can determine that a purpose was specified.

   If the purpose is not specified, it is treated as a `DEFAULT` purpose. If both `DEFAULT` purpose and matching purpose exist between two machines, the entry with the matching purpose is used.

   envvar is a list of environment variables that starts with an optional leading dash (-), and is separated by commas and no extra spaces. This defines the environment variables that `ccm_rsh` will pass to the process executing the remote command. A list that starts with a dash means that

all environment variables except the specified ones will be passed by `ccm_rsh`. A list that does not start with a dash means that only the specified environment variables will be passed by `ccm_rsh`. The keyword value `ALL` means pass all environment variables.

An environment variable can be in one of the following formats:

- `NONE`—None of the environment variables are passed to the remote machine.
- `ALL`—All environments variables are passed to the remote machine.
- Only the listed environment variable is passed to the remote machine, for example, `env1, env2, ..., env`*`n`*.
- All the environment variables except the ones listed (`-env1, env2, ... env`*`n`*) are passed to the remote machine.

Note `ccm_rsh` only performs this environment processing when the remote execution host has a different IP address than the local host. In other words, if you use a `ccm_remexec` command that ultimately calls `ccm_rsh` to execute a command on the local host, all environment variables are propagated, regardless of the settings defined in `remexec.cfg`.

Both *`purpose`* and *`envvar`* are optional. However, if *`envvar`* is specified, then *`purpose`* must also be specified. If the *`purpose`* field is not specified, then all environment variables will be passed when `ccm_rsh` is used as the remote execution method.

The `remexec.cfg` file is shipped with the following default:

```
DEFAULT DEFAULT %DEFAULT ALL ccm_rsh -n [-s %shell] %hostname
%cmd_line
```

Note If you are using Telelogic® Synergy Distributed™, it only uses `ccm_remexec` for auto-receives on remote UNIX systems. A Windows to Windows auto-receive is not affected by entries in `remexec.cfg`.

The following are the search rules for `remexec.cfg`:

```
source_host   dest_host   matching_purpose  Highest Priority
ALL           dest_host   matching_purpose
source_host   ALL         matching_purpose
DEFAULT       DEFAULT     matching_purpose
source_host   dest_host   DEFAULT
ALL           dest_host   DEFAULT
source_host   ALL         DEFAULT
DEFAULT       DEFAULT     DEFAULT           Lowest Priority
```

See "Sample methods" on page 37 for an example of a shipped `remexec.cfg` file.

4. Save the file, and then exit.

remexec_method

The `remexec.cfg` file is used for defining remote execution tools on particular machines. The following are predefined keywords in this module:

`%hostname`	Remote hostname on which to run the command.
`%cmdline`	Command to be executed (as one line).
`%cmdargv`	Command to be executed (parsed as `argv`).
`%shell`	Shell that is used to run this command, if required.
`%command`	Overall parsed `argv` of shell + command.

The `remexec_method` string must contain the keywords `%hostname` and `%command_line`, which Telelogic Synergy expands automatically to the name of the remote host and the command to be executed remotely. This enables you to specify a remote execution command containing options in any position.

The `-n` option is required, as well, in any methods using `ccm_rsh` because `rsh` requires the `-n` option for some commands.

Sample methods

The following is a possible `remexec.cfg` file:

```
DEFAULT DEFAULT %DCM -HOME,PWD,TMP ccm_rsh -n
[-s %shell] %hostname %cmd_line
```

If you are using Telelogic® Synergy Distributed™, by default, DCM auto-receives should not pass the `CCM_HOME, HOME, PWD, TMP`, or `TEMP` environment variables because they can cause the remote DCM receive to fail when processing the status attribute.

Note Do not use `rsh(1)` or `remsh(1)` as the `remexec_method`. These methods do not pass the environment to the remote process or return the exit status, both of which are necessary for remote builds.

Telelogic Synergy provides an alternative remote execution method called `ccm_rsh`, which performs the authentication tests required by `rsh` or `remsh. (ccm_rsh` invokes either `rsh` or `remsh`, as appropriate, as part of its implementation.) However, `ccm_rsh` overhead is approximately twice that of `rsh`.

Customize remote execution tools

Telelogic Synergy uses `ccm_rsh` as the default tool to execute remote commands. The `ccm_rsh` command uses the `rsh` protocol with few enhancements. If you decide to use your own tool, such as `ssh`, to execute remote commands, you need to change the `remexec.cfg` file.

1. Develop your own tool to have similar functionality as `ccm_rsh`, keeping the following in mind:
   - Preserve the return status of the remote commands. This is required.
   - Add the ability to replicate local environment variables to remote machines. This is optional. You need it if you use Telelogic® Synergy Distributed™ auto_receive capability.
   - Preserve the current directory for remote commands. This is optional.
2. Modify the corresponding fields in the `remexec.cfg` file to use your own tool.

For example, change DCM to use your tool by changing the following line in the `remexec.cfg` file.

Change this line:

```
DEFAULT  DEFAULT %DCM  -HOME,PWD,TMP  ccm_rsh -n [-s %shell]
%hostname
```

Make the following changes:

```
DEFAULT  DEFAULT %DCM  -HOME,PWD,TMP  my_ssh %hostname
```

3. If you plan to use your tool for DCM, implement the partial environment variable replication feature.

   The replicated environment variables are controlled by the `CCM_REMOTE_ENV` environment variable passed to your tool. The `CCM_REMOTE_ENV` can be one of the following formats:

   - `ALL`
     Replicate all environment variables to the remote machine.

   - `NONE`
     Do not replicate environment variables to the remote machine.

   - `env1`<space>`env2`<space>**...**<space>`envn`
     Only replicate `env1, env2, ..., envn` environment variables to the remote machine.

   - **-**<space>`env1`<space>`env2`<space>**...**<space>`envn`
     Replicate all except `env1, env2, ..., envn` environment variables to the remote machine.

Restart inetd

If you changed the `inetd.conf` file, you must restart `inetd`.

1. Set user to *root*.

   ```
   $ su root
   Password: *****
   ```

2. Send an HUP signal to `inet`.

   ```
   root# kill -HUP inetd_processID
   ```

3. Exit from user *root*.

Set up databases for read security

Group security allows restriction of check out and modify permissions to a specified group of users. In addition, read security, which limits visibility of source to designated groups, can be specified.

Read security is implemented by providing access control to an object's source attribute. Users can query for objects and see other attributes regardless of any read restrictions. Read security applies to source objects which can be versioned, and does not apply to directories and projects.

Read security does not have any affect on link-based work areas.

Your database should be set up to deny read access to the database path to all regular users. You can do this by mounting the database on a machine that no one can access, or by changing permissions at the system level so no one has access to the database path. This requires that users run remote clients. The remote clients will only be able to use copy-based work areas.

Three different levels of read access security can be defined as an object:

- That has no read access restrictions to its source. It can be accessed by any user.
- That has one or more groups defined for read access. It will only allow access to the source if the user is a member of at least one of those groups. All other users are denied access to the source contents of that object.
- With the highest level of security (no access to the source). It cannot be viewed, checked out, or modified, but other attributes can be viewed. However, users working in the *ccm_admin* role can always view the source contents of files.

Any object that is checked out inherits the same group security restrictions as its predecessor, including read security restrictions. Use the `ccm groups` command to implement and define security for objects. Group settings on individual objects may be viewed or modified in the Telelogic Synergy GUI.

3 CCM Server Administration

About the CCM server

The CCM server is a Web server that is responsible for the following tasks:

- Serves requests from Telelogic Synergy sessions running in Web mode.
- Serves help pages for all Telelogic Synergy GUI sessions, both Web mode and traditional mode.
- Hosts patches for automatic deployment to Telelogic Synergy client installations.

Every Telelogic Synergy server installation needs at least one CCM server. For better scalability, you can start additional CCM servers, for example, if you have multiple Telelogic Synergy databases with many users. A CCM server can manage multiple databases, but one database cannot be managed by more than a single CCM server. One CCM server must be designated to serve help. For more information, see `system_info.txt` in "Set Telelogic Synergy options" on page 15.

A CCM server can run on any system on your network that is running a server platform supported by Telelogic Synergy 7.0.

The CCM server starts back-end command interface sessions to process user requests from Telelogic Synergy Web mode clients. It manages the back-end sessions, starting new ones as needed and shutting down old ones when they are no longer needed.

Start and stop the server

The CCM server is started automatically by the `ccm_start_daemons` command, and stopped by the `ccm_stop_daemons` command on the system where the CCM server is running.

To start the CCM server individually, use the `ccm_server -start` command. To stop the CCM server, use the `ccm_server -stop` command on the system where the server is running.

See "Start or stop the CCM server" on page 28 for more information.

Manage multiple servers

UNIX:

By default, the CCM server runs the help server on port 8400. To change the port, use the `ccm_server -port <port>` command to specify the new port number.

To move the CCM server to run on a different system on the network, stop the CCM server, and then log on to the new system and start the server, optionally specifying a new port number.

After starting the CCM server, start a Telelogic Synergy session in Web mode on the database(s) where that server will serve using the URL of the CCM server as the server parameter. For example:

```
$ ccm start -d /vol/boon/ccmdb/test_ccm -s http://newhost:8400
```

This locks the database to that CCM server. A database can be managed by only one CCM server, although multiple databases can be managed by the same server. To change the CCM server that a database uses, stop the CCM server, start it in the new location, and start a new Telelogic Synergy session in Web mode on the database using the new server URL.

Configure the server

The CCM server is configured using settings in the `ccm.server.properties` file, which is located in the `etc` directory of the Telelogic Synergy server installation. The CCM server settings are in the Web server settings section of the file.

To change the server configuration, first stop the server, and then edit the `ccm.server.properties` file to change the settings. Then restart the server.

The following settings can be configured. They govern the behavior of the back-end sessions managed by the CCM server.

- `cm.webserver.max.sessions`—Maximum number of back-end sessions that will run on your server system to serve Telelogic Synergy Web mode client requests.
- `cm.webserver.persistent.sessions`—Number of back-end sessions that will persist even when the server is not receiving many user requests. This ensures that several back-end sessions are available to handle increased demand. When the CCM server is first started, it will not automatically start this number of back-end sessions unless there is sufficient demand. However, after the number of back-end sessions reaches this value, that number persists.

- `cm.webserver.parallel.startups`—Number of back-end sessions that will be started in parallel when ramping up the number of back-end sessions. For example, if this setting is set to 2, the CCM server starts 2 back-end sessions in parallel. Then, when they are available, if there is still sufficient demand, it starts 2 more. This minimizes resource issues that can occur from too many sessions being started in parallel.
- `cm.webserver.session.min.free.time`—Number of seconds a back-end session remains idle before it is retired. This setting controls how aggressive the server is at retiring sessions when demand slows.
- `cm.webserver.user.authentication.timeout`—Number of seconds between user credential checks. There should be no reason to change this setting unless directed to do so by IBM Support.

Monitor the server

The following commands can be used to monitor CCM server processes:

- `ccm monitor`—Shows a dynamic display of all Telelogic Synergy processes on the network for a given Telelogic Synergy installation. CCM servers are shown with the process name **server**, and the server URL is shown in the `Database` column. Telelogic Synergy Web mode users need to specify the server URL to start a session.
- `ccm ps`—Lists all Telelogic Synergy processes on the network for a given Telelogic Synergy installation. CCM servers are shown with the process name `server`, and the server URL is shown in the `Database` column.

See "Monitor processes" on page 29.

Refresh a database

The `ccmdb refresh` command refreshes all Web mode back-end sessions for the specified database. Use this command after you create or change a model object attribute that affects the behavior of Telelogic Synergy clients, so your changes will take effect for all users.

After you run this command, the Telelogic Synergy server starts new back-end sessions to process all new incoming user requests for that database, and will shut down existing sessions on that database as they finish processing requests.

Because back-end sessions are reused by different Web mode users, restarting Telelogic Synergy GUI Web mode sessions will not cause model changes to take effect. Therefore, it is necessary to refresh the database using this command.

Examples of model changes for which you may want to refresh the database include:

- Changing the `conflict_parameters` or `conflict_exclude_rules` that control which conflicts are shown.
- Changing the `parallel_exclude_rules` that control which parallel conflicts are shown.
- Setting the default work area template for all users.
- Changing the range for keyword expansion in source files.

It is not necessary to use this command after adding, removing, or editing users. Modifying the users attribute causes back-end sessions to be refreshed automatically.

Group changes that require a database refresh so that you do not need to refresh databases more than necessary. Although the refresh should be transparent to end users, their session response time may be somewhat slower during a refresh.

For more information on `ccmdb refresh`, see "ccmdb refresh" on page 147.

Manage log files

The CCM server log is in the `synergy_host_port.log` file, located in the `$CCM_HOME/log` directory of the Telelogic Synergy server installation, for example, `boon.8400.54123`. For more information, see "Access Telelogic Synergy logs" on page 18.

The Telelogic Synergy back-end sessions managed by the CCM server all run on the server host. Their log files (both `ui` and `engine`) are saved in the `$CCM_HOME/log` directory. There will be one pair of log files for each user who runs Telelogic Synergy Web mode sessions. The names of the log files are *<userid>*`_ui.log` and *<userid>*`_eng.log`.

Because these back-end session log files tend to grow and end users do not have direct access to them, the administrator should monitor the sizes of the files in the `log` directory and move those approaching a limit, such as 1GB, to a different name. When a `log` file is moved, the Telelogic Synergy logger continues logging to the original file name. Older log files that were moved can be deleted after a period of time. It is a good idea to keep these older files for a certain time period after moving them, should you need to investigate an issue for a user.

The *CM administrator* may want to automate the process of monitoring the directory for large `log` files, moving large `log` files, and deleting very old moved `log` files.

4 Database Administration

Administering the Telelogic Synergy databases includes the following tasks:

About Telelogic Synergy databases

The following sections describe the Telelogic Synergy databases so that you can decide when to use them. The supplied database are stored in pack files in the `$CCM_HOME/packfiles` directory.

Caution You must check and back up your database at least once daily to avoid data loss if a system failure occurs. If your database is corrupted, you **must** have a backup of the database or you could lose your data.

Base database

The base model pack file, `base.cpk`, works with the default development model. The `base.cpk` pack file is empty. It contains no data, but has been loaded with the base model. To create a new database, unpack `base.cpk` to the new database.

Training database

The training database, called `training.cpk`, is populated with projects, subprojects, tasks, and change requests. This database is intended to help users learn how to use Telelogic Synergy.

Model database

The model database file, `base.model`, is used for upgrades. The `model.cpk` file is no longer used for upgrades and is no longer shipped with the product. For more information about this database, see the *Telelogic Synergy Upgrade Instructions*.

Database directory structure

Each Telelogic Synergy database directory typically contains the following subdirectories:

`bin`

Model scripts and executables not used on the Windows platform.

`bitmaps`

Bitmaps used by this database as icons for types.

`db`

Information about the database, in particular, the parameters and the RDBMS database name.

`dcm`

Information for DCM.

`etc`

DCM support files.

`guild`

GUI definitions of dialogs for this database, in GUILD syntax.

`include`

ACCENT model include files for this database.

`lib`

ACCENT model libraries for this database. In addition, initialization files, help files, and migrate rules are stored in the `lib` directory.

`pt`

Contains parameter files used by Telelogic Synergy and Telelogic Change.

`st_root`

Telelogic Synergy storage root, used to store source files, product files (such as executables, object files and libraries) and archived sources. The `st_root` subdirectory may not exist if the database has no source files in it.

Telelogic Synergy database naming conventions

Each Telelogic Synergy database name must conform to the following conventions:

- If two databases use the same database server, they cannot have the same name. The name is the leaf directory in the full database path.
- A database name can contain letters, digits, and underscores only.
- Uppercase and lowercase characters are equivalent.
- A database name cannot be more than 14 characters long.
- The database name must begin with a letter.

Ensure database integrity

You can perform any of the following procedures as part of ensuring database integrity:

- "Check database integrity" on page 48
- "Back up a database" on page 49
- "Repair a database" on page 50
- "Shut down a database" on page 51

Check database integrity

Use the `ccmdb check` command to verify the integrity of your database. The command checks both RDBMS and semantic integrity. Your database might never fail an integrity check, but if a failure does occur, you need to know about it immediately so that you can correct the problem and avoid data loss. You should run the `ccmdb check` program daily, on each database, and after rebooting your system following a hardware or operating system failure.

When you run the `ccmdb backup` command, a `ccmdb check` is performed automatically prior to the backup.

1. Log on to the database server.
2. Set user to *ccm_root*.

   ```
   $ su - ccm_root
   Password: *****
   ```

3. Check the database.

   ```
   $ ccmdb check database_path
   ```

   The command reports any problems that are found. If a problem is found, see "Repair a database" on page 50.

4. Exit from user *ccm_root*.

File system verification

Use the `ccm fs_check` command to verify the file system portion of the database. You should run this command weekly on each database.

1. Start Telelogic Synergy as user *admin* from the command prompt.

   ```
   $ ccm start -nogui -r admin -d database_path
   ```

2. Run `ccm fs_check`.

   ```
   $ ccm fs_check
   ```

3. Stop the Telelogic Synergy session.

   ```
   $ ccm stop
   ```

Note In the rare event that a database has been corrupted, contact IBM Rational Software Support.

Back up a database

Use the `ccmdb backup` command to ensure reliable backups of Telelogic Synergy databases. This command was designed to ensure that the database metadata and the storage root (`st_root`) subdirectory in the backup are synchronized. The `ccmdb backup` command also runs the `ccmdb check` command. Doing so improves the speed of database queries.

This synchronization is accomplished by locking the database, dumping the database data, saving the storage root files, then unlocking the database. While users need not exit their sessions during a backup, the changes they make to their files during a backup might not be backed up.

Because the data stored in Telelogic Synergy databases is critical, it is strongly recommended that you perform routine backups. In the event of a major system failure (such as disk crash), your Telelogic Synergy database backup might be your only means of recovering your data.

Information must reside in the database to be successfully backed up, that is, if data is in a user's work area, but not in the database, it is not backed up. The `ccmdb backup` and `ccmdb pack` commands archive information from the metadata and file systems of the database. They do not back up work areas. Users with copy-based work areas must reconcile changes before the administrator runs the backup. If this is not done, changes to work areas must be backed up separately.

Use either the `ccmdb backup` and `ccmdb pack` command to ensure that the backup contains all required information. Do not rely on file system backup utilities to back up the Telelogic Synergy database. Ensure successful recovery by using only Telelogic Synergy backup commands.

You also can use database server archive and restore procedures, or a database dump, but these procedures can require more manual steps. You should use `ccmdb backup` if it is possible and practical for your site. See "Database Backup Methods" on page 129 for a comparison of the backup methods.

1. Log on to the database server.
2. Set user to *ccm_root*.

```
$ su - ccm_root
Password: *****
```

3. Broadcast a message to users.

   Notify users that you will be backing up the database immediately so that they know the database will be locked.

   Note Any changes made to files in a user's work area are not backed up by `ccmdb backup`. Ensure that users reconcile before the backup takes place. See Telelogic Synergy Classic Help for information about reconciling.

   For example, notify `tstgonzo` database users that you are backing up the database, as follows:

   ```
   $ ccm message -database /vol/hydra/ccmdb/tstgonzo \
   "Backing up database in 5 minutes."
   ```

4. Check the database and create a compressed backup (`.cpk`) file.

   For example, check the `tstgonzo` database and back it up, as follows:.

   ```
   $ ccmdb backup /vol/hydra/ccmdb/tstgonzo -to /vol/sue/backups
   ```

   You should create the backup file in a directory that is backed up regularly through normal file system backup procedures, or at least in a directory on an independent file system.

5. Broadcast a message that the backup is complete.

   For example, send a message to all *`tstgonzo`* database users, as follows:

   ```
   $ ccm message -database /vol/hydra/ccmdb/tstgonzo "Back up
   complete."
   ```

6. Exit from user *ccm_root*.

Repair a database

In the rare event that a database has been corrupted, contact IBM Rational Software Support.

Shut down a database

Shut down a database before backing it up, repairing it, or restoring it from backup.

1. Set user to *ccm_root*.

   ```
   $ su - ccm_root
   Password: *****
   ```

2. Display the database path by executing the `ccm monitor` command.

   ```
   $ ccm monitor
   ```

3. Broadcast a message to users.

   Notify users that you are shutting down the database.

   For example, notify `test_ccm` database users that you are shutting down the database, as follows:

   ```
   $ ccm message -database test_ccm "Shutting down
   database in 15 minutes. Close sessions!"
   ```

4. Shut down the `test_ccm` database.

   For example, shut down the `/vol/hydra/ccmdb/test_ccm` database, as follows:

   ```
   $ ccmdb shutdown /vol/hydra/ccmdb/test_ccm
   ```

5. Exit from user *ccm_root*.

Create or delete a Telelogic Synergy database

Telelogic Synergy is shipped with a pack file called `base.cpk`, which contains the standard development model and no user application data. If you are using the standard base model, you can use the `base.cpk` pack file to create a new databases by unpacking it to a new database name.

A database can be stored in two formats: standard database format and a *pack file* format. Pack files usually have the extension `.cpk` and must be unpacked with the `ccmdb unpack` command before they can be used.

Create a database

You can create a new database easily and quickly by unpacking the `base.cpk` file.

Note Create the new database on a file system large enough to accommodate growth. See "Manage Telelogic Synergy database space" on page 55 for more information.

1. Set user to *ccm_root*.

```
$ su - ccm_root
Password: *****
```

2. Unpack the `base.cpk` file, which contains the base database.

Note You must have already set `ORACLE_HOME` and `ORACLE_SID`, or use the `-s` option, to use this command. If you are not using the default server name, you must use the `-s servername` option on the `ccm unpack` command.

```
$ ccmdb unpack base.cpk -to /vol/hydra/ccmdb/database_name
```

3. If necessary, change the delimiter and add users.

   If you want to change the delimiter for this database, it is strongly recommended that you do so now.

   See Telelogic Synergy CLI Help for more information about the `ccm delimiter` command.

   a. Start a Telelogic Synergy session in the *ccm_admin* role.

```
$ ccm start -d database_path -r ccm_admin -nogui
```

   b. Change the delimiter to the new character to be used in this database. For example, set the delimiter to a comma, as follows:

```
$ ccm delim ","
```

   c. Add users.

      If you need to add users to the Telelogic Synergy database, this is a good time to do so. Refer to "Add users or change user roles in a Telelogic Synergy database" on page 12. If you do not need to add users to the Telelogic Synergy database, proceed to the next step.

   d. Exit from the Telelogic Synergy session.

```
$ ccm stop
```

4. Implement a check and backup plan for your database, and execute it daily.

5. Exit from user *ccm_root*.

Caution You must check and back up your database at least once daily in case of a system failure. If your database is corrupted, you **must** have a backup of the database or you could lose all data.

Delete a database

Telelogic Synergy databases are a combination of a file system and metadata. Therefore, you must remove databases using the `ccmdb delete` command so that both the file system and metadata are removed.

1. Set user to *ccm_root*.

```
$ su - ccm_root
Password: *****
```

2. Delete the Telelogic Synergy database.

   For example, delete the `tststar` database as follows:

```
$ ccmdb delete /vol/sue/ccmdb/tststar
```

3. Exit from user *ccm_root*.

Move a database from Windows to UNIX

You can move a database from a Windows server to a UNIX server by unpacking the Windows database on a UNIX installation. The resulting database may have Windows-style ASCII data in important files, which should be updated. The command `ccmdb upgrade` has an option, `-w`, which converts the database's files in addition to performing the upgrade. All database configuration files and controlled files of type `ascii` or its subtypes are be examined and converted to UNIX ASCII format. The conversion affects controlled files in the archive and cache only. Work areas are not updated.

Caution This operation changes the contents of static, archived files, and should be used with caution. **Always retain the original packfile in case you encounter any problems later.**

Additionally, you can transfer the contents of a Windows database to UNIX by using Telelogic Synergy Distributed.

For a brief description, see "ccmdb upgrade" on page 156.
For a detailed description and usage instructions, see the *Telelogic Synergy Upgrade Instructions*.

Manage Telelogic Synergy database space

Telelogic Synergy attempts to conserve database space (dbspace) to improve performance and ensure database access. However, because many sites use numerous versions of projects and objects (e.g., for various releases, platforms, and test levels), databases can grow quickly and require cleanup.

Note Allocating sufficient space when you create a database server helps to avoid space problems. However, monitoring the file system space (using the appropriate UNIX command) and dbspace (using the `ccmdb info` command) is still necessary.

Remove file system data according to the methods appropriate for your operating system and site requirements. Remove dbspace data by doing one or more of the following:

- Clean the cache
- Delete obsolete projects
- Delete obsolete product files
- Delete obsolete source files
- Delete unwanted data based on the scope you define

Caution Before reclaiming disk space by deleting objects or cleaning cache files, back up your database (e.g., by using the `ccmdb backup` command).

If removing objects is not possible, increase the size of the dbspace.

Monitor the database space

You can monitor database space to determine whether you need to increase its size or remove unneeded objects.

1. Log on to the database server.
2. Set user to *ccm_root*.

   ```
   $ su - ccm_root
   Password: *****
   ```

3. Monitor the database's size.

   For example, show the size of the `aeanew` database as follows:

   ```
   $ ccmdb info -k size /vol/hydra/ccmdb/aeanew
   ```

4. Exit from user *ccm_root*.

Distribute cache files

You can distribute the Telelogic Synergy storage root directories anywhere across local file systems of networks using NFS. The most common and useful method for doing this is to move the cache subdirectory to a separate file system. Do this by moving the cache directory and setting up a symbolic link.

Note You must copy all files under the cache directory to a subdirectory **readable and writable by user *ccm_root***. Verify that this directory exists, or create it.

Before you perform this task, ensure that there are no users on the database.

1. Set user to *ccm_root*.

   ```
   $ su - ccm_root
   Password: *****
   ```

2. Shut down the database.

   ```
   $ ccmdb shutdown database_path
   ```

3. Pack the database.

   ```
   $ ccmdb pack database_path
   ```

4. Change directory to `st_root`.

   ```
   $ cd database_path/st_root
   ```

5. Copy all files.

   Copy all files under the cache directory to a subdirectory **readable and writable by user *ccm_root***. In the following command, this directory is called `new_cache`. (If a directory readable and writable by user *ccm_root* does not exist, you must create one.)

   ```
   $ find cache -print | cpio -pdma /extra/new_cache
   ```

6. Remove the `cache` subdirectory.

   ```
   $ rm -rf cache
   ```

7. Create a link to the new `cache` subdirectory.

   ```
   $ ln -s /extra/new_cache/cache cache
   ```

8. After the files are copied (see step 5), all cache files are owned by *ccm_root*. To make Telelogic Synergy update working files so that they have the correct ownership, delete the file that lists the users whose ownerships have already been updated.

   ```
   $ rm -f database_path/db/file_acs_update_list
   ```

9. Exit from user *ccm_root*.

This procedure physically relocates the entire `cache` subdirectory.

Caution Alternatively, you can move any or all of the subdirectories under `st_root` (e.g., `workarea`, `archive`) to separate locations. You also can relocate the cache's individual hashed subdirectories; e.g., each of the `cache/source/#nn` directories can be a link to a different location.

You **must** customize the `ccmdb unpack` and `ccmdb pack` commands to reflect the new directory locations. The tar commands used in the `ccmdb unpack` and `ccmdb pack` command scripts do not follow symbolic links.

The `ccmdb pack` and `ccmdb backup` commands for Oracle databases do not follow symbolic links, and, therefore, do not back up cache or archive files moved using the technique described above. You **must** use an alternative backup process for Oracle databases where you have distributed the cache or archive across file systems. See the sections "Dump databases" on page 131 and "Back up" on page 130 in Appendix A.

Note If you need assistance, contact IBM Rational Software Support.

Delete cache files

The contents of an object's `source` attributes are stored in files in the `cache` directory, under the database storage root (`st_root`). When an object transitions to the *integrate* state, it triggers the source file to be archived. Objects in the *integrate*, *test, sqa*, *released*, and *rejected* states are archived.

The *CM administrator* can use the `ccm clean_cache` command to remove these archived cache files on demand and to select specific cache files to remove.

Any deleted archived cache file is restored to the cache when needed to perform a Telelogic Synergy operation.

Note Only archived files are eligible to be deleted, regardless of the options you specify.

Also, you must use the command line interface to delete cache files.

For more information, see the `ccm clean_cache` command is described in detail in Telelogic Synergy CLI Help.

1. Set user to *ccm_admin*.

   ```
   $ su - ccm_admin
   Password: *****
   ```

2. Start a session on the database.

   ```
   $ ccm start -nogui -d database_path
   ```

3. Clean up the cache files.

   For example, delete all cache files of archived objects that have not been accessed in the last month, as follows:

   ```
   $ ccm clean_cache -c -30:0:0:0
   ```

   Or, delete the cache files for all `test csrc` objects that have not been accessed since June 1.

   ```
   $ ccm clean_cache -type csrc -status test -cutoff_time
   "June 1"
   ```

4. Exit from the session.

   ```
   $ ccm stop
   ```

5. Exit from user *ccm_admin*.

Delete files

Reclaim disk space used by deleting obsolete products. You can use a query to select the files to delete.

1. Start a Telelogic Synergy session from the command line as user *ccm_admin*.

   For example, start a session on the `testrme` database as follows:

   ```
   $ ccm start -d /vol/hydra/ccmdb/testrme -r ccm_admin
   ```

2. Query for all objects to delete.

   For example, query from the command line for all products not used in any projects, as follows:

   ```
   $ ccm query "is_product=TRUE and not is_bound()"
   ```

3. Collapse the object versions.

   ```
   $ ccm collapse @
   ```

   You could create a script containing these commands so that you can perform the cleanup regularly.

4. Exit from the session.

   ```
   $ ccm stop
   ```

Save Offline and Delete tool

In addition to using a query to delete objects, you can use the Save Offline and Delete (SOAD) tool to remove unwanted data, or to save data offline before deleting it from the database. Objects that are saved offline are saved in a DCM package that can be received at a later time. To save objects offline, the current database must be initialized for DCM, and a DCM license must be available.

This feature uses scopes to define what should be deleted. You can define a new scope, use pre-defined (default) scopes, or modify an existing user-defined or default scope. For information about using the SOAD feature, including the `ccm soad` command, see the Telelogic Synergy CLI Help.

Other housekeeping activities

There are several other ways you can reduce the size of your database. These activities do not need to be performed on a regular basis. They can be performed on an as-needed basis. Here are some suggestions:

- Keep your user lists up-to-date.

  When people leave the company, remove their user ID and role definitions, and delete *working* and *checkpoint* objects belonging to those users. The Save Offline and Delete (SOAD) tool provides a scope for this purpose: **All non-static projects and products for a specified user**.

- Keep release information up-to-date.

  When releases are completed or abandoned, mark them as inactive. You can delete old baselines and old prep hierarchies using the following SOAD scopes:

  - **Non-released baselines for specified release older than specified date**
  - **Integration Testing prep projects and products for a specified release**

- Clean up Telelogic License Server log files.

  Check the *Telelogic Synergy Installation Guide for UNIX* for instructions about checking log files.

Perform database maintenance

If you continually delete obsolete data to keep the database clean, you should also perform periodic database maintenance tasks to improve performance, as described here.

Nightly

Back up your databases. Nightly backups help queries run more quickly. This also updates the database statistics.

1. Set user to *ccm_root*.

   ```
   $ su - ccm_root
   Password: *****
   ```

2. Warn users that a backup is about to occur.

   a. Broadcast a backup message to the database users.

   ```
   $ ccm message -database database_path "backup message"
   ```

   b. Show the database usage.

   ```
   $ ccm monitor database_path
   ```

3. Check and back up the database.

   ```
   $ ccmdb backup database_path -to destination_dir
   ```

Weekly

Repair database indices for all tables to reduce disk fragmentation.

1. Set user to *ccm_root*.

   ```
   $ su - ccm_root
   Password: *****
   ```

2. Shut down database sessions and protect the database.

   a. Broadcast a shutdown message to the database users.

      ```
      $ ccm message -database database_path "shutdown message"
      ```

   b. Show the database usage.

      ```
      $ ccm monitor database_path
      ```

   c. Perform the shutdown.

      ```
      $ ccmdb shutdown database_path
      ```

3. Back up the database.

   ```
   $ ccmdb backup database_path -to destination_dir
   ```

4. Repair indices for all tables.

   ```
   $ ccmdb repair database_path -repair_index ""
   ```

5. Unprotect the database.

   ```
   $ ccmdb unprotect database_path
   ```

6. Start a session in the *ccm_admin* role.

   ```
   $ ccm start -nogui -r ccm_admin -d database_path
   ```

7. Protect the database.

   ```
   $ ccmdb protect database_path
   ```

8. Check the database cache and archive.

   ```
   $ ccm fs_check
   ```

   If the full `ccm fs_check` takes more time than your site can afford on a daily or weekly basis, you can run a reduced check. See "ccm fs_check" on page 100 for information about options and arguments. You should run a full `ccm fs_check` at least once a month.

9. Clean the database cache.

   ```
   $ ccm clean_cache
   ```

10. End your session.

```
$ ccm stop
```

11. Unprotect the database, if the database is not corrupt.

```
$ ccmdb unprotect database_path
```

Monthly or less often

Rebuild the database by packing and unpacking it. This reduces fragmentation of the databases.

1. Set user to *ccm_root*.

```
$ su - ccm_root
Password: *****
```

2. Shut down database sessions and protect the database.

   a. Broadcast a shutdown message to the database users.

   ```
   $ ccm message -database database_path "shutdown message"
   ```

   b. Perform the shutdown.

   ```
   $ ccmdb shutdown database_path
   ```

   c. Show the database usage to ensure everyone is out of the database.

   ```
   $ ccm monitor database_path
   ```

3. Back up the database. First check the database, and then pack it.

```
$ ccmdb check database_path
$ ccmdb pack database_path -to destination_dir
```

4. Delete the database.

```
$ ccmdb delete database_path
```

5. Unpack the database, using the pack file you created in step 3.

```
$ ccmdb unpack packfile -to database_path
```

5 Commands for Administration

This chapter contains detailed descriptions of the Telelogic Synergy administrative commands. Procedures that use these commands are shown in the following chapters:

List of Commands

The following table shows all commands available for administering Telelogic Synergy.

Note All commands shown here must be run in the Classic CLI.

See Telelogic Synergy CLI Help for information about developers' commands.

Command	Description
`ccm fs_check`	Checks the consistency of a Telelogic Synergy database's file system. See page 70.
`ccm message`	Sends messages to users, directly or by broadcast. See page 74.
`ccm monitor`	Shows status information. See page 76.
`ccm ps`	Shows process status information. See page 79.
`ccm version`	Shows the version of Telelogic Synergy. See page 81.
`ccm_esd`	Starts the Telelogic Synergy engine startup daemon. See page 82.
`ccm_install`	Installs Telelogic Synergy. See page 85.
`ccm_objreg`	Starts the Telelogic Synergy object registrar daemon. See page 88.
`ccm_objreg_tail`	Tails the Telelogic Synergy object registrar log. See page 90.
`ccm_router`	Starts the Telelogic Synergy message router daemon. See page 91.
`ccm_router_tail`	Tails the Telelogic Synergy message router log file. See page 92.
`ccm_start_daemons`	Starts all Telelogic Synergy daemons. See page 95.
`ccm_server`	Starts the Telelogic Synergy CCM server. Seepage 93.
`ccm_stop_daemons`	Stops all Telelogic Synergy daemons. See page 96.
`ccmdb backup`	Checks, and then backs up a database. This is the only database backup method that is recommended. See page 97.
`ccmdb check`	Checks the integrity of a database. See page 99.
`ccmdb copy`	Copies an existing database. See page 101.
`ccmdb create`	Creates a new database. See page 103.

Command	Description
`ccmdb delete`	Deletes a database. See page 105.
`ccmdb drop`	Removes a database from the database server when the database's path, or other database information, has been accidentally removed. See page 106.
`ccmdb dump`	Dumps a database's metadata. See page 107.
`ccmdb info`	Shows the characteristics of a database and allows you to change them. See page 108.
`ccmdb load`	Loads a database's dumped metadata into a new or existing database. See page 111.
`ccmdb pack`	Dumps a database's contents to a single, portable file. See page 113.
`ccmdb protect`	Protects a database from new sessions. See page 115.
`ccmdb refresh`	Refreshes the database's Web server. See page 116.
`ccmdb repair`	Repairs database indexes. See page 117.
`ccmdb shutdown`	Shuts down all active sessions on, then protects, a database. See page 119.
`ccmdb unpack`	Restores a database from a `ccmdb pack` file. See page 120.
`ccmdb unprotect`	Unprotects a database. See page 123.
`ccmdb upgrade`	Converts a database from Releases 6.3 or 6.4 to Release 7.0. See page 124.
`ccmsrv status`	Shows Telelogic Synergy databases in the Oracle database. See page 126.

ccm fs_check

```
ccm fs_check    [-d|-dir directory_path] [-f|-fix] [object_spec...]
                [-t|-type type][-v|-verbose]
                [-e|-empty_skip] [-u|-unused_skip]
                [-nd|-no_duplicates] [-w|-windows]
                [-nb|-null_byte][-z|-zero_counts]
```

Description and uses

Use the `ccm fs_check` command to check the consistency of a Telelogic Synergy database's file systems. By default, the `ccm fs_check` command checks that:

- Every file in the cache area corresponds to an existing object version.
- Every file in the archive area corresponds to one or more static object versions.
- Every entry in an archive file corresponds to one static object version.
- The source for a project or directory is empty.

Checking all the files in the cache and archive areas takes time and memory resources, and may be suppressed using the `-u|-unused` option.

You should execute `ccm fs_check` to check your entire database. This command can be used regularly to reduce the disk space taken up by cache files. However, as the check can take a long time on large databases, you can perform a quicker check by checking only specific types of objects. You can use the `-t` option to check only objects of the specified type, or you can check a list of objects using *`object_specs`* (for example, using query results). You cannot use both the `-t` option and a list of objects. If you check only objects of the specified type, checking for unused cache and archive entries will be suppressed.

You should direct the output to a file so that you can examine the results.

If unexpected or extra files or archive entries are found, they are reported individually and summarized at the end. However, such cases are not counted as errors and do not cause `ccm fs_check` to fail with a non-zero exit status. The `-fix` option to `ccm fs_check` does not remove these extra entries. Doing so might lead to data loss in cases where you have created such files manually for your own purposes, or where you have restored a file system and metadata backup taken at slightly different times. Contact IBM Rational Software Support for assistance in removing unwanted extra cache and archive entries.

All users can perform this operation. However, they must be in the *ccm_admin* role to perform the `-fix` option.

Options and arguments

`-d|-dir` *`directory_path`*

Specifies the directory into which inconsistent archive entries are written. By default, these files are written to *`database_path`*`/st_root/tmp/check`.

`-e|-empty_skip`

Suppresses warnings about empty files for static object versions.

This warning may also be suppressed for individual object versions, by creating a boolean attribute `deliberately_empty` with the value `TRUE` on the object versions for which you want to suppress the warnings.

`-f|-fix`

Fixes some simple errors, including the following:

- If you unpack a database from a pack file created on UNIX, it is likely that cache files are in UNIX format. If this newline style is the only difference between the cache and the archive, the `-f|-fix` flag causes the cache file to be deleted.
- If the cache file is zero length, but the archived content is not, the `-f|-fix` flag causes the cache file to be deleted.
- If the cache file has the wrong modify time, but is equal in content to the archive, use the `-f|-fix` option to update the modify time to be equal to the `source_modify_time` attribute.

This option does not remove extra or redundant files. This ensure that you can examine the content of such files to verify that they are not required before deleting them.

`-nd|-noduplicates`

Specifies to skip checks for duplicate archive entries. Use this option to reduce the memory resources used when checking very large databases that might otherwise fail due to lack of memory. Since it reduces the strength of archive checking, it should only be used when necessary.

`-nb|-null_byte`

Checks in the source attribute for null (0x00) bytes. Generates a warning message when objects of type `ascii` and subtypes of `ascii` contain null bytes.

`-t|-type` *`type`*

Specifies the type of objects to check.

You cannot use this option with *`object_spec`*. Using this option implies the `-u|-unused_skip` option.

`-u|-unused_skip`

Specifies to skip checks for extra files and entries in the cache and archive files. This option does not remove or delete files or entries.

`-v|-verbose`

Generates more detailed information about each error. The errors report the following:

- Objects with no `source` attributes, excluding problems and tasks. These objects have no cache or archive entries, and are skipped.
- Files still archived by the old pre-4.1 archivers (SCCS, compress, and RCS, not `ccm_rcs`). This means that you must perform archive conversion.
- Objects with no cache files. Such objects were probably affected by an earlier execution of `ccm clean_cache`.
- Objects with no `source_modify_time` attributes. This is a minor error. Such objects have not been upgraded correctly to current database standards. You can create the `source_modify_time` attribute, of type `time`, and set it to the correct time (the time when the source file was last edited, before it was checked in). This should be the modify time on the cache file.
- Object cache files with times earlier than their *`source_modify_times`*. This error is not serious, and might have been caused by the failure of a call to set the cache file time. Fix this by deleting the cache file **after** you have ensured that the archive entry is correct.

`-w|-windows`

Suppresses a warning message given when files differ only in carriage return characters.

`-z|-zero_counts`

Causes all counts to be printed, including those with zero values. This can be useful when another programs is analyzing the output of `fs_check`.

`object_spec`

Provides a list of objects to check. You can use query results for this argument.

You cannot use this argument with the `-t` option. Using this option implies the `-u|-unused_skip` option.

Example

Check the file system consistency of the database and provide detailed output information.

```
$ ccm fs_check -v
```

See also

"ccmdb backup" on page 97

"ccmdb check" on page 99

ccm message

Synopsis

```
ccm message [-attr value] [-d|-database database_path]
            [-rfc_address address] [-u|-user username]'message_text'
```

Description and uses

Use the `ccm message` command to send a message directly to a Telelogic Synergy user, or to broadcast a message to Telelogic Synergy users selected using a keyword criterion.

Messages are prepended with the name of the user who sends the message. If you want to send messages to specific sessions, use the `-rfc_address` option.

You can execute this command as any user, in any role.

For more information, see "Broadcast system messages" on page 29.

Options and arguments

`-attr value`

Enables you to send a broadcast message to specific users selected using one of the following keywords: `process`, `display`, `pid`, `user`, `host`, `database`, `engine_address`, or `pwa_path`.

`-d|-database database_path`

Sends a message to all users of the specified database.

You can use a regular expression to specify multiple databases. The regular expression must contain a leading question mark (`?`) character.

`-rfc_address address`

Specifies the remote Function Call (RFC) address of the Telelogic Synergy interface (GUI) process to which to send the message. RFC supports machines with multiple IP addresses. The format for machines with a known host name is:

```
host:port[:ip]*
```

The format for machines with no known host name is:

```
ip:port[:ip]*
```

where `[:ip]*` represents zero or more IP addresses separated by colons.

`-u|-user` *`username`*

Sends a message to *`username`*.

Examples

- Use the `-host` attribute to send a message to all users on the `comp1` host.

  ```
  $ ccm message -host comp1 "New compile server is up"
  ```

- Use the `-d` option to send a message to all database users on the current server.

  ```
  $ ccm message -database "?" "Server going down in 2 minutes..."
  ```

Caveats

If the specified `-rfc_address` is for an engine, the `ccm message` command fails.

See also

"ccm monitor" on page 76

"ccm ps" on page 79

ccm monitor

Synopsis

```
ccm monitor [-attr value] [-d|-database database_path]
            [-rfc_address address] [-u|-user username]
```

Description and uses

Use the `ccm monitor` command to show a network-wide view of Telelogic Synergy user and process information, including the following:

- user
- process type (engine, user interface, router or object registrar)
- host
- port
- process ID
- database path

If you specify no options with `ccm monitor`, the command shows information for all users and processes for the current Telelogic Synergy installation (*$CCM_HOME*).

The `ccm monitor` command appends an exclamation point (!) to the status field of a process when that process has not responded to the router for a fixed amount of time. This failure to respond is assumed to indicate a problem; e.g., that the machine that was running the process has gone down or the process has hung.

If a busy machine causes a delay in response, the exclamation point disappears when the operation that is using the machine is completed.

You can execute this command as any user, in any role.

The process names shown by the `ccm monitor` command indicate the following processes:

Name shown by `ccm monitor`	Process
`engine`	Engine (any kind)
`cmd`	Classic CLI or back-end sessions
`gui`	Classic GUI
`dev_clnt`	Telelogic Synergy GUI
`usr_cmd`	Telelogic Synergy CLI
`server`	CCM server
`router`	Message router daemon
`objreg`	Object registrar notification daemon
`ccm_ess`	Engine start service for Windows
`monitor`	Monitor (this command)

For more information, see "Monitor processes using ccm monitor" on page 29.

Options and arguments

`-attr` *`value`*

Specifies the name of the field to be monitored. The possible `-attr` option arguments are as follows: `process`, `display`, `pid`, `user`, `host`, `database`, `engine_address`, and `pwa_path`.

`-d|-database` *`database_path`*

Specifies that all users of *`database_path`* are monitored.

You can use a regular expression to monitor multiple databases. The regular expression must contain a leading question mark (`?`) character.

`-rfc_address` *address*

Specifies the remote Function Call (RFC) address of the Telelogic Synergy interface (GUI) process to be monitored. The format for machines with a known host name is:

```
host:port[:ip]*
```

The format for machines with no known host name is:

```
ip:port[:ip]*
```

where `[:ip]*` represents zero or more IP addresses separated by colons.

`-user` *username*

Specifies the user to be monitored.

Examples

- Monitor user `kim's` engine processes.

```
$ ccm monitor -user kim -process engine
Telelogic Synergy process monitor...2 process(es) located:
user   process   host   port   pid     database path
----   -------   ----   ----    ---    -------------
kim    engine    marlin 3745   25748  /vol/fish/ccmdb/kim_test
kim    engine    marlin 3943   8645  /vol/fish/ccmdb/kim_eval
```

- Monitor processes with the `guppy.telelogic.com` host address.

```
$ ccm monitor -host guppy.telelogic.com
Telelogic Synergy process monitor...1 process(es) located:
user  process    host    port   pid   database path
----  -------    ----    ----   ---   -------------
kim   gui        guppy 1945     13275 /vol/fish/ccmdb/kim_eval
```

See also

"ccm ps" on page 79

ccm ps

Synopsis

```
ccm ps [-attr value] [-d|-database database_path]
       [-rfc_address address] [-u|-user username]
```

Description and uses

Use the `ccm ps` command to show network-wide process status information on Telelogic Synergy users and processes. This command is a maximum verbosity version of `ccm monitor`.

If you specify no options with `ccm ps`, the command displays information for all processes for the current Telelogic Synergy installation (`$CCM_HOME`).

You can execute this command as any user, in any role.

The process names shown by the `ccm ps` command indicate the following processes:

Name shown by `ccm ps`	Process
`engine`	Engine (any kind)
`cmd_interface`	Classic CLI or back-end sessions
`gui_interface`	Classic GUI
`dev_clnt_interface`	Telelogic Synergy GUI
`usr_cmd_interface`	Telelogic Synergy CLI
`server`	CCM server
`router`	Message router daemon
`objreg`	Object registrar notification daemon
`ccm_ess`	Engine start service for Windows
`ps`	Ps (this command)

For more information, see "Monitor process status using ccm ps" on page 30.

Options and arguments

`-attr` *value*

Specifies the name of the field to be monitored. The possible `-attr` option arguments are as follows: `process`, `display`, `pid`, `user`, `host`, `database`, `engine_address`, and `pwa_path`.

`-d|-database` *database_path*

Specifies that all users of *database* are monitored.

You can use a regular expression to specify multiple databases. The regular expression must contain a leading question mark (`?`) character.

`-rfc_address` *address*

Specifies the remote Function Call (RFC) address for the process status to be displayed. The format for machines with a known host name is:

```
host:port[:ip]*
```

The format for machines with no known host name is:

```
ip:port[:ip]*
```

where `[:ip]*` represents zero or more IP addresses separated by colons.

`-user` *username*

Specifies the user whose process status you want to display.

Examples

- Display the process information for the interface with a host address of `horse.cwi.com`.

  ```
  $ ccm ps -host horse.cwi.com
  ```

- Display the process information for all databases that have names containing the string `training`.

  ```
  $ ccm ps -d "?training"
  ```

See also

"ccm monitor" on page 76

ccm version

Synopsis

```
ccm version [-a|-all] [-c|-ccm] [-d|-dbschema|-s|-schema][-i]
```

Description and uses

Use the `ccm version` command to show the version of Telelogic Synergy or the Oracle database you are running. If you specify `ccm version` with no options, the program displays the Telelogic Synergy version.

You can execute this command as any user, in any role.

Options and arguments

`-a|-all`

Displays the version of the current database schema, the database, and the Telelogic Synergy release.

`-c|-ccm`

Displays the version of the Telelogic Synergy release.

If you specify `ccm version` with no options, the system displays the Telelogic Synergy version.

`-d|-dbschema` or `-s|-schema`

Displays the version of the database schema.

`-i-`

Displays `Oracle database`.

Example

Show which version of Telelogic Synergy is running.

```
$ ccm version
Telelogic Synergy Version 7.0
```

ccm_esd

Synopsis

```
ccm_esd [port_number]
```

Description and uses

Use the `ccm_esd` command to start the engine startup daemon. (Telelogic Synergy clients use the engine startup daemon to start sessions.) The log file for the Telelogic Synergy engine startup daemon is in `$CCM_HOME/log/ccm_esd_hostname.log`. You must execute this command on the machine where you will run Telelogic Synergy engines, as user *ccm_root*.

A Windows client automatically uses an ESD server if one exists on the engine host. However, Telelogic Synergy uses r* protocols to verify that the user name, password, and UNIX installation path are correct. The advantage of the default configuration is that it is possible to use a Windows client for multiple databases where some are using ESD and others are not.

If all UNIX engine servers are using ESD, then the client can rely exclusively on ESD services (r* protocols will not be used). Do this by adding the following option to the `Options` section of the system (not personal) `ccm.ini` file at `$CCM_HOME/etc/ccm.ini`:

```
[Options]
engine_daemon=TRUE
```

If you do not want the Telelogic Synergy Windows client to use ESD even when it is available on the engine host, add the following option to the `Options` section of the system (not personal) `ccm.ini` file at `$CCM_HOME/etc/ccm.ini`:

```
[Options]
engine_daemon=FALSE
```

Note Use of ESD is not automatically detected for UNIX clients. Such clients must specify the `engine_daemon` option to use ESD.

During installation, the installer creates a single entry containing the installation machine name and port number in a port file called `esd.adr`, located in the `$CCM_HOME/etc` directory. The `ccm_esd` command starts the engine startup daemon. The ESD needs to know which port to listen on for requests from clients. This information is in the port file.

If your site will run engines on machines other than the installation machine, you need to add the host (machine) name and port number for each machine. You **must** edit the port file **before** you run the `ccm_esd` command or the command will fail.

The following information will help you determine which machines require an entry in the `esd.adr` port file.

- Which machines will run ESDs?
- Which port will each ESD listen on for requests from clients?

For each machine that will run an ESD, perform the following:

1. Edit the port file, `esd.adr`.

   ```
   $ vi $CCM_HOME/etc/esd.adr
   ```

2. Type the host name and port number in the following form:

   ```
   hostname:port_number
   ```

   For example, type: `lobo:8828`

3. Save, and then exit the port file.

For more information, see "Start or stop the engine startup daemon (esd)" on page 27.

Options and arguments

`port_number`

Overrides the port number in the `esd.adr` port file.

This option can be used only by user *ccm_root* and must be run on each machine where an ESD will be run.

Example

Start the engine startup daemon and specify a port.

```
$ ccm_esd 5418
```

Files

`$CCM_HOME/log/`*`ccm_esd_hostname`*`.log`

`$CCM_HOME/etc/esd.adr`

`$CCM_HOME/log/ccm_router.log`

See also

"ccm monitor" on page 76
"ccm_start_daemons" on page 95
"ccm_stop_daemons" on page 96

ccm_install

Synopsis

Install the Software

```
ccm_install [-d|-directory directory][-p|-platform platform_type] -x

ccm_install [-directory directory]-i|-install
            [-p|-platform platform_type]
```

Correct an Installation

```
ccm_install -c|-correct [-p|-platform platform_type]
            [-d|-directory directory]
```

Verify an Installation

```
ccm_install -v|-verify [-p|-platform platform_type]
            [-d|-directory directory]
```

Fix Links

```
ccm_install -l [-d|-directory directory]
```

Description and uses

Use the `ccm_install` command to extract the software, install the software, verify or correct an installation, or fix database links.

If you specify no options, it is assumed that you have extracted the software already and `ccm_install` sets up permissions and links. If you omit the `-p` option, the software is installed onto the current machine. If you omit the `-d` option, the software is installed into the current directory (i.e., it is assumed that you changed directory to the installation directory, $CCM_HOME, before executing the `ccm_install` command).

The `-x` or `-i` option installs Telelogic Synergy, performing the following actions:

- Checks that *ccm_root* user and groups are present, but does not create them.

Note This step is not performed if the command is executed on a different platform other then specified with the platform option.

- Creates `$CCM_HOME` subdirectories (e.g., for log files).

- Checks that all required files are present, and sets their ownerships and permissions.
- If the router address (`.router.adr`) file does not exist, prompts for the router host, service name, and port, then creates the file.
- If the help server (`ccm_websrv.adr`) file does not exist, prompts for the help Web server port, and then creates the file.
- If the port file (`esd.adr`) does not exist, creates it and enters the host name and port number for the installation machine.
- Prompts for license information.

The `-correct` option corrects the installation, and differs from the **-x** or **-i** option in that it does not attempt to create the `sqlhosts` file, the $CCM_HOME subdirectories, the router address file, or prompt for license info.

The `-verify` option verifies the installation by performing the same checks as the install action. The `verify` option does not change the installation.

You must use the `ccm_install` command to fix database links if the software has been installed already on another server.

You must be user *root* to use the `-x` option, to perform install or correct actions, or to fix database links.

Options and arguments

`-c|-correct`

Corrects a Telelogic Synergy installation.

No prompts are issued, You can use this option in a non-interactive script.

Only user *root* can use this option.

`-d|-directory` *`directory`*

Specifies the directory to install the software. The `/usr/local/ccm70` directory is the default, unless `$CCM_HOME` is set to a different path.

`-i|-install`

Installs Telelogic Synergy.

Only user *root* can use this option.

`-l`

Fixes the links on a new database or engine server after installing the software on a different NFS server, and performs no other action. This option is required on any machine where you are running engines on which you have not installed Telelogic Synergy.

No prompts are issued. You can use this option in a non-interactive script.

Only user *root* can use this option.

`-p|-platform` *`platform_type`*

Specifies the remote host on which to install the software, or on which to verify or correct the installation.

This option enables you to install on a remote host without *root* access to the installation directory. The `platform` options are as follows:

```
solaris | ibm | linux
```

`-s` *`servername`*

Checks to see if `ORACLE_HOME` is set, and then creates and checks links.

`-u`

Prompts for the previous Telelogic Synergy installation directory, and then copies configuration files from it.

`-v|-verify`

Verifies a Telelogic Synergy installation.

No prompts are issued. You can use this option in a non-interactive script.

`-x`

Extracts the software from the media. This option can be used only by user *root*.

Example

Execute `ccm_install` to extract the AIX software onto a local (Solaris) machine and install the software into the AIX machine's NFS-mounted `/usr/local/ccmvar` directory. (The `/usr/local/ccm70` directory is the default, unless you have set `$CCM_HOME` to a different path.)

```
$ ccm_install -x -p aix -d /usr/local/ccmvar
```

ccm_objreg

Synopsis

```
ccm_objreg
```

Description and uses

Use the `ccm_objreg` command to start the object registrar daemon. This daemon keeps each object's data current in all of the user interface processes as modifications are made to the Telelogic Synergy databases.

The object registrar daemon must be running on the host specified in the `ORHOST` parameter of a Telelogic Synergy database before you can start a Telelogic Synergy session on the database. (To get the object registrar host name for a database, use the following command:
`ccmdb info` *`database_path`* `-k` *`orhost`*.)

A single object registrar can service more than one database. A host, therefore, requires only one object registrar to be running for any number of databases.

By default, the object registrar uses a dynamically assigned port. If you want to start Telelogic Synergy sessions where the interface processes run on machines outside a firewall, you must fix the port by creating a file `$CCM_HOME/etc/.objreg.adr`. Each line in this file is of the form *`hostname:port`*. The object registrar reads this file, and if an entry for this machine is found, the process uses the corresponding port.

Note The other two daemons that are required to run Telelogic Synergy sessions through a firewall are the router and the ESD. Both these daemons always use fixed ports, as configured in the files `$CCM_HOME/etc/.router.adr` and `$CCM_HOME/etc/esd.adr`.

The log file for the Telelogic Synergy object registrar is in `$CCM_HOME/log/ccm_objreg.log`.

You must execute this command on the database server, as user *ccm_root*.

For more information, see "Start or stop the object registrar (objreg)" on page 26.

Options and arguments

This command does not have options and arguments.

Example

Start the object registrar daemon on the current machine.

```
$ ccm_objreg
```

Files

`$CCM_HOME/log/ccm_objreg.log`

See also

"ccm_objreg_tail" on page 90
"ccm monitor" on page 76
"ccm_start_daemons" on page 95
"ccm_stop_daemons" on page 96

ccm_objreg_tail

Synopsis

```
ccm_objreg_tail
```

Description and uses

Use the `ccm_objreg_tail` command to `tail -f` the object registrar log file, `$CCM_HOME/log/ccm_objreg.log`. Exit from this command by typing `control-c`.

You can execute this command as any user, in any role.

For more information, see "Monitor the Telelogic Synergy daemons log files" on page 31.

This command does not have options and arguments.

Example

Monitor the object registrar log file.

```
$ ccm_objreg_tail
```

Files

`$CCM_HOME/log/ccm_objreg.log`

See also

"ccm_objreg" on page 88

ccm_router

Synopsis

```
ccm_router
```

Description and uses

Use the `ccm_router` command to start the Telelogic Synergy message router daemon. One message router is required per network installation, and must be run on the machine you specified as the router host when you installed Telelogic Synergy.

The log file for the message router is in `$CCM_HOME/log/ccm_router.log`.

You must execute this command on the router host, as user *ccm_root*.

For more information, see "Start or stop the router (router)" on page 25.

This command does not have options and arguments.

Example

Start the message router daemon.

```
$ ccm_router
```

Files

`$CCM_HOME/log/ccm_router.log`

See also

"ccm monitor" on page 76

"ccm_router_tail" on page 92

"ccm_start_daemons" on page 95

"ccm_stop_daemons" on page 96

ccm_router_tail

Synopsis

```
ccm_router_tail
```

Description and uses

Use the `ccm_router_tail` command to `tail -f` the message router log file, `$CCM_HOME/log/ccm_router.log`. Exit from this command by typing `control-c`.

You can execute this command as any user, in any role.

For more information, see "Monitor the Telelogic Synergy daemons log files" on page 31.

This command does not have options and arguments.

Example

Tail the message router log file.

```
$ ccm_router_tail
```

Files

`$CCM_HOME/log/ccm_router.log`

See also

"ccm_router" on page 91

ccm_server

Synopsis

```
ccm_server [-start | -stop] [-debug] [-port <server port>]
```

Description and uses

Use the `ccm_server` command to start the CCM server, which serves Telelogic Synergy sessions running in Web mode, as well as help.

At least one CCM server is required per installation. For better scalability, you can run multiple CCM servers. By default, the CCM server is started on port 8400, but you can start it on a different port.

The CCM server log is in the `host.port.pid` file in the log directory of the Telelogic Synergy server installation, for example, `boon.8400.54123`.

You must be logged in as *ccm_root* to run this command.

For more information, see "CCM Server Administration" on page 41.

Examples

Start the server on the current host on the default port number (8400).

```
$ ccm_server -start
```

Stop the server on the current host on the default port number (8400).

```
$ ccm_server -stop
```

Start the server on the current host on port number 8888.

```
$ ccm_server -start -port 8888
```

Stop the server running on the current host on port number 8888.

```
$ ccm_server -stop -port 8888
```

Options and arguments

`-start`

Starts the server.

`-stop`

Stops the server.

`-debug`

Turns on debugging for the server. Debugging messages will be saved in the `server log` file. Turn on debugging if recommended by Support.

`-port <server port>`

Specifies the server port number to which the command will support.

Files

`$CCM_HOME/log/synergy_host_port.log`

See also

"ccm monitor" on page 76

"ccm_start_daemons" on page 95

"ccm_stop_daemons" on page 96

ccm_start_daemons

Synopsis

```
ccm_start_daemons
```

Description and uses

Use the `ccm_start_daemons` command to start the Telelogic Synergy daemons, `ccm_router`, `ccm_objreg`, `ccm_esd`, and `ccm_server` commands.

Start the daemons separately by executing the `ccm_router`, `ccm_objreg`, `ccm_esd`, and `ccm_server` commands.

You can use this command only if you are logged onto the router host. You must execute this command as user *ccm_root*.

For more information, see "Start or stop all daemons" on page 24.

This command does not have options and arguments.

Example

Start the Telelogic Synergy daemons.

```
$ ccm_start_daemons
```

Files

```
$CCM_HOME/log/ccm_esd_hostname.log
$CCM_HOME/log/ccm_objreg.log
$CCM_HOME/log/ccm_router.log
$CCM_HOME/log/ccm_system_info.txt
```

See also

"ccm_esd" on page 82

"ccm_objreg" on page 88

"ccm_router" on page 91

"ccm_stop_daemons" on page 96

ccm_stop_daemons

Synopsis

```
ccm_stop_daemons
```

Description and uses

Use the `ccm_stop_daemons` command to stop the Telelogic Synergy daemons.

You must execute this command as user *ccm_root*.

To stop only the ESD process, you need to kill it. To do so, you must be logged in as *root*.

For more information, see "Start or stop all daemons" on page 24.

This command does not have options and arguments.

Example

Stop the Telelogic Synergy daemons.

```
$ ccm_stop_daemons
```

See also

"ccm_esd" on page 82

"ccm_objreg" on page 88

"ccm_router" on page 91

"ccm_start_daemons" on page 95

ccmdb backup

Synopsis

```
ccmdb backup database_path [-no_check]
          [-z compress_level] -t|-to destination_dir|archive_device|-
```

Description and uses

Use the `ccmdb backup` command to verify the integrity of a Telelogic Synergy database, then create a compressed backup (`.cpk`) file of the database's file systems and metadata. Use the `-no_check` option to suppress database integrity verification.

Note This command performs the same actions as the `ccmdb check` command, followed by a `ccmdb pack` command. If the check fails, the database still is packed.

Execute the `ccmdb backup` command daily to ensure reliable backups of Telelogic Synergy databases.

The database is locked during backups, which prevents users from changing data in the Telelogic Synergy database while a backup is being performed. Users receive a message that the database is locked when they attempt to start a new session while a backup is in progress. Any attempt to update the database hangs the session until the backup is completed.

The maximum size of a pack file produced by `ccmdb backup` is limited by the destination file system.

For more information, see "Back up a database" on page 49 and "Pack databases" on page 129.

You must execute this command on the database server, as user *ccm_root*, and the destination directory must be writable by *ccm_root*.

Options and arguments

database_path

Specifies the full path to the database you are backing up.

`-no_check`

Suppresses the database integrity verification.

`-t|-to` *`destination_dir|archive_device|-`*

Specifies the destination of the database backup. You can dump to a pack (.cpk) file, to a directory, to an archive device, or to standard output ("-"). If you dump to a directory, the pack file is named `database_name.cpk`.

You should create the backup file in a directory that is backed up regularly through normal file system backup procedures, or at least in a directory on an independent file system.

`-z` *`compress_level`*

Specifies the level of compression of the packed file. Values range from 1 (the least, but fastest compression) to 9 (the most, but slowest compression). The default setting is 6.

Example

Back up a database named `tstbill` to an existing directory called `backups` where you perform regular backups.

```
$ ccmdb backup /data/cw_databases/tstbill -to /vol/hydra1/
backups
```

See also

"ccmdb check" on page 99

"ccmdb pack" on page 113

"ccmdb unpack" on page 120

ccmdb check

Synopsis

```
ccmdb check database_path [-d|-c]
```

Description and uses

Use the `ccmdb check` command to verify the integrity of a database.

The command reports any problems that are found. If a problem is found, contact IBM Rational Software Support.

You should use the `ccmdb check` command to check your database daily. To extend the availability of your database, use the `ccmdb check -c` option during the week, and use the `ccmdb check` command without any options on the weekend to provide full checking on a weekly basis.

Databases rarely fail an integrity check, but if failure does occur, you should detect it quickly so that you can correct the problem immediately. Therefore, execute the `ccmdb check` program daily, on each database, and after rebooting the system following a hardware failure or operating system crash.

The database is locked during checks, which prevents users from changing data in the Telelogic Synergy database while a check is being performed. Users receive a message that the database is locked when they attempt to start a new session while a check is in progress.

You must execute this command on the database server, as user *ccm_root*.

For more information, see "Check database integrity" on page 48.

Options and arguments

database_path

Specifies the full or relative path to the database you are checking.

`-c`

Performs checks at the Telelogic Synergy database level, including consistency and index checking.

`-d`

Performs checks at the database level.

Example

Check the `cheops` database in the current directory.

```
$ ccmdb check cheops
```

See also

"ccmdb backup" on page 97

ccmdb copy

Synopsis

```
ccmdb copy src_database_path dest_database_path [-p|-space dbspace]
```

Description and uses

Use the `ccmdb copy` command to copy an existing Telelogic Synergy database. The new database resides on the same database server as the source database, but you can use any `dest_database_path`, as long as that file system is mounted.

The `ccmdb copy` command copies a full Telelogic Synergy database, including its `st_root` directory.

Note After copying a database, you might need to change some of the database's properties, such as the paths to projects' work areas. See Telelogic Synergy CLI Help for the `ccm wa` (work area) command for important information about changing a copied database's properties.

To run this command, you must log on as the Oracle user who has write privileges for the appropriate tasks. For more information, see "Set up Oracle user privileges" on page 17.

Options and arguments

`dest_database_path`

Specifies the path to the new database.

`-p|-space` *`dbspace`*

Specifies the dbspace to be used by the database server for the new database. By default, the `ccm` dbspace is used.

`src_database_path`

Specifies the source path to the original database.

Example

Copy the `base` database to `tstgonzo`.

```
$ ccmdb copy /vol/hydra/ccmdb/base /data/ccmdb/tstgonzo
```

Caveats

Databases should not be created in the Telelogic Synergy installation directory.

See also

"ccmdb backup" on page 97
"ccmdb create" on page 103
"ccmdb unpack" on page 120

ccmdb create

Synopsis

`ccmdb create` *`database_path`* `[-p|-space` *`dbspace`*`] [-s|-server` *`servername`*`]`

Description and uses

Use the `ccmdb create` command to create a Telelogic Synergy root database for a new model installation.

This command creates a database without a model, which means that the database contains no roles, types, users, and so forth. Such databases are intended for use only by model developers.

Note Use the `ccmdb unpack` command to create a ready-to-use database instead of a database without an installed model. See "ccmdb unpack" on page 120 or "Create a database" on page 52 for more information.

To run this command, you must log on as the Oracle user who has write privileges for the appropriate tasks. For more information, see "Set up Oracle user privileges" on page 17.

Note You must have already set `ORACLE_HOME` and `ORACLE_SID`, or use the `-s` option, to use this command.

Options and arguments

`database_path`

Specifies the path to the new database.

`-e|-empty`

Specifies that the database should be empty. This creates a database **without** a model or contents.

`-p|-space` *`dbspace`*

Specifies the dbspace to be used by the database server for the new database. By default, the `ccm` dbspace is used. You can specify a different dbspace for the database server on which you are creating the database.

`-s|-server servername`

Specifies the database server. This requires that the `ORACLE_SID` be set, or the servername to be specified with the `ORACLE_SID` environment variable. If the `-s servername` argument is specified, it supersedes the `ORACLE_SID` environment variable.

Examples

Create a root database called `/data/ccmdb/test_ccm`.

```
$ ccmdb create /data/ccmdb/test_ccm
```

See also

"ccmdb backup" on page 97

"ccmdb delete" on page 105

"ccmdb unpack" on page 120

ccmdb delete

Synopsis

```
ccmdb delete database_path [-y]
```

Description and uses

Use the `ccmdb delete` command to remove a database. You must use this command and not the standard `rm` command.

To run this command, you must log on as the Oracle user who has write privileges for the appropriate tasks. For more information, see "Set up Oracle user privileges" on page 17.

Options and arguments

database_path

Specifies the path to the database you are deleting.

`-y`

Executes the command without displaying confirmation messages.

Example

Delete the `/vol/orbit1/ccmdb/train70` database.

```
$ ccmdb delete /vol/orbit1/ccmdb/train70 -y
Enter user-name who has DROP USER privilege: ccm_user
Enter password:
Deleting ORACLE schema train70
Successfully deleted Oracle schema train70
Deleting database files in /vol/orbit1/ccmdb/train70
Successfully deleted database files in /vol/orbit1/ccmdb/
train70
```

Note Do not remove a Telelogic Synergy database using standard UNIX commands. Each Telelogic Synergy database contains data that exists in both the file system and on the database server; using the UNIX `rm` command removes only the file system data.

ccmdb drop

Synopsis

```
ccmdb drop database_path [-s|-server servername] [-y]
```

Description and uses

Use the `ccmdb drop` command to drop a database from the database server when the database's path, or other database information, has been removed accidentally.

For example, this command completes the removal of a database after a user has attempted to remove a database using a UNIX command.

Note Always use the `ccmdb delete` command to delete a database completely.

To run this command, you must log on as the Oracle user who has write privileges for the appropriate tasks. For more information, see "Set up Oracle user privileges" on page 17.

Options and arguments

database_path

Specifies the path to the database you are dropping.

`-s|-server` *servername*

Specifies the database server. This requires that the `ORACLE_SID` be set, or the servername to be specified with the `ORACLE_SID` environment variable. If the `-s` *servername* argument is specified, it supersedes the `ORACLE_SID` environment variable.

`-y`

Executes the command without displaying confirmation messages.

Example

- Drop the `web_ccm` database from the `argent` server.

```
$ ccmdb drop /vol/argent1/ccmdb/web_ccm -server argent
```

See also

"ccmdb delete" on page 105

ccmdb dump

Synopsis

```
ccmdb dump database_path [-t|-to dumpfile|-]
```

Description and uses

Use the `ccmdb dump` command to dump a database's metadata to a dump file or to standard output.

For more information, see "Dump databases" on page 131.

You must execute this command on the database server, as user *ccm_root*.

Options and arguments

database_path

Specifies the path to the database you are dumping.

-t|-to *dumpfile*|-

Specifies the destination of the database dump. You can dump to a dump file or to standard output ("-").

The default pack file path is *database_name*.dmp in the directory above the *database_name* leaf under the *database_path*.

Examples

- Dump the `test_ccm` database to the `test_ccm.dmp` file in the current directory.

  ```
  $ ccmdb dump /vol/hydra/ccmdb/test_ccm
  ```

- Dump the `test_ccm` database to the `/vol/hydra/dumpdb/test_ccm_meta.dmp` file.

  ```
  $ ccmdb dump /vol/hydra/ccmdb/test_ccm -to /vol/hydra/dumpdb/
  test_ccm_meta.dmp
  ```

See also

"ccmdb backup" on page 97

"ccmdb load" on page 111

ccmdb info

Synopsis

```
ccmdb info database_path [-k|-keyword keyword [-v|-value value]]
```

Description and uses

Use the `ccmdb info` command to report or change the characteristics of a database.

With no options, the `ccmdb info` command shows all database information except size.

Any user can obtain information about the database using the default (`database_path` with no options) or the `-keyword` option, but you must be user *ccm_root* to execute this command with the `-value` option.

Note The `-k size` option functions only if you are logged on to the database server.

Options and arguments

database_path

Specifies the path to the database for which you are showing or changing information.

`-k|-keyword` *keyword*

Specifies the type of database information to show or change. Use any one of the following (case-insensitive) keywords to designate the type of information:

`active | all | case | database | dbpath | hostname | orhost | platform | protect | schema | size | version`

- `active` indicates whether or not users have sessions on the specified database.

Note You must be user *ccm_root* to get information for the keyword `active`.

- `all` shows all keywords and their values.
- `case` displays information regarding the case in which a file or directory created in or migrated to Telelogic Synergy is stored.
- `database` is the name of the DBMS.
- `dbpath` is the full path to the `db` directory of the database.

- `hostname` is the database server host. This host is also the location from where the object registrar service runs.
- `orhost` is the host for the object registrar service. If `orhost` does not exist, `hostname` is used as the object registrar host.
- `platform` is the type of host on which the database resides, for example, IBM-AIX.
- `protect` shows whether a database is protected or unprotected.
- `schema` displays the database schema version.
- `size` calculates and reports the size of the database, the storage root, and then the total, all in kilobytes.
- `version` is the version of the database schema.

`-v|-value value`

Use any one of the following keyword settings to change database information:

`[case | database | hostname | next_cvid ]`

Note For each of these values, you must run as user *ccm_root*.

Note that the values for the `case` keyword has significant impact on your database:

- `case` displays information regarding the case in which a file or directory created in or migrated to Telelogic Synergy are stored. You can change a Telelogic Synergy database between two modes: LOWER or PRESERVE.

  The default mode is PRESERVE, which causes Telelogic Synergy to store the file and directory names in the case in which they were created. The LOWER mode causes file and directory names to be stored in lower case.

Caution It is strongly recommended that you not change case from PRESERVE to LOWER for a database in which upper- or mixed-case objects have been created.

If a database contains objects with upper- or mixed-case names, changing case from PRESERVE to LOWER downcases all user input; queries, scripts, etc. containing upper- or mixed-case objects will not work correctly.

- `database` is the name of the DBMS.
- `hostname` is the database server host.

- next_cvid sets the next cvid number to the given value. Note that the value passed must be greater than the maximum cvid currently in us. You cannot adjust the next cvid counter downwards.

Examples

- Show the characteristics of the /vol/sargasso1/ccmdb/base70/db.

```
$ ccmdb info /vol/sargasso1/ccmdb/base70
VERSION=7.0
PLATFORM=aix700/800
HOSTNAME=sargasso
ORHOST=sargasso
DBPATH=/vol/sargasso1/ccmdb/base70/db
DATABASE=oracle
PROTECT=unprotected
ACTIVE=NO (database is inactive)
CASE=PRESERVE
SIZE=20480 KBYTES
SCHEMA=0111
```

- In the database called /vol/tom/ccmdb/alpha, set ORHOST to bill so that the database can use an object registrar running on bill.

```
$ ccmdb info /vol/tom/ccmdb/alpha -k ORHOST -v bill
```

- In the database called /vol/tom/ccmdb/alpha, change the case mode setting to PRESERVE.

```
$ ccmdb info /vol/tom/ccmdb/alpha -k case -v preserve
```

- Set the next cvid number for the basek2 database to 10000.

```
$ ccmdb info -k next_cvid -v 10000 /orbit/ccmdb/basek2

    Setting next cvid to 10000 for database /orbit/ccmdb/basek2.
```

ccmdb load

Synopsis

```
ccmdb load dumpfile|- [-n|[-o|-overwrite][-p|-space dbspace]
                [-s|-server servername] -t|-to database_path
```

Description and uses

Use the `ccmdb load` command to load a database's dumped metadata into a new or existing database.

By default, the destination database is assumed to be new and empty. Use the `-nocreate` and `-overwrite` option to load into an existing database (e.g., for an upgrade).

To run this command, you must log on as the Oracle user who has write privileges for the appropriate tasks. For more information, see "Set up Oracle user privileges" on page 17.

Note You must have already set `ORACLE_HOME` and `ORACLE_SID`, or use the `-s` option, to use this command.

Options and arguments

`-`

Loads the dumped metadata from standard input.

`database_path`

Specifies the path to the database into which you are loading the dumped metadata.

`dumpfile`

Specifies the dump file you are loading.

`-n|-nocreate`

Loads into an existing database at *`database_path`*.

`-o|-overwrite`

Overwrites the metadata in the database at *`database_path`* if the database exists already on the current machine (database server).

`-p|-space` *`dbspace`*

Specifies the name of the dbspace. By default, the `ccm` dbspace is used.

`-s|-server` *`servername`*

Specifies the database server. This requires that the `ORACLE_SID` be set, or the servername to be specified with the `ORACLE_SID` environment variable. If the `-s` *`servername`* argument is specified, it supersedes the `ORACLE_SID` environment variable.

`-t|-to` *`database_path`*

Specifies the database into which the dumped metadata is loaded.

By default, the dumped metadata is loaded to standard output.

Examples

- Load the `test_ccm.dmp` dump file into the new `prod_ccm` database on the `argent` server.

  ```
  $ ccmdb load test_ccm.dmp -to /vol/argent1/ccmdb/prod_ccm -
  server argent
  ```

- Update the `web_ccm` database by loading the `test_ccm.dmp` dump file into the existing `web_ccm` database on the `argent` server.

  ```
  $ ccmdb load test_ccm.dmp -overwrite -to  /vol/argent1/ccmdb/
  web_ccm -server argent
  ```

ccmdb pack

Synopsis

```
ccmdb pack database_path [-t|-to packfile|archive_device|-]
                  [-z compress_level]
```

Description and uses

Use the `ccmdb pack` command to dump a database's contents to a single, portable file, appropriate for moving to another system. Packed files have the extension `.cpk`.

The database is locked while a pack is in progress, which prevents users from changing data in the Telelogic Synergy database during a pack. Users receive a message that the database is locked when they attempt to start a session while the pack is in progress.

The maximum size of a pack file produced by `ccmdb pack` is limited by the destination file system. On many UNIX file systems, the maximum file size is 2 GB.

You must be user *ccm_root* to execute this command.

For more information, see "Back up a database" on page 49 and "Pack databases" on page 129.

Options and arguments

database_path

Specifies the path to the database you are packing.

`-t|-to` *packfile*`|`*archive_device*`|-`

Specifies the destination of the database pack file. The *packfile* argument is the name of the database's packed, portable file. The default pack file path is *database_name*`.cpk` in the directory above the *database_name* leaf under the *database_path*. The *archive_device* argument causes the packfile to be written to the specified archive device, and the `"-"` argument causes the packfile to be written to standard output.

`-z` *compress_level*

Specifies the level of compression of the packed file. Values range from `1` (the least—but fastest—compression) to `9` (the most—but slowest—compression). The default setting is `6`.

Example

Generate a pack file called `test_ccm.cpk` in the `/vol/bulldog/ccmdb` directory.

```
$ ccmdb pack /vol/bulldog/ccmdb/test.ccm -to /vol/hydra/ccmdb/
test_ccm.cpk
```

Caveats

You should use the `ccmdb backup` command for scheduled backups.

See also

"ccmdb backup" on page 97

"ccmdb unpack" on page 120

ccmdb protect

Synopsis

`ccmdb protect` *`database_path`*

Description and uses

Use the `ccmdb protect` command to prevent users from starting new sessions on a database while you are solving a database problem or installing a model.

You must be user *ccm_root* to execute this command.

Options and arguments

`database_path`

Specifies the path to the database you are protecting.

Example

Protect the `/vol/boon/ccmdb/test_ccm` database.

```
$ ccmdb protect /vol/boon/ccmdb/test_ccm
```

Caveats

This command prevents new sessions from being started on the specified database but does not protect the database from sessions already running. Stop current sessions by executing the `ccmdb shutdown` command (page 119).

See also

"ccmdb shutdown" on page 119

"ccmdb unprotect" on page 123

ccmdb refresh

Synopsis

`ccmdb refresh` *`database_path`*

Description and uses

Use the `ccmdb refresh` command to restart the back-end sessions used by Telelogic Synergy Web mode sessions. Use this command when you change model settings that affect the behavior of a database to ensure that those changes take effect for Web mode users.

Because back-end sessions are shared for Web mode sessions, restarting a Telelogic Synergy Web mode session will not cause model settings to take effect for that user.

It is not necessary to use this command after adding or modifying users. Telelogic Synergy automatically refreshes back-end sessions when the users attribute is modified.

You must be user *ccm_root* to execute this command.

For more information, see "CCM Server Administration" on page 41.

Options and arguments

`database_path`

Specifies the path to the database that you want to refresh.

Example

Refresh back-end sessions for the database `/vol/boon/ccmdb/test_ccm`

```
$ ccmdb refresh /vol/boon/ccmdb/test_ccm.
```

See also

"ccmdb info" on page 108

"ccmdb shutdown" on page 119

ccmdb repair

Synopsis

```
ccmdb repair database_path -i|-repair_index table_name|index_name|""
            [-y]
ccmdb repair database_path -t|-repair_table table_name [-y]
```

Description and uses

Use the `ccmdb repair` command to repair indexes and tables corrupted at the database level.

For more information, see "Repair a database" on page 50.

Note Ensure that all Telelogic Synergy sessions are shut down before executing the `ccmdb repair` command. If any sessions are running when you execute the command, you will receive an error. (For information on shutting down a database, see "ccmdb shutdown" on page 119.)

To run this command, you must log on as the Oracle user who has write privileges for the appropriate tasks. For more information, see "Set up Oracle user privileges" on page 17.

Options and arguments

database_path

Specifies the path to the database you are repairing.

`-i|-repair_index` *table_name*|*index_name*|*""*

Indicates that you want to re-create an index. If `-repair_index` is specified with a table name, all of the indexes in the table are repaired. If an index name is specified, only the specified index is repaired; if "" is specified, all indexes in the database are repaired.

The possible tables are as follows: `acckeys`, `attrib`, `bind`, `bsite`, `compver`, `control`, `relate`, and `release`.

`-t|-repair_table` *table_name*

Indicates that you want to repair table data for `table_name`. This is done by renaming the table, creating the new table, copying to the new table, and then deleting the old table.

`-y`

Executes the command without displaying confirmation messages.

Example

Based on the results of `ccmdb check`, fix an index corruption in the `attrib` table in the `/vol/tom/ccmdb/primo` database.

```
$ ccmdb repair /vol/tom/ccmdb/primo -repair_index attrib
```

ccmdb shutdown

Synopsis

`ccmdb shutdown` *`database_path`*

Description and uses

Use the `ccmdb shutdown` command to close down a Telelogic Synergy database for maintenance. This command automates several important steps required to bring down all Telelogic Synergy user sessions safely and ensure that the database is protected.

The `ccmdb shutdown` command does the following:

- Prevents new users from starting sessions (see "ccmdb protect" on page 115).
- Notifies active users, with a series of warning messages, that the database will be brought down.
- Issues remote "exit" commands to sessions that have not exited.
- Waits until all users have exited or have successfully shut down.

Once you have started the `ccmdb shutdown` command, only an interrupt keyboard sequence can stop the shutdown.

You must be user *ccm_root* to execute this command.

Options and arguments

`database_path`

Specifies the path to the database you are shutting down.

Example

Shut down the `/vol/hydra/ccmdb/test_ccm` database.

```
$ ccmdb shutdown /vol/hydra/ccmdb/test_ccm
```

See also

"ccm monitor" on page 76

"ccmdb unprotect" on page 123

ccmdb unpack

Synopsis

```
ccmdb unpack packfile|archive_device|- [-o|-overwrite]
            [-p|-space dbspace] [-s|-server servername]
             -t|-to database_path
```

Description and uses

Use the `ccmdb unpack` command to restore a database from a pack (`.cpk`) file created using `ccmdb pack` or `ccmdb backup`.

Note You must have already set `ORACLE_HOME`, and set `ORACLE_SID`, or use the **-s** option, to use this command.

Note After unpacking a database (particularly from a packed production database), you might need to change some of the database's properties, such as the paths to projects' work areas. See Telelogic Synergy CLI Help for the `ccm wa` (work area) command for important information about changing a database's properties.

To run this command, you must log on as the Oracle user who has write privileges for the appropriate tasks. For more information, see "Set up Oracle user privileges" on page 17.

Note You must have already set `ORACLE_HOME` and `ORACLE_SID`, or use the `-s` option, to use this command.

Options and arguments

–

Unpacks from standard input.

archive_device

Unpacks from an archive device.

`-o|-overwrite`

Causes the unpacked database to overwrite the specified database to *`database_path`*.

Use this option if you want to disperse a large database over many drives under multiple file systems using symbolic links for the subdirectories of the database. Note that you cannot overwrite a database if a database with the same name already exists in Informix. (You can use the `ccmdb drop` command, then use the `-overwrite` option to write out the database.)

`-p|-space` *`dbspace`*

Specifies the name of the dbspace. By default, the `ccm` dbspace is used.

`packfile`

Unpacks from a pack file.

`-s|-server` *`servername`*

Specifies the database server. This requires that the `ORACLE_SID` be set, or the servername to be specified with the `ORACLE_SID` environment variable. If the `-s` *`servername`* argument is specified, it supersedes the `ORACLE_SID` environment variable.

`-t|-to` *`database_path`*

Specifies the path to the database to which you are unpacking.

Example

Unpack the training database to a new database named `/vol/orbit1/ccmdb/train70`.

```
$ ccmdb unpack packfiles/training.cpk -t /vol/orbit1/ccmdb/
train70

Enter user-name who has privileges of
CREATE USER, DROP USER, CREATE ANY INDEX, DROP ANY INDEX,
CREATE ANY SEQUENCE, CREATE ANY TABLE, INSERT ANY TABLE,
DROP ANY TABLE, SELECT ANY TABLE, UPDATE ANY TABLE,
DELETE ANY TABLE, and GRANT ANY OBJECT PRIVILEGE:ccm_user
Enter password:
Unpacking database /vol/orbit1/ccmdb/train70.
Creating Telelogic Synergy database /vol/orbit1/ccmdb/train70.
database create succeeded.
Extracting pack file /vol/orbit1/ccm70/packfiles/training.cpk.
Loading database.
```

```
loading Telelogic Synergy dump file version 7.0 platform UNIX
...
loading table attrib...
.............................3042 records.
loading table bind...
..289 records.
loading table bsite...
..213 records.
loading table compver...
...352 records.
loading table control...
0 records.
loading table relate...
.178 records.
loading table release...
10 records.
database unpacked successfully.ccmdb unpack base.cpk -to /vol/
hydra/ccmdb/tstgonzo
```

See also

"ccmdb backup" on page 97

"ccmdb pack" on page 113

ccmdb unprotect

Synopsis

`ccmdb unprotect` *`database_path`*

Description and uses

Use the `ccmdb unprotect` command to unprotect a database that was protected using the `ccmdb protect` command or `ccmdb shutdown` command.

You must be user *ccm_root* to execute this command.

Options and arguments

`database_path`

Specifies the path to the database you are unprotecting.

Example

Unprotect the `/vol/tom/ccmdb/tstgonzo` database.

```
$ ccmdb unprotect /vol/tom/ccmdb/tstgonzo
```

See also

"ccmdb protect" on page 115

"ccmdb shutdown" on page 119

ccmdb upgrade

The following is a brief description of the `ccmdb upgrade` command. For a detailed description and usage instructions, see the *Upgrade Instructions for UNIX*.

The upgrade program converts a database from Releases 6.3 or 6.4 to Release 7.0. You must upgrade a database from a previous release before using it with Release 7.0.

The upgrade program performs the following actions on each database that it upgrades:

1. Updates the target database schema to the Release 7.0 schema.
2. Updates the target database version to 7.0.
3. Saves the previous migrate rules as *`database_path`*`/lib/Unix/migrate.old`.
4. Saves the previous `pt` directory as *`database_path`*`/oldpt`.
5. Saves the previous `bin` directory as *`database_path`*`/oldbin`.
6. Saves the previous `notify` directory as *`database_path`*`/lib/oldnotify`.
7. Protects the target database.
8. Exports any types that were modified since a previous model install to the *`database_path/old_types`* directory. If the upgrade cannot determine the time of the previous model install, then it exports all standard types and attempts to identify any modified types by using an alternative algorithm.
9. Finds the list of models installed in the target database.
10. Installs the required list of models and model additions from the `model` database to the target database.
11. Unprotects the target database.
12. Restores the original migrate rules file saved in step 3, and performs any upgrade that is required.
13. Starts a 7.0 session on the target database.
14. Runs the `ccm db_update -update` command to update the data in the target database to 7.0 format.
15. Changes the logging mode of the target database to be unbuffered.
16. Removes obsolete files from the target database.

Description and uses

The database upgrade returns one of three possible outcome codes:

- **0 = Success**—Upgrade was successful, and the user does not need to perform any corrective actions.
- **1 = Failure**—Corrective action is required. The `ccmdb upgrade` command needs to be rerun after the corrections are made.
- **2 = Success with warnings**—Upgrade has successfully completed all phases. However, there are warnings that the user needs to review and resolve. These warnings might suggest some post-update corrective actions that the user needs to perform, such as reviewing data to ensure that it is correct for their usage or manually modifying the database data to repair it.

ccmsrv status

Synopsis

```
ccmsrv status [-s|-server servername]
```

Description and uses

Use the `ccmsrv status` command to list the Telelogic Synergy databases in the Oracle database.

You must execute this command on the database server.

Options and arguments

`-s|-server servername`

Specifies the database server. This requires that the `ORACLE_SID` be set, or the servername to be specified with the `ORACLE_SID` environment variable. If the `-s servername` argument is specified, it supersedes the `ORACLE_SID` environment variable. If this option is not specified, the system displays information about the Oracle database specified by the `ORACLE_SID` environment variable.

Example

Request the Telelogic Synergy databases on the database server named `dbtest`.

```
$ ccmsrv status -server dbtest
```

Appendix A: Database Backup Methods

A Telelogic Synergy database has two parts: Oracle data and file system data. To protect your data, you must back up both types of data regularly.

The following two methods are used for backing up databases:

- "Pack databases" on page 129
- "Dump databases" on page 131

Determine which method is appropriate for your environment. You might back up some databases with one method, and others with another method. However, it is best to choose one method.

After you have chosen a backup method and have developed a backup plan, you should test and automate the plan. Remember to test the backup method's corresponding restore procedures, as well.

The following sections describe the Telelogic Synergy backup methods.

Pack databases

Packing individual databases is the recommended backup method. This method creates a pack (`.cpk`) file that contains a complete backup of both the file system data and metadata.

A pack file is also useful when you upgrade from one release of Telelogic Synergy to the next. You can pack a database under an older release and unpack it under a newer release as part of the upgrade process.

You also can move a pack file to different machines, and usually to different architectures; i.e., you can move a pack file from one UNIX platform to another, or from UNIX to NT. (You cannot move a pack file from NT to UNIX.)

Note Never back up Telelogic Synergy metadata using non-Telelogic Synergy backup tools.

Back up

Create a pack file by executing either the `ccmdb backup` or `ccmdb pack` command. You should use `ccmdb backup`, because `ccmdb backup` also runs the consistency checker, `ccmdb check`. If you use `ccmdb pack`, you can run `ccmdb check` independently.

See "ccmdb backup" on page 128, "ccmdb pack" on page 144, or "ccmdb check" on page 130 for more information about the pack commands.

Database locking and data consistency

Both `ccmdb backup` and `ccmdb pack` lock the database while they are being executed so that the file system data and metadata backups are consistent. Developers can edit checked out files while the backup is running. However, if users are editing during a backup, the backup might not contain those changes. Nonetheless, editing during the backup does not affect the backup consistency.

Schedule and script backups

Develop a backup plan that enables you to back up each active production database daily. Because the file system portion is included in the pack files, you should exclude this data from any other backups.

If you choose database packing as your backup method, you should write a script that includes `ccmdb backup` or `ccmdb pack` for each of your production databases, and you should run this script according to your backup plan.

Recover using a pack file

Recover from system failure by deleting the current database, and then unpacking the packed database using the `ccmdb unpack` command. All work performed in the database since the last backup is lost. In copy-based work areas you can recover the lost changes by reconciling copies of checked-out and recently checked-in files from the work area.

See "ccmdb unpack" on page 151 for more information about the command.

Dump databases

If your database is quite large or takes too long to pack, dumping a database is the recommended backup method. This method creates a dump (`.dmp`) file containing only the database's metadata, instead of producing a pack file that contains the file system data as well as the metadata.

One significant advantage to using the dump method is that you can perform an incremental backup of the file system data without performing a metadata backup. The metadata dump is not incremental, but a metadata dump file is much smaller than a pack file and the dump takes less time to perform than a pack, so you can save both the time and disk space by performing a dump.

A dump file is also useful when you upgrade from one release of Telelogic Synergy to the next. You can dump a database using an older release and load it under a new release as part of the upgrade process.

You also can move a dump file to different machines and different architectures; i.e., you can move a dump file from one UNIX platform to another, or from UNIX to Windows. If you move a dump file from Windows to UNIX, and use standard file system tools to move the file system portion of the database, you must run `ccmdb upgrade -w` on the reconstructed UNIX database before using it. See "Move a database from Windows to UNIX" on page 54.

Note Never back up Telelogic Synergy metadata using a tool that is not from Telelogic Synergy Oracle.

Database locking and data consistency

To ensure consistency between the metadata and file system data, you must shut down the databases before performing the dump and the file system backup.

Scheduling and scripting backups

You should develop a backup plan that enables you to back up each active production database daily. Because the file system data is excluded from dump files, you should perform the file system backups using separate tools.

If you choose database dumping as your backup method, you should write a script that includes `ccmdb dump` for each of your production databases, and you should run this script according to your backup plan. The script also can include the file system backup commands, or you can perform the file system backups using a separate script. The latter method will not, of course, ensure consistency between metadata and the file system.

Appendix B: Scripts

Using scripts

This appendix shows Telelogic Synergy scripts you can change to automatically start and stop the Telelogic Synergy daemons .

Note All scripts in this section must run in the Classic CLI.

You can run the scripts on Solaris. The automatic system startup procedures vary for each platform and operating system. If you want to run these scripts on other systems, you must change the scripts and the startup files from which they are called. The examples shown here apply to the Sun SPARC platform running on Solaris.

To start the Telelogic Synergy daemons automatically after a system reboot, create the following script in an `/etc/init.d/telelogic` file. The script is called by other startup scripts (shown in the next two subsections) that restart these processes.

```
#!/bin/sh
#  Telelogic Synergy Startup/Shutdown Script
#
CCM_HOME=$CCM_HOME
PATH=$CCM_HOME/bin:$PATH
export CCM_HOME PATH

case $1 in
    'start')
# Do on the router system
       su ccm_root -c ccm_start_daemons
# Do on each database server machine
       su ccm_root -c ccm_objreg
       su ccm_root -c ccm_server

       ;;

'stop')
# Do on the router system
       su ccm_root -c ccm_stop_daemons
       ;;

*)
       echo "usage: /etc/init.d/telelogic {start|stop}"
       ;;
esac
```

Start processes automatically

The following example shows how to set up an `/etc/rc2.d` script.

Set up a symbolic link in `/etc/rc2.d`:

```
/etc/rc2.d/S##telelogic --> /etc/init.d/telelogic
```

The pound signs (`##`) reflect the order in which operations are performed. Replace `##` with a 2-digit decimal, such as 98. This value should be high so that everything else (e.g., NFS) is started before the Telelogic Synergy daemons are started. `S##` does not have to be different from `K##`. `rc2.d` represents the run level of the operation. Level 2 startup is the standard.

During startup, the process automatically sends the appropriate argument ("start").

Stop processes automatically

The following example shows how to set up an `/etc/rc0.d` script.

Set up a symbolic link in `/etc/rc0.d`:

```
/etc/rc0.d/K##telelogic --> /etc/init.d/telelogic
```

The pound signs (`##`) reflect the order in which operations are performed. This value should be low. `K##` does not have to be different from `S##`. `rc0.d` represents the run level of the operation. Level 0 shutdown is the standard.

During shut down, the process automatically sends the appropriate argument ("stop").

Appendix C: Troubleshooting

The following sections describe some problems you might encounter while using Telelogic Synergy and offers solutions for solving the problems. Technical bulletins are available on the IBM Rational Software Support Web site.

- **Daemons Terminated**

  Problem: The router, object registrar, or engine startup daemon terminated abnormally.

  Solution: Any running Telelogic Synergy interfaces will issue a warning message(s) to the user and suspend operation until the daemon(s) are restarted. (Refer to "Manage the Telelogic Synergy daemons" on page 19.) After you restart the daemon(s), the user processes will resume operation. Check the logs in `$CCM_HOME/log/` for more information.

- **ccm monitor Command Fails**
  Cannot locate *daemon_name* **message**

  Problem: After you issue the `ccm monitor` command, you receive a message similar to one of the following:

  ```
  Cannot locate router.
  Please notify your Telelogic Synergy administrator that
  ccm_start_daemons
  must be run.
  ```

  OR

  ```
  Warning: UISSYS engine daemon not registered with router at host
  pacifica
  Warning: Telelogic Synergy startup failed.
  ```

  OR

  ```
  Warning: Cannot locate object registrar on bigtop.
  Warning: Lost connection to engine, exiting
  Warning: Telelogic Synergy startup failed.
  ```

  Solution: The router, engine startup, or object registrar daemon is not running. Start the daemons with the `ccm_start_daemons` command, or with `ccm_router`, `ccm_esd`, and `ccm_objreg`.

- **Error Received When ccmdb check Attempted**

  Problem: When you attempted to check the database by using the `ccmdb check` command, an error was issued.

  If the command is run when there are active users making modifications to the database, the check program might not be able to lock the database and will report this as an error.

  Solution: Ensure that users are not making modifications to the database, and then try the `ccmdb check` command again. If the problem persists, contact IBM Rational Software Support.

- **Unable to restart router after changing the server IP address.**

  Problem: When you change the server IP address, you need to teach the router about the new address.

  Solution: Change the IP address for the server in the *`.router.adr`* file, located in the `$CCM_HOME/etc` directory, and then restart the router.

- **Error Received When Trying to Start a Session.**

  Problem: When trying to start a session, you receive the error: `database type not licensed`.

  Solution: Check the following:

  1. Ensure that `LICENSE_SERVER` line in the `$CCM_HOME/etc/server_info.txt` file contains *`port@host`*.
  2. Run `lmutil lmstat -c` *`license_file`* on the license host to ensure that it is running. This command is included with the Telelogic License Server.
  3. Check the license manager log file, `license.log`, located in the installation directory of the Telelogic License Server.

The following are some other messages that you might see in log files. If you need help understanding these messages, see the *Telelogic Synergy Installation Guide for UNIX on Oracle*.

- `TCP_NODELAY NOT enabled`
- ```
  14:16:17 (telelogic) Multiple dup-groupings in effect
  for DOORS:
  14:16:17 (telelogic) NONE  vs. USER HOST DISPLAY
  14:16:17 (telelogic) No further warnings about this.
  ```
- ```
  14:46:39 (telelogic) DENIED: "DOORS" indkach@indkach
  [telelogic] (Licensed number of users already reached.
  (-4,342:10054 ""))
  14:46:39 (telelogic) DENIED: "DOORS" indkach@indkach
  [telelogic] (Licensed number of users already reached.
  (-4,342:10054 ""))
  14:46:39 (telelogic) OUT: "TLOG-token" indkach@indkach
  [DOORS] (3 licenses)
  ```

Appendix D: Notices

This information was developed for products and services offered in the U.S.A. IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not grant you any license to these patents. You can send written license inquiries to:

IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-1785
U.S.A.

For license inquiries regarding double-byte character set (DBCS) information, contact the IBM Intellectual Property Department in your country or send written inquiries to:

IBM World Trade Asia Corporation
Licensing
2-31 Roppongi 3-chome, Minato-ku
Tokyo 106-0032, Japan

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law:
INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions. Therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

Intellectual Property Dept. for Rational Software
IBM Corporation
1 Rogers Street
Cambridge, Massachusetts 02142
U.S.A.

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The licensed program described in this document and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement or any equivalent agreement between us.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of

performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

If you are viewing this information softcopy, the photographs and color illustrations may not appear.

Additional legal notices are described in the legal_information.html file that is included in your software installation.

Trademarks

IBM, the IBM logo, ibm.com, Telelogic, Telelogic Synergy, Telelogic Directory Server, Telelogic Change, Telelogic License Server, and Telelogic Synergy Distributed are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both, are trademarks of Telelogic, an IBM Company, in the United States, other countries, or both. These and other IBM trademarked terms are marked on their first occurrence in this information with the appropriate symbol (® or ™), indicating US registered or common law trademarks owned by IBM at the time this information was published. Such trademarks may also be registered or common law trademarks in other countries. A current list of IBM trademarks is available on the Web at www.ibm.com/legal/copytrade.html.

AIX and Informix are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both.

Linux is a trademark of Linus Torvalds in the United States, other countries, or both.

Microsoft, Windows, Windows 2003, Windows XP, Windows Vista and/or other Microsoft products referenced herein are either trademarks or registered trademarks of Microsoft Corporation.

Oracle is a registered trademark of Oracle Corporation and/or its affiliates.

Sun, Sun Microsystems, Solaris, and Java are trademarks or registered trademarks of Sun Microsystems, Inc. in the United States and other countries.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Other company, product or service names may be trademarks or service marks of others.

Index

Symbols

A

B

C

D

E

F

H

I

K

L

M

N

O

P

Q

R

S

T

U

V

W