Telelogic Synergy

Administration Guide for Windows

Release 7.0

Before using this information, be sure to read the general information under Appendix: "Notices" on page 163.

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1 Introduction

The *Telelogic® Synergy™ Administration Guide for Windows®* contains complete administrative command descriptions and step-by-step instructions for administering Telelogic Synergy. If you are installing Telelogic Synergy for the first time, see the *Telelogic Synergy Installation Guide for Windows.*

For installation and upgrade instructions, please see the following documents:

- *Telelogic Synergy Installation Guide for Windows*

- *Telelogic Synergy Installation Guide for UNIX®*

- *Telelogic Synergy Upgrade Instructions for Windows*

- *Telelogic Synergy Upgrade Instructions for UNIX*

You can obtain this guide in PDF format on the Documentation section of the DVD, the Telelogic Synergy Support Web site (at https://support.telelogic.com/synergy), or the FTP site.

Information in this guide may be superseded by information in the *Readme*, which is shipped with the product. The latest updates to the *Readme* is available on the support Web site.

For administration information specific to installing the product for the first time, including hardware configuration requirements, see the *Telelogic Synergy Installation Guide for Windows.*

Who should use this guide

This guide is intended for the change management (CM) administrator.

The *CM administrator* is responsible for the smooth, day-to-day operation of the Telelogic Synergy tools. This document describes the Telelogic Synergy services and databases, including how to run the Telelogic Synergy database backup programs, how to use space effectively, and so forth.

Telelogic Synergy administrator's road map

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

- Refer to the *Readme* 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 through unpack" on page 77.
- Add users to the database.

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

  For guidelines, see "Telelogic Synergy database backup and recovery" on page 71 and "When to archive a database server" on page 50.
- Monitor space to plan for growth.

  This procedure is described in "Monitor product usage" on page 21.

About Telelogic Synergy

This release supports Windows clients, engines, and database servers on a variety of Windows operating systems. Windows clients can be used with Windows or UNIX servers. 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 Windows or UNIX server.

See the *Telelogic Synergy Installation Guide for Windows* and the *Telelogic Synergy Administration Guide for Windows* for information about installing and administering Windows clients. See the *Telelogic Synergy Installation Guide for UNIX* and the *Telelogic Synergy Administration Guide for UNIX* for information about installing and administering UNIX servers. All documents are located on the Telelogic Synergy Support Web site.

Run Telelogic Synergy administrative commands

Depending on which administrative commands you use, you need to have the following access:

- Telelogic Synergy administrator

  In previous releases, the *ccm_root* user was a fixed name. You can now set the name for that user to whatever you would like. This document uses the term Telelogic Synergy administrator for that user.

  For example, to run the Telelogic Synergy database commands and to perform a model install, you need to log on as the Telelogic Synergy administrator.

- Local Administrator

  The Local Administrator is a member of the Administrators group on the local machine.

  For example, to run the database server administrative commands, you need to have Local Administrator privilege.

- *Informix-Admin* group member

  The Informix-Admin group member is a user who has membership in the Informix-Admin group on the domain.

  For example, to use the database server administration commands, you need to be an Informix-Admin group member.

Open command windows

When you run administrative commands, you can use the Telelogic Synergy command prompt instead of typing the full path to your Telelogic Synergy installation area (*CCM_HOME*). This starts a command prompt window with the environment properly set for Telelogic Synergy command use.

To open a command prompt window, from the Windows task bar, select **Start** > **All Programs** > **Telelogic** > **Telelogic Lifecycle Solutions Tools** > **Telelogic Synergy 7.0** > **CM Command Prompt**.

Conventions

The following conventions are used in this document.

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 typed 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 or damage to the database or system could result.

Command line interface

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

Prompt

This document uses the greater than (>) character as the prompt.

Option delimiter

Telelogic Synergy supports the slash (/) option delimiter.

Universal naming convention

You can use the universal naming convention (UNC) any time you enter a path to an administrative command. UNC makes network access to files, machines, and other devices easier, enabling you to reference remote machines and files.

The UNC format is as follows:

`\\`*computer_name*`\`*share_name*`\`*path*`.`

In the following example, "`c:\users\ccmdb\base`" is a regular database path. A UNC-style path is "`\\loon\ccmdb\tstgonzo`":

`> ccmdb copy c:\users\ccmdb\base \\loon\ccmdb\tstgonzo`

Most Telelogic Synergy commands accept **both** UNC paths and paths with drive letters. However, three commands, `ccmdb create`, `ccmdb copy`, and `ccmdb unpack`, require UNC paths to create databases.

Location of *CCM_HOME*

CCM_HOME is the Telelogic Synergy product installation directory. Many procedures shown in this document require that you change a file somewhere in the *CCM_HOME* directory hierarchy. For example, if you want to edit the `remexec.cfg` file, which resides in the `etc` directory in the Telelogic Synergy installation area, you would need to change the directory to *CCM_HOME*`\etc`.

Default text editor

Instructions for editing text files are given using Notepad™, which is the Telelogic Synergy default text editor. If you change text editors, substitute the appropriate command. See Telelogic Synergy Help for instructions on changing your text editor.

New in Telelogic Synergy release 7.0

This section describes the new features in 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 Web mode. Users who need administration capabilities or other advanced features can use traditional mode instead. Traditional mode behaves as it did in Synergy 6.5.

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

Users will need to use one of the 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 Web mode and traditional mode.
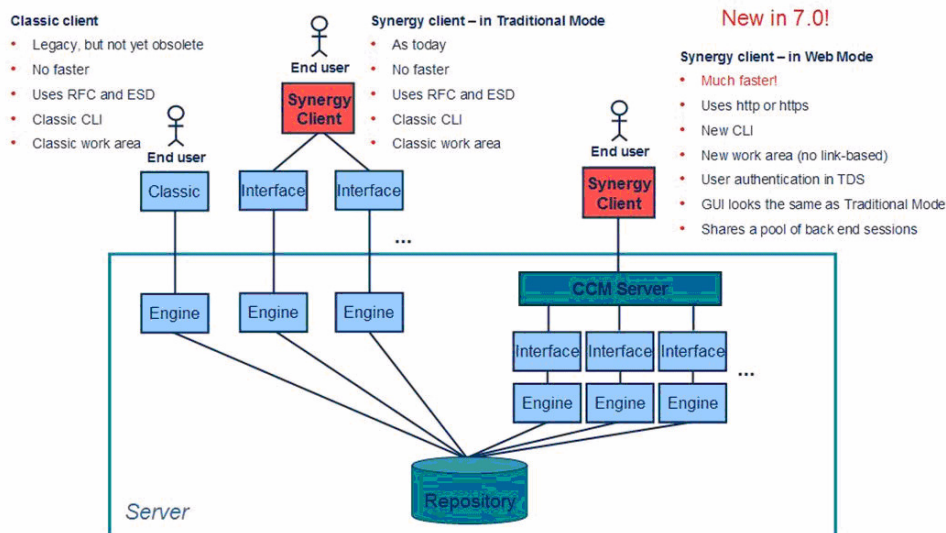
Web mode clients connect to a Telelogic Synergy Web server via HTTP. The Telelogic Synergy server manages a pool of back-end sessions, which all run on the server system.

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 31.

- **Authentication**—Web mode users are authenticated via Telelogic® Directory Server™ (TDS). Telelogic Synergy can share a single TDS 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.* All documents are located 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, 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, in **Server**, type the CCM server URL.
  - To start a Telelogic Synergy CLI session in Web mode, type the CCM server URL with the -s argument.

    For example:

```
% ccm start -d \\vod\ccmdb\mydb -s http://vod:8400
```

- **Scripting**—Telelogic Synergy 7.0 introduces a new command line interface (CLI). Starting in release 7.0, the new CLI is referred to as the Telelogic Synergy CLI, and the original CLI is referred Classic CLI.

  - The new Telelogic Synergy CLI runs only in Web mode
  - The Classic CLI runs only in traditional mode.

  The new Telelogic Synergy CLI is not as complete compared to the Classic CLI, but 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 the *Readme* describes the new features in Telelogic Synergy, provides updates to the documentation, and contains sections on troubleshooting, contacting support, and known errors. Look in the *Readme* for the latest updates to the installation documentation.

The *Readme* is an HTML document available on the product DVD and on the [Telelogic Synergy Support Web site](). The *Readme* is also 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 the Help.

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*

The General System Administrator is responsible for maintaining non-specific areas of the Telelogic Synergy installation area. General administrative tasks include the following:

- "Telelogic License Server installation" on page 12
- "Add users to a Telelogic Synergy database" on page 12
- "Customize the user's environment" on page 14
- "Set and change default settings" on page 14
- "Configure for trusted users" on page 17
- "Configure for remote execution" on page 18
- "Manage audit files" on page 21
- "Monitor product usage" on page 21
- "Monitor the services" on page 23
- "Other services" on page 25
- "Monitor output to log files" on page 25
- "Set up databases for read security" on page 27
- "Troubleshooting" on page 28

Telelogic License Server installation

The Telelogic® License Server™ installation is described in the *Telelogic Lifecycle Solutions - Licensing Guide*. See this document for step-by-step instructions.

Add users to a Telelogic Synergy database

Each Telelogic Synergy database has a list of users. After you unpack a database from base.cpk, the list will contain suggestions of user roles that you might want to give to users of a database. Each user list needs to 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, make sure your email tool can recognize the OS user name and deliver mail to the appropriate address.

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 Telelogic Synergy administrator, to those who specifically need this level of access.

You must be working as the Telelogic Synergy administrator to perform this procedure.

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

The following steps describe how to add user names to your database.

1. Log on as the Telelogic Synergy administrator.

2. Start Telelogic Synergy on the database where you need to add user names.

   ```
   > ccm start /nogui /r ccm_admin -d database_path
   ```

3. Open the list of users.

   ```
   > ccm users
   ```

   You can add or remove users from this file, or change a user's role. To add a user, read through the user list, and then give users the appropriate role(s).

   Additionally, you can add comments and blank lines.

   The list of users will look similar to the following:

   ```
   user john = build_mgr developer;
   user sue  = ccm_admin developer;
   user mary = writer developer;
   user joe  = developer;

   #testing group
   user bill = tester;
   user tom  = tester;
   user linda= tester;
   user ann  = tester;
   user bob  = tester;

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

   In the example above, *john*, *sue*, *mary*, and *joe* are the users' logon names. *sue* has the roles of *ccm_admin* and *developer*, *john* has *build_mgr* and *developer* roles, *mary* has *writer* and *developer* roles, while *joe* 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.

4. Stop the Telelogic Synergy session.

   ```
   > ccm stop
   ```

5. Log off as the Telelogic Synergy administrator.

> **Note** Users who will run Web mode sessions must be added to TDS as well as the Telelogic Synergy databases. See the *Telelogic Directory Server Administration Guide*.

Customize the user's environment

The following sections describe how to customize user environments to run Telelogic Synergy efficiently.

Set and change default settings

You can customize settings for Telelogic Synergy options and for database options. Some of the settings can be modified by users and some can be modified by the *CM administrator* only.

In general, if there is a conflict between a user's personal settings and system settings, the personal settings override the system settings.

Change personal settings for Telelogic Synergy Classic

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

ccm.ini

Initialization files (e.g., users' `ccm.ini` files) are usually the files used to customize defaults. The personal `ccm.ini` file is located in the **%**USERPROFILE**%** directory.

If you start Telelogic Synergy Classic by adding `/f filename` to the `ccm start` command, Telelogic Synergy checks the file specified by the `/f` switch instead of the `ccm.ini` file in the **%**USERPROFILE**%** directory.

> **Note** The `ccm set` command overrides any settings in the `ccm.ini` file.

Additionally, you can use `/f` to set up multiple shortcuts to start Telelogic Synergy sessions with different settings on different databases, or to start different releases of Telelogic Synergy.

You can change GUI settings in the `ccm.ini` file or in the **Object Color Options** dialog box. Refer to Telelogic Synergy Classic Help for instructions on setting GUI options in either place.

See Telelogic Synergy CLI Help for information about default Telelogic Synergy options and settings.

ccminit

The `ccminit` file lists Telelogic Synergy Classic commands that are executed at startup.

Change personal settings for Telelogic Synergy

Telelogic Synergy users can use the settings in the `ccm.user.properties` file to set their own defaults.

ccm.user.properties

This file provides local workstation settings, such as startup options for Telelogic Synergy. Most user settings can also be configured using the **Options** dialog box. This file is located in the **%USERPROFILE%** directory.

Change system settings for Telelogic Synergy Classic

ccm.ini

Telelogic Synergy Classic checks the `ccm.ini` file located in the installation area for system-wide settings. This file is located in the CCM_HOME\etc directory.

Change system settings for Telelogic Synergy

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

ccm.ini

Telelogic Synergy checks the `ccm.ini` file located in the installation area for system-wide settings. This file is located in the *CCM_HOME\etc* directory.

ccm.properties

This file provides system-wide settings for Telelogic Synergy, such as default tools. Settings in this file can be overwritten by the settings in the `ccm.user.properties` file. This file is located in the **%USERPROFILE%** directory.

ccm.server.properties

This file provides settings for tuning the server for Telelogic Synergy This file is located in the *CCM_HOME\etc* directory.

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. Set this option to an internal email address so that your company's Telelogic Synergy experts can review end-user requests to ensure they are valid and do not contain company-confidential information before passing them on to IBM Support.

  See "Contacting IBM Rational Software Support" on page 10 for more information.

- **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**—Host and port where the CCM server is running.

- **TELELOGIC_DIRECTORY_SERVER**—Host and port where TDS is running.

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

Configure for trusted users

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 logon 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.The 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 behaves like non-trusted clients.

Telelogic Synergy Command Line Interface (CLI):
If the client is trusted, the CLI does not prompt for the password.

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

Telelogic Synergy:
The logon pane does not display **UserID** or **Password** (like Telelogic Synergy on UNIX). 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 behaves like non-trusted clients.

Configure for remote execution

If you want Telelogic Synergy to run remote operations, you must specify the remote execution method to use. Because a different machine might use a different protocol, you must configure Telelogic Synergy for proper remote execution on your system.

Telelogic Synergy uses a configuration file, `remexec.cfg`, to determine the method it will use for remote execution on a specific host.

You must be working as *local administrator*, and your `PATH` variable must contain `CCM_HOME\bin` to perform this procedure.

1. Log on as *local administrator*.

2. Change to the directory where the `remexec.cfg` file resides.

3. Launch your editor, and then edit the `remexec.cfg` file.

   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_rem` 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_rem`. A list that does not start with a dash means that only the specified environment variables will be passed by `ccm_rem`. 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, ..., envn`).
- All the environment variables except the listed ones (`-env1, env2, ... envn`) 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 are passed when `ccm_rem` is used as the remote execution method.

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

```
DEFAULT DEFAULT ccm_rem %hostname [%shell /C] %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 "remexec_method" on page 20 for an example of a shipped `remexec.cfg` file.

4. Save, and then exit from this file.

5. Log off from *local administrator*.

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.

Sample methods

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

```
DEFAULT DEFAULT %DEFAULT -COMSPEC ccm_rem %hostname [
%shell /C ] %cmdline
```

In Windows environments, not all machines have their operating system installed at the same location. The `COMSPEC` environment variable points to the command prompt of the local system. Therefore, do not pass the `COMSPEC` environment variable if the executed command is a batch file.

Customize remote execution tools

Telelogic Synergy uses `ccm_rem` as the default tool to execute remote commands between two Windows machines. If you decide to use your own tool, or if you need to run remote execution to a UNIX machine, you need to change the `remexec.cfg` file.

1. Develop your own tool to have similar functionality as `ccm_rem`, 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.
    •   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 it to use your tool by changing the following line in the `remexec.cfg` file.

    Change this line:

    ```
    DEFAULT DEFAULT ccm_rem %hostname [ %shell /C ] %cmdline
    ```

    Make the following changes:

    ```
    DEFAULT DEFAULT my_rexec_tool %hostname %cmdline
    ```

Manage audit files

The audit log contains security-related messages from all Telelogic Synergy processes accessing each database.

One audit log is maintained per database.

The default location for the `audit_log` file is *database_path*`\audit_log`.

Monitor product usage

The following subsections describe ways to monitor product usage. The commands that actually do the monitoring are described later, starting in "Administrative Commands" on page 91, but each of the following subsections contain references to the pages where the command information is located.

Users

You can monitor a variety of Telelogic Synergy processes by using the `ccm monitor` command.

The `ccm monitor` command provides a network-wide view of Telelogic Synergy users and processes. It provides a list of the user, process type, host name, process ID, port number, and the associated database path.

For a complete description of all command parameters, including usage examples, refer to "ccm monitor" on page 101.

Process status

The `ccm ps` command provides network-wide process status information of the various Telelogic Synergy users and processes. It is a maximum verbosity version of the `ccm monitor` command.

For a complete description of all command parameters, including usage examples, see "ccm ps" on page 104.

Database server usage

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

For a complete description of all command parameters, see "ccmsrv status" on page 161. For a usage example, see "Display status of a database server" on page 44.

Broadcast system messages

The `ccm message` command enables you to communicate with specific users or sets of users for administration purposes. You can send a message to an individual Telelogic Synergy user on a specific Telelogic Synergy database, or even on a specific Telelogic Synergy host.

For a complete description of all command parameters, including usage examples, see "ccm message" on page 99.

Monitor the services

Telelogic Synergy uses the following services that are started automatically:

- Engine startup service is called `ccm_ess`.

- Router service is called `ccm_router`.

- Object registrar service is called `ccm_objreg`.

- Help service is `ccm_server`.

All of the services display with a version number. For example, for Release 7.0, you will see the following service names: `ccm7.0_ess`, `ccm7.0_router`, `ccm7.0_objreg`, and `ccm7.0_ccm_server`.

Telelogic Synergy supports all services 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, located in the `CCM_HOME\etc` directory. 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.

ccm_ess

To use an engine process, you must have local logon permission. You must run one `ccm_ess` service process per engine machine. The `ccm_ess` service starts automatically upon installation and reboot. It registers with the router. When you start a Telelogic Synergy session, the interface process requests that `ccm_ess` start the engine.

This service runs as the Telelogic Synergy administrator.

ccm_router

You must run one router process per network installation. The router starts automatically upon installation and reboot.

Note that you must specify the same router host and port for each Telelogic Synergy installation that is located on the same local network. You will do this when you install Telelogic Synergy. If you need to refer to this information, look in CCM_HOME\log\setup.log.

The router is a central point for registering and requesting information about Telelogic Synergy processes. It does not explicitly route messages between processes. Rather, it supplies a process with the addresses of other processes, and allows the individual processes to independently communicate among themselves.

The log file for the router service is CCM_HOME\log\ccm_router.log.

This service runs as system user.

Note You may be running the router on a UNIX server.

ccm_objreg

You must run one object registrar process per database host. The object registrar process forwards notifications from one session to another as modifications are made to Telelogic Synergy databases. This allows each user interface to update its views as other programs modify the data it displays.

An object registrar must execute at all times on each host with an active Telelogic Synergy database, as determined by the object registrar host name property of each database. The object registrar starts automatically upon installation and reboot.

The object registrar host name of a database defaults to the host on which the database server resides, but you can change the name by using the ccmdb info command, which is described in "ccmdb info" on page 127.

The default log file for the object registrar is CCM_HOME\log\ccm_objreg.log.

This service runs as system user.

ccm_server

Telelogic Synergy uses a Web server to serve Telelogic Synergy Web mode sessions and help requests from users' sessions. The CCM server runs on the same system as the router. For more information, see "ccm_server" on page 106.

Additionally, Telelogic Synergy uses this Web server to provide client downloads and to distribute patches for Windows clients.

Other services

In addition to services that are started automatically, two other services are required. These are Informix® services.

Informix services

Two Informix services are required per database server installation:

• Informix Dynamic Server

• Informix Message

You should start and stop the Informix services by using the Telelogic Synergy administrative commands, `ccmsrv online` and `ccmsrv offline`, rather than using the service manager.

This service runs as user *informix*.

For more information, see "ccmsrv offline" on page 157 and "ccmsrv online" on page 158.

Monitor output to log files

The Telelogic Synergy services write their output to log files stored in the following locations:

• The router, object registrar, and CCM server write output to log files in `CCM_HOME\log`

• The engine startup writes output to the Event Log.

• The Telelogic License Server log file is typically located in `c:\Program Files\Telelogic`.

The log files for each service reside on the machine where the service is running. Therefore, if one of the services did not start or it stopped running, the appropriate log file holds the information that usually explains the reason for the failure.

Customer feedback module 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.

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:

- An object that has no read access restrictions to its source can be accessed by any user.

- An object that has one or more groups defined for read access only allows 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.

- An object with the highest level of security (no access to the source) 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.

Troubleshooting

The following sections describe some problems you might encounter while using Telelogic Synergy and how to solve the problems. To read technical support's technical bulletins, go to the <u>Telelogic Synergy Support Web site</u>.

- **Services Terminated**

    Problem: The engine startup service, router or object registrar terminated abnormally.

    Solution: Any Telelogic Synergy interfaces that are still running will issue a pop-up warning message(s) and suspend operation until the service(s) are restarted. Restart the service, using the **Services** dialog box on the appropriate machine. After you restart the service(s), the user processes resumes operation.

- **ccm monitor Command Fails**
    Cannot locate *daemon_name* **message**

    Problem: After you issue the `ccm monitor` command, you receive a message similar to the following:

    ```
    Cannot locate router.
    Please notify your administrator that router must be run.
    ```

    Solution: The router is not running. Start the router from the **Services** dialog box, on the router host.

- **Error Received When Trying to Start a Session.**

    Problem: When trying to start a session, you receive the `Database type not licensed` error message.

    Solution: Check the following:

    1. Ensure that *ccm_home*`\etc\license_data.txt` contains *port@host*.

    2. Use the LMTOOLS program on the license host to verify that it is running.

        See the *<u>Telelogic Lifecycle Solutions - Licensing Guide</u>* for details on the Telelogic License Server commands.

    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 Lifecycle Solutions - Licensing Guide](#)*.

- `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)`

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 online 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. One 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 "Change personal settings for Telelogic Synergy" 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 installation program and runs as a service.

Start or stop the CCM server manually using the **Windows Services** dialog box.

The CCM server runs on the port that you specify during installation. By default, it is 8400.

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 `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 does 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 two back-end sessions in parallel, and when they are available, if there is still sufficient demand, it starts two 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. To start a session, Telelogic Synergy Web mode users need to specify the server URL.

- `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 the services" on page 23.

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 shuts down existing sessions on that database as they finish processing requests. Because back-end sessions are reused by different Web mode users, restarting a Telelogic Synergy GUI Web mode session 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 about this command, see "ccmdb refresh" on page 138.

Manage log files

The CCM server log is contained in the `synergy_host_port.log` file, located in the log directory of the Telelogic Synergy server installation, for example, `boon.8400.54123`. For more information, see "Other services" on page 25.

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 `log` directory of the Telelogic Synergy server installation. 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 good practice to keep them for some time period after moving them in case you need to investigate an issue for the 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 Server Administration*

Telelogic Synergy commands are provided for managing and manipulating Informix databases, but you do not need to have knowledge of Informix products to use these commands.

The database server administrator is responsible for all aspects of the database server, including the following major activities:

- "Informix database server" on page 36

- "Create the database server" on page 39

- "Use the database server commands" on page 44

- "Archive and restore a database server" on page 49

- "Logical log files" on page 58

- "Restore a database server from archive with logical log backup" on page 62

- "Obtain detailed Informix messages" on page 64

- "Informix tuning guidelines" on page 65

This section describes how to start the database server network services and how to access database server messages.

Informix database server

The Telelogic Synergy database uses the Informix server to store its metadata. The terms *database server*, *online server*, *Informix server*, *online Dynamic Server*, and *Informix server* are used interchangeably in this document.

An Informix server consists of four dbspaces: `rootdbs`, `log`, `tempdbs`, and `ccm`. Each dbspace serves a specific purpose and requires a minimum of one chunk file. (A chunk file is a physical disk space.) At least four chunk files are required for a server.

rootdbs

Informix servers use the `rootdbs` dbspace to store system data, physical logs, initial logical logs, and temporary data. It requires a chunk file, ROOTPATH, to store its data. The ROOTPATH and the size of it is specified by the user when an Informix server is created.

log

The `log` dbspace is used to store logical logs that the Informix servers use to store database changes. The `log` dbspace requires a chunk file that will be specified by the user during server creation. The size is 1 MB per user. You can override the calculated size by specifying a size larger than the default when prompted by the server creation program.

tempdbs

The `tempdbs` dbspace is used to store temporary tables and sort files. Decision support queries usually create and access large temporary files, so placement of temporary dbspace is a critical factor for performance.

ccm

The `ccm` dbspace is used to store data for Telelogic Synergy databases. A single chunk file is used initially. The user can specify the path and the size of the chunk file.

Dbspace chunk files

Chunk files are physical disk spaces used by dbspaces in Informix Dynamic servers. Each dbspace must consist of at least one chunk file.

Note Once you use a chunk file in a database server, you cannot move it. If you move it, the database server will no longer function. Consequently, the database server might lose data.

Telelogic Synergy databases are made up of two parts:

• File system—Uses an NTFS partition. A Telelogic Synergy database is referred to by the UNC representation of the directory path.

• Metadata—Stored in a database server, specifically the Informix Dynamic Server.

As Telelogic Synergy databases grow, the capacity to house the metadata must also grow. The Telelogic Synergy administrator is responsible for managing the growth of the database server. The administrator can monitor the status of a database server by using the `ccmsrv status` command (see "ccmsrv status" on page 161). When you need to expand the capacity of a database server, use the `ccmsrv expand` command (see "ccmsrv expand" on page 154) to perform this operation.

Note Do not perform system backups of chunk files. The recommended way to back up Telelogic Synergy databases is discussed in "Telelogic Synergy database backup and recovery" on page 71.

It is more efficient to archive the database server, as described in "Archive the database server" on page 52, rather than backing up chunk files.

If you must back up chunk files as part of a system backup, you must take the database server offline to avoid serious data corruption.

In a Telelogic Synergy database server, there are four dbspaces: `rootdbs`, `temp`, `log`, and `ccm`.

The `rootdbs` and `log` dbspaces contain system data, and are not used to store Telelogic Synergy database metadata. The `ccm` dbspace stores the Telelogic Synergy database metadata.

You can specify the size of the ccm dbspace during main or additional server creation when you install Telelogic Synergy. The recommended value is based upon the number of users that you configure for the database server. This initial value is only a rough estimate, and will not suit the needs for all development teams. The Telelogic Synergy administrator should monitor the usage of this dbspace and expand it if necessary.

Keep in mind the following when expanding the ccm dbspace:

* Be generous. You'd rather give more space than needed if at all possible.

* Do not use an existing file. The content of the file is re-initialized each time it is used for a dbspace.

Database server states

As the database server administrator, you manage the creation, modification, and deletion of your database server(s). These operations require the database to be in certain states: either in the online, offline, or quiescent state.

* Online—Database server is available to all users who connect to it.

* Offline—Database server disconnects users currently connected to the server and renders it unavailable to all users.

* Quiescent—Users are disconnected, but the administrator can run administrative commands.

  The quiescent state is mainly used for database server administration and should not be used for any other purpose.

Create the database server

Before you create the database server, read the "Preinstallation" chapter in the *Telelogic Synergy Installation Guide for Windows*.

Create the Informix Dynamic Server

Note Installing a main or additional server creates and starts the Informix Dynamic Server.

You do not need to use the `ccmsrv create` command to create a server. Use this command only if you delete an online server by using the `ccmsrv delete` command, then want to create a new online server. Additionally, use the `ccmsrv create` command if you chose not to create a server during installation, or if the database server creation failed during installation.

Install only one database server on a computer.

The `ccmsrv create` command creates an Informix Dynamic server to accommodate one or more Telelogic Synergy databases on a specific machine.

When you create a new Informix Dynamic server, a file that resides in the `CCM_HOME\informix\etc` directory is generated and/or updated. This file is called the configuration file. Additionally, the registry is updated.

The configuration file is named `onconfig` and contains a number of important parameter settings for the server. This file is essential for certain Telelogic Synergy commands to work properly and, under normal circumstances, should not be modified manually.

Note The names of your chunk files paths must contain fewer than 66 characters.

You must be an *Informix-Admin* group member and working as *local administrator* to perform this command. You must run the `ccmsrv create` command on the machine where Informix was installed.

Run the ccmsrv create command

You will be prompted to provide the following information:

- maximum number of users
- `root` dbspace chunk path and size
- `log` dbspace chunk path and size
- `temp` dbspace chunk path and size
- `ccm` dbspace chunk path and size

The example shows the output you will see when you create a database server without using a parameter file.

```
> ccmsrv create

    Please enter the maximum number of users [20] 10

    Please enter the primary chunk path for the rootdbs dbspace
    Hit Enter as default or type in different path
    [c:\ifmxdata\rootdbs.000]
    Size of the root chunk file in Mbytes [10]

    Please enter the primary chunk path for the temp dbspace
    Hit Enter as default or type in different path
    [c:\ifmxdata\tempdbs.000]
    Size of the temp chunk file in Mbytes [10]

    Please enter the primary chunk path for the log dbspace
    Hit Enter as default or type in different path
    [c:\ifmxdata\log.000]
    Size of the log chunk file in Mbytes [8]

    Please enter the primary chunk path for the ccm dbspace
    Hit Enter as default or type in different path
    [c:\ifmxdata\ccm.000]
    Size of the chunk file in Mbytes [20]
    *********************************************
     Database Server Configuration

     Maximum number of Users: 10

      Dbspace Name:           rootdbs
      Root Chunk Path:        c:\ifmxdata\rootdbs.000
      Root Chunk Size:        10 MBytes

      Dbspace Name:           temp
      Temp Chunk Path:        c:\ifmxdata\tempdbs.000
```

```
       Temp Chunk Size:        10 MBytes

       Dbspace Name:           log
       Log Chunk Path:         c:\ifmxdata\log.000
       Log Chunk Size:         10 MBytes

       Dbspace Name:           ccm
       Ccm Chunk Path:         c:\ifmxdata\ccm.000
       Ccm Chunk Size:         20 MBytes
*******************************************


Would you like to create the database server? (Y/N) [Y]

Initializing Disk Space and Shared Memory, please wait ...
..
Processing temp, log and ccm dbspaces, please wait ...
.................
Building sysmaster and sysutils databases, please wait ....
```

Use a file to specify parameters

A parameter file is a file that you create, based on the following template. It contains all of the information that Informix needs to create the database server.

The following is an example of a parameter file.

```
************************************************************
# Maximum Number of Users
USERS               20
# Root Dbspace Parameters
ROOT_CHUNK_PATH     D:\ifmxdata\rootdbs.000
ROOT_CHUNK_SIZE     20
# Temp Dbspace Parameters
TEMP_CHUNK_PATH     D:\ifmxdata\tempdbs.000
TEMP_CHUNK_SIZE     20
# Log Dbspace Parameters
LOG_CHUNK_PATH      D:\ifmxdata\log.000
LOG_CHUNK_SIZE      20
# Dbspace Parameters
CCM_CHUNK_PATH      D:\ifmxdata\ccm.000
CCM_CHUNK_SIZE      40
************************************************************
```

The following example shows how to create a database server using a parameter file (assume you called it tonnyx.dat).

> ccmsrv create */file tonnyx.dat*

/file tonnyx.dat specifies the name of the parameter file.

The above parameter file creates a database server with a maximum of 20 users (the default) and with chunk files created under D:\.

The results of this command are as follows:

```
************************************************************
Database Server Configuration of
Maximum Number of Users:20
Dbspace Name:       rootdbs
Root Chunk Path:    D:\ifmxdata\rootdbs.000
Root Chunk Size:    20 MBytes
Dbspace Name:       log
Log Chunk Path:     D:\ifmxdata\log.000
Log Chunk Size:     20 MBytes
Dbspace Name:       ccm
Ccm Chunk Path:     D:\ifmxdata\ccm.000
Ccm Chunk Size:     40 MBytes
************************************************************
```

After you indicate that you want to create the database server by using a parameter file, you are asked if you are ready to create the database server. Before proceeding, check your values.

If you have typed any incorrect values, quit by typing **N**, and then start again, typing the correct values. When your values are correct, create the database server.

```
Would you like to create the database server? (Y/N) [Y]
```

A Y response uses the previous configuration to create the database server. If you choose to create the database server, type Y. A message similar to the following appears:

```
*********************************************************
Initializing Disk Space and Shared Memory, please wait...
....
Processing log and ccm dbspaces, please wait...
...........................
*********************************************************
```

If your database server is created successfully and brought online, you will not receive a message. If the database server is not created, an error message explains why.

Use the database server commands

The following sections describe how to use the database server commands. Pay special attention to the "Preinstallation" chapter in the *Telelogic Synergy Installation Guide for Windows*, and ensure that you have completed the requirements before attempting to use a command.

Bring a database server online

The ccmsrv online command brings the database server online. The database server is online as soon as you finish installing a Telelogic Synergy main server, and remains online even if the computer is rebooted. If the database server is taken to a state other than online, you can use the ccmsrv online command to bring the database server online. For more information see "ccmsrv online" on page 158.

You must be an *Informix-Admin* group member and working as *local administrator* to perform this command. You must run the ccmsrv online command on the machine where Informix was installed.

- Bring the database server online.

  ```
  > ccmsrv online
  ```

Display status of a database server

The ccmsrv status command displays the current status of the database server. For more information see "ccmsrv status" on page 161.

You must run this command on the machine where the database server resides.

- Request the status of all options on the database server named joe.

  ```
  > ccmsrv status /all

  *** database server joe ***
  server number:        0
  state:                online mode
  maximum users allowed: 100
  number of users:      4
  archive device:       NUL
  network service:      turbo

  --- logical logs ---

  log size:             1024 KBytes
  maximum logs allowed: 38
  total number of logs: 34
  number of free logs:  0
  ```

```
--- dbspace rootdbs ---

chunk files:
h:\ifmxdata\rootdbs.000  102400 Kbytes total,  89744 Kbytes
free.
total free space:        89744 Kbytes

--- dbspace log ---

chunk files:
h:\ifmxdata\log.000  51200 Kbytes total,  16172 Kbytes free.
total free space:        16172 Kbytes

--- dbspace ccm ---

chunk files:
h:\ifmxdata\ccm.000  819200 Kbytes total,  624540 Kbytes free.
total free space:        624540 Kbytes

--- dbspace temp ---

chunk files:
h:\ifmxdata\tempdbs.000  102400 Kbytes total,  102188 Kbytes
free.
total free space:        102188 Kbytes

Database List:
Informix Dbname      Version    Database Path
=================== ========== =======================
agincourt@irvine5    7.0        \\irvine5\devccmdb\agincourt
ccm_nt@irvine5       7.0        \\irvine5\devccmdb\ccm_nt

There is a total of 2 databases.
```

Modify parameter values for a database server

The `ccmsrv modify` command enables you to modify the number of users allowed on a database server. For more information see "ccmsrv modify" on page 156.

Note If you change the *max_users* option, your database server requires more memory.

You must be an *Informix-Admin* group member and working as *local administrator* to perform this command. You must run the `ccmsrv modify` command on the machine where Informix was installed.

• Change the maximum number of users allowed in the database.

```
> ccmsrv modify /user max_users
```

`/user max_users` specifies the maximum number of users allowed in the database.

Put a database server in quiescent state

The ccmsrv quiescent command puts the server in a quiescent state so that you can perform administrative tasks. For more information see "ccmsrv quiescent" on page 159.

You must be an *Informix-Admin* group member and working as *local administrator* to perform this command. You must run this command on the machine where the Informix server resides.

• Put the database server in a quiescent state.

```
> ccmsrv quiescent
```

Take a database server offline

The `ccmsrv offline` command allows you to take the database server offline.

You must be an *Informix-Admin* group member and working as *local administrator* to perform this command. You must run this command on the machine where the Informix server resides.

1. Send out a message to all users of the `tstgonzo` database that you are about to take the server offline.

   ```
   > ccm message /database "?tstgonzo" "Taking server offline in 15
   minutes. Close all sessions!"
   ```

2. Shut down all databases. (In this example, there is only one database.)

   ```
   > ccmdb shutdown \\sue\ccm_db\tstgonzo
   ```

3. Take the database server offline.

   ```
   > ccmsrv offline
   ```

Delete a database server

This operation removes the parameter file, the record of the specified server in the `sqlhosts` registry entry, and all chunk files.

Caution When you delete a database server, the Informix data portion of all Telelogic Synergy databases under this database server are destroyed. However, the file system portion is not destroyed. Therefore, you should back up all the database server's databases (e.g., using `ccmdb backup`), and then in most cases delete the databases (e.g., using `ccmdb delete`) one by one before deleting the database server. Deleting the databases prior to deleting the database server removes all parts (file system and metadata) of each database.

You must be an *Informix-Admin* group member and working as *local administrator* to perform this command. You must run this command on the machine where the Informix server resides.

- Delete the database server.
  ```
  > ccmsrv delete
  ```

Increase the dbspace of the database server

Informix allocates space for its databases. You can increase the allocated dbspace capacity by using the `ccmsrv expand` command. This command expands the dbspace of an Informix server by adding a chunk file. This is useful when you want to increase the size for a server that is running out of room in a dbspace.

Caution Do not use an existing file.

You must be an *Informix-Admin* group member and working as *local administrator* to perform this command. You must run this command on the machine where the Informix server resides.

• Assume that you want to increase the `ccm` dbspace by 100 MB, and you want to use the ccm chunk path
`c:\informix_chunkfiles_path\ccm_2.dbs`.

```
> ccmsrv expand /size 100000 /path \
c:\informix_chunkfiles_path\ccm_2.dbs
```

`/size 100000` specifies by how much you want to expand the chunk size in Kbytes.
`/path c:\informix_chunkfiles_path\ccm_2.dbs` specifies the absolute path to the **new** chunk file. This **must** be a new file on an NTFS partition.

Archive and restore a database server

The `ccmsrv archive` and `ccmsrv restore` commands are presented together to give a clear understanding of how you can create and restore archives for a database server. This high-speed backup command is an alternate database backup strategy to the `ccmdb backup` command. Ensure that you understand the following requirements before using the commands.

1. You will perform the database server archive/restore procedures at the online server level, not at the individual database level. Therefore, there is no way to restore a specific database. You can only restore the entire online server. As a side effect, all other databases in the same database server reverts back to the latest archive after the restore.

2. Carefully read the following information, and then devise an archiving plan for your environment. Test your plan to ensure that it will not affect your current production environment and that the archive works.

3. Coordinate any archive or restore procedures with the local system administrator to verify that the file system part of the Telelogic Synergy database is backed up properly and in sync with the database server archive. When the archive is in progress, users may still be editing in the file system while the database activities are frozen. This can cause data inconsistencies.

Note You must restore from both database server and file system archives during a restore procedure. If they are not in sync with each other, you may end up with data inconsistencies.

Reasons to archive a database server

This procedure helps prevent unexpected loss of data due to abnormal circumstances. Some examples of abnormal circumstances include:

- Disk failure

- Machine failure

- Software failure, including system and application software packages

- User error, such as a user accidentally deleting a project

Note Back up databases using the `ccmdb backup` command, (see page 115 and page 71). Archive a database only when using the `ccmdb backup` command is not possible or practical because of the database size.

When to archive a database server

Typically, you should plan on performing some level of archiving daily. Under extreme circumstances, you may even want to perform archiving more than once a day. (For example, you might want to archive files three times a day prior to a major release or during a major bug fix phase.)

The three levels of archiving are described as follows:

- Level 0 is the baseline archive.

- Level 1 includes all changes since the last Level 0 archive.

- Level 2 includes all changes since the last Level 0 or Level 1 archive.

The following is an example of an incremental archiving strategy. Each archive level is performed according to the following schedule:

- Level 0 archive is created once every nine days.

- Level 1 archive is created once every three days except when a lower level archive is performed.

- Level 2 archive is created once a day except when a lower level archive is performed.

   Note In the table below, numbers 1 through 11 denote the tape numbers.

Levels	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu
Level 0:	1									10	
Level 1:				4			7				
Level 2:		2	3		5	6		8	9		11

Archive media

You must have archive tapes to restore the online server. To restore, use your archive plan to determine what tapes you need. For example, if you used the sample plan provided in the previous table, the following table shows the tape requirements for each day in the archive plan.

Day	Tapes Needed
Tue	Tape 1
Wed	Tapes 1 and 2
Thu	Tapes 1 and 3
Fri	Tapes 1 and 4
Sat	Tapes 1, 4, and 5
Sun	Tapes 1, 4, and 6
Mon	Tapes 1 and 7
Tue	Tapes 1, 7, and 8
Wed	Tapes 1, 7, and 9
Thu	Tapes 10
Fri	Tapes 10 and 11

Archive the database server

The `ccmsrv archive` command allows you to archive your database server.

Ensure that users working outside of Telelogic Synergy are working in their work areas. Before you archive the database server, ask users to sync (reconcile) their work areas with the database. See the Telelogic Synergy Help for instructions on how to sync.

You must be an *Informix-Admin* group member and working as *local administrator* to perform this command. You must run this command on the machine where the database server resides.

This example creates a Level 0 archive using the tape device `\\.\TAPE0` with a 1 GB tape for the database server.

1. Insert the tape.

2. Type the archive command.

    ```
    > ccmsrv archive /level 0 /size 1000000 /device \\.\TAPE0
    ```

    `device` specifies the archive device, `\\.\TAPE0`
    `level` specifies the archive level, `0`
    `size` specifies the size of the archive device, in kilobytes, `1000000`

    The size of the tape device you specify should match the capacity of the tape.

    You will see a message similar to:

    ```
    Archive Level:  0
    Archive Device: \\.\TAPE0
    Device Size:    1000000 Kbytes
    Device Label:   level0_1115_1996_1107
    Are you sure you want to continue? (Y/N) [Y]
    Please mount tape 1 on \\.\TAPE0 and press Return to continue
    ...
    100 percent done.
    Please label this tape as number 1 in the arc tape sequence.
    This tape contains the following logical logs:
    8
    Program over.
    A copy of the database server config file has been saved as
    D:\ccm\informix\ETC\ONCONFIG.level0_1115_1996_1107
    Database server archive succeeded.
    ```

3. Label the tape clearly.

    This step is important. The success of the restore procedure depends on the accuracy of the labels.

When to restore a database server

If you experience any of the following problems, it may be time to perform a restore procedure:

1. One or more of your databases was corrupted so severely that you want to go back to the last archive.

2. The disk containing chunk files for any of the dbspaces for a database server experiences media failure.

3. You want to replace the disk containing chunk files for any of the dbspaces for a database server.

If you are unsure that this is the correct procedure, before proceeding, contact IBM Rational Software Support.

If you restore from an archive, the database server is restored to the state when the last archive level was performed. For example, if you restore from an archive completed the previous night, your database server is restored to the state when the archive took place. This also means that all changes made after the previous night's archive are lost unless your system administrator performed a logical log backup. See "Restore a database server from archive with logical log backup" on page 62.

Before you can restore a database server, ensure that the system configuration, the relevant database server parameter file, and, **most importantly**, the archive tapes are correct.

System configuration

System configuration includes disk path, chunk file size, shared memory capacity, etc. The system configuration must be identical to or larger than the time the last Level 0 archive was created. For instance, if you are restoring from tape to replace a bad disk, the new disk must have the same path for those directories that were used for the chunk files for the dbspaces of the database server, and the sizes of those drives must be at least as large as before.

Configuration file

The configuration file, `CCM_HOME\informix\etc\onconfig`, must be identical to the configuration file used to perform the Level 0 archive. A copy of this file is always saved when a Level 0 archive is performed. If this file is changed for any reason, perform a Level 0 archive immediately.

Restore a database server

Use the `ccmsrv restore` command to restore a database server.

You must be an *Informix-Admin* group member and working as *local administrator* to perform this command. You must run this command on the machine where the database server resides.

1. Verify the system configuration (see "System configuration" on page 53) and the configuration file (see "Configuration file" on page 53).

2. If possible, view the status of the database server.

    ```
    > ccmsrv status
    ```

    The output of this command is:

    ```
    *** database server tonnyx ***
    server number:      1
    state:              online mode
    maximum users allowed:10
    number of users:    1
    archive device:     \\.\TAPE0
    network service:    turbo
    Database List:
    ```

3. The server must be offline before you begin the restore process. Take the server offline.

    ```
    > ccmsrv offline
    ```

4. Verify that the server is offline.

    ```
    > ccmsrv status
    ```

    If the server is offline, you see a message similar to the following:

    ```
    Database server is Off-Line64
    ```

You now can restore the database server from tape. The following section describes the restore procedure.

Restore the Database Server from Archive

If you archived to tape, insert the most recent level 0 tape before you run the
`ccmsrv restore` command. If you used a directory as the archive device, you
need to perform some manual steps to simulate an archive device. The manual
steps are described below.

1. Restore the database server from an archive tape.

```
> ccmsrv restore /device \\.\TAPE0
```

`\\.\TAPE0` is a tape device.

The following warning displays:

```
WARNING: this program will restore database server from an
         archive. All existing data will be destroyed.
```

When asked if you want to continue, type y.

Messages similar to the following appear on-screen:

```
Please mount tape 1 on \\.\TAPE0 and press Return to continue...
Archive Tape Information
Tape type:        Archive Backup Tape
Online version:   Informix Version 7.20.TC2
Archive date:     Mon Dec 02 08:51:17 2006
User id:          cougie
Terminal id:      ASAL
Archive level:    0
Tape device:      \\.\TAPE0
Tape blocksize (in k):  16
Tape size (in k):10240
Tape number in series:  1
Space to restore:1 [rootdbs       ]
2 [log            ]
3 [ccm            ]
Archive Information
Informix-OnLine Copyright (C)1999-2006 Informix Software, Inc.
Initialization Time     11/26/06 10:53:31
System Page Size        4096
Version                 4
Archive CheckPoint Time 12/02/06 08:51:19
Dbspaces
number    flags   fchunk  nchunks  flags  owner      name
1       1       1         1      N      informix    rootdbs
2       1       2         1      N      informix    log
3       1       3         1      N      informix    ccm
Chunks
chk/dbs   offset size   free   bpages   flags   pathname
11      0       2560   1246              PO-
D:\ifmxdata\rootdbs.000
```

```
22    0    2048   459           PO-  D:\ifmxdata\log.000
33    0    2560   1111          PO-  D:\ifmxdata\ccm.000
```

You will be asked if you want to continue the restoration.

```
Continue restore? (y/n)
```

Type y to continue.

2. You will be asked if you want to back up the logs.

```
Do you want to back up the logs? (y/n)
```

Type n.

3. You will be asked if you want to restore a level 1 archive.

```
Restore a level 1 archive? (y/n)
```

For this example, you need to restore incremental archives, so type y.

4. You will be asked to insert the tape containing your most recent level 1
   archive.

```
Ready for level 1 tape
Please mount tape 1 on \\.\TAPE0 and press Return to continue
...
```

You will see the information on the following page display on-screen.

```
Archive Tape Information
Tape type:       Archive Backup Tape
Online version: Informix-OnLine Version 7.20.TC2
Archive date:   Mon Dec 02 08:54:52 2006
User id:        cougie
Terminal id:    ASAL
Archive level:  1
Tape device:    \\.\TAPE0
Tape blocksize (in k): 16
Tape size (in k): 10240
Tape number in series: 1
```

5. You will be asked if you want to restore a level 2 archive.

```
Restore a level 2 archive? (y/n)
```

For this example, you need to restore incremental archives, so type y.

6. You will be asked to insert the tape containing your most recent level 2
   archive.

```
Ready for level 2 tape
Please mount tape 2 on \\.\TAPE0 and press Return to continue
...
```

You will see the following information on-screen.

```
Archive Tape Information
Tape type:      Archive Backup Tape
Online version: Informix-OnLine Version 7.20.TC2
Archive date:   Mon Dec 02 08:57:50 2006
User id:        sue
Terminal id:    ASAL
Archive level:  2
Tape device:    \\.\TAPE0
Tape blocksize (in k): 16
Tape size (in k): 10240
Tape number in series: 2
```

7. You will be asked if you want to restore the log tapes.

```
Do you want to restore log tapes? (y/n)
```

Type n.

8. The restoration finishes, and then you see the following message:

```
Program over.
Database server restored successfully.
```

9. Bring the database server online.

```
> ccmsrv online
```

Logical log files

Informix uses logical log files for data recovery and consistency. Logical log files store changes to the Telelogic Synergy database and are stored in the `log` dbspace. Each Informix server created by Telelogic Synergy tools contains a log dbspace. Depending on the configuration of the Informix server, the size of the dbspace and the number of logical log files stored in it may vary.

In an operational Informix server, logical log files receive logical log records that are generated from the following events:

- Structured Query Language (SQL) Data Definition Language (DDL) statements
- SQL Data Manipulation Language (DML) statements
- Changes to the Informix server configuration
- Checkpoint

If the Informix server needs to rollback a transaction, it uses the corresponding logical log record to revert the changes initiated by the transaction.

During the data restore operation, you can use logical log files to do the following:

- Roll forward transactions that took place after the last archive was performed.
- Perform a Fast Recovery following an unexpected shutdown.

  This is done automatically at start up.

Before performing a logical log backup, you must thoroughly understand what the commands do and do not do.

Note Devise a comprehensive backup plan, which should include a regular database archive/restore and the logical log backup/restore procedure. Test this backup plan before using it on the production Informix server, and constantly update and maintain the backup procedures.

You should have a high availability solution for the file system portion of your databases (i.e., Informix and the file system must be in sync at **all** times).

Back up logical log files

Logical log backups are used mainly to achieve high availability and reliability of the Informix server used by Telelogic Synergy as the RDBMS engine. Without logical log backups, you can restore your Informix server to the last archive, but all work done between the last archive and the time the Informix server was corrupted may be lost. However, if logical log backups are activated, you can recover the Informix server to the last committed transaction before the Informix server was corrupted.

Logical log files are filled with logical log records. As they are filled, they must be copied to a backup device (usually a tape drive). Logical log backup accomplishes the following:

• Stores the logical log records on the specified backup device so they can be used to roll forward transactions, if a data restore operation requests such actions to be taken.

• Frees logical log file space to receive new logical log records.

Backup device

The backup device is specified by the LTAPEDEV parameter in the Informix server parameter file. It is typically a tape drive. Alternatively, you can use a directory. If you specify a directory, it will be treated like a tape device (i.e., the directory must exist and be writable by members of the *Informix-Admin* group).

The parameter LTAPESIZE determines the size of the backup media.

Backup plan

A logical log backup plan must be accompanied by the system archive for the Informix server. If the Informix server is not archived, the logical log backup is unusable.

Logical log backups can be done in one of two ways:

1. Continuous backup of logical logs

2. Explicit backup of logical logs

To continuously back up the logical logs, you must have a dedicated backup device that is always available for the backup program to load data onto the device. Whenever the device reaches its capacity, new media needs to be swapped in.

Backup preparations

The logical log backup procedures require the following setup procedures.

You must be an *Informix-Admin* group member and working as *local administrator* to perform this command. You must run this command on the machine where the Informix server resides.

Ensure that the tape capacity is appropriate.

1. Take the database server offline.

    ```
    > ccmsrv offline
    ```

2. Modify the tape parameter in the Informix server parameter file to use a different tape from the regular database server archive device.

    ```
    > ccmsrv modify /p LTAPEDEV /v \\.\TAPE1
    > ccmsrv modify /p LTAPESIZE /v 1000000
    ```

    `\\.\TAPE1` is the name of the tape device.
    `1000000` is the tape size in kilobytes.

3. Bring the database server online.

    ```
    > ccmsrv online
    ```

4. Verify that the database server is online.

    ```
    > ccmsrv status
    ```

5. Since you have changed the parameters, perform an Informix server Level 0 archive.

    ```
    > ccmsrv archive /level 0
    ```

Once you complete a successful database server archive, you can put the next archive on the same tape.

Backup procedures

The following section describes the procedures for performing logical log backups.

You must be an *Informix-Admin* group member and working as *local administrator* to perform this command. You must run this command on the machine where the Informix server resides.

1. Set the environment variables for the Informix directory.

   ```
   > CCM_HOME\informix\setenv.cmd
   ```

2. Mount the tape drive specified in the LTAPEDEV parameter, and then insert a blank tape.

3. Run the ontape command to back up the logical log files.

   Caution   If you choose to back up logical log files, you must ensure that the media to which the logical logs will be written are always available and have free space. If the backup is not able to write data onto the media, and the logical logs are full, the database server will not be able to operate normally. It will freeze until the logical log files are writable.

   To back up the logical log files continuously, type the following:

   ```
   > ontape /c
   ```

   This type of backup is recommended because it requires a tape device to be available **at all times**.

   To back up the logical log files explicitly, type the following:

   ```
   > ontape /a
   ```

4. Swap and label the tape when it is full. It is very important to clearly label the tapes so that later when you restore the Informix server, the appropriate tapes can be identified easily. An example of good labeling follows:

   ```
   Date: April 20, 2006
   Server: servername
   Type: logical log backup
   Log numbers: 3 - 5
   Tape sequence number: 1
   ```

Restore a database server from archive with logical log backup

While restoring an Informix server from an archive, you may want to recover all of the work that has been done since the archive took place. If you have performed logical log backups, continue with the section to restore the logical log files.

Note Server machine crashes are normally recovered by an Informix server mechanism called Fast Recovery. Fast Recovery can recover Informix server data when the Informix server was not shutdown properly. This kind of situation does not require the restore procedure, because it is performed automatically whenever you bring the Informix server to the o*nline* state.

If an Informix server must be restored, you can backup the remaining logical log files that were not yet backed up, and then proceed with your regular restore procedure. Near the end of the restore procedure, you can restore logical logs from the backup by doing the following.

You must be an *Informix-Admin* group member and working as the *local administrator* to perform this command. You must run this command on the machine where the Informix server resides.

1. Run the restore program.

   ```
   > ccmsrv restore
   ```

   You need to answer a prompt regarding the type of archive media that was used.

2. Back up current logical log files. You should mount the tape drive and insert a blank tape first. During the restore, you will be prompted with the following:

   ```
   Would you like to back up any of logs 11 - 12? (y/n) y
   Logical logs 11 - 12 may be backed up.
   Enter the id of the oldest log that you would like to back up? 11
   Backing up logical logs 11 - 12 ...
   ```

3. Restore the database server from the latest archive. This procedure restores the Informix server from various levels of archive performed regularly. Answer the prompts accordingly and restore the Informix server to the latest state.

4. Restore from the logical log backup.

```
Roll forward should start with log number 12
Is there a logical log tape to restore? (y/n) y
Please mount tape and press Return to continue ...
Processing logical logs, please wait ...
Is there another logical log to restore? (y/n) n
```

5. Bring the Informix server online, and verify that the data was restored properly.

```
> ccmsrv online
```

6. Log off.

7. Log on as the Telelogic Synergy administrator.

8. Check the database to ensure that it was restored successfully to its previous state.

```
> ccmdb check dbpath
```

9. Log off from the Telelogic Synergy administrator.

10. Log on as a member of the *Informix-Admin* group.

11. Perform a Level 0 archive.

```
> ccmsrv archive /level 0
```

Obtain detailed Informix messages

Use the `finderr` command to display more detailed error messages whenever you encounter database server error(s). The command is available in the `CCM_HOME\informix\bin` subdirectory of your Telelogic Synergy installation. Its usage is:
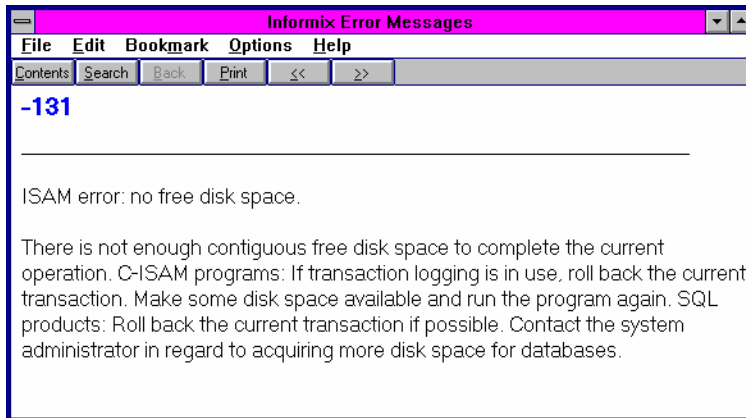
```
finderr message_number
```

You must run this command on an installation that includes the Admin Tools (i.e., main server or additional server).

- Type the following commands to receive a descriptive error message for error 131:

    ```
    > CCM_HOME\informix\setenv.cmd
    > finderr -131
    ```

A Windows help dialog box displays the output, as shown below.

Informix tuning guidelines

This section describes proper configuration and maintenance for the Informix database.

Chunk file distribution

You should create four (4) separate physical disk drives, and then, for optimal performance from you UNIX server, place each chunk file (`ccm`, `log`, `rootdbs`, `tempdbs`) on a separate drive.

Dedicated Informix server

For better performance, dedicate your CM database server machine to run Telelogic Synergy. If you have a dedicated CM database server machine, make the following change to the `RESIDENT` parameter in the Informix `ONCONFIG` file:

```
RESIDENT = 1
```

The default setting is `0`. This parameter specifies whether shared memory remains in operating-system physical memory. If the default setting remains, shared memory is swapped to disk, which might slow CM server performance for large sites and at various usage times.

For more information on the Informix `ONCONFIG` file, see the appropriate Informix administrator's document.

5 *Database Administration*

The Telelogic Synergy database administrator is responsible for the smooth operation of the Telelogic Synergy processes and databases that project teams use in their daily activity. This involves setting up procedures for starting the various Telelogic Synergy-related processes, running the Telelogic Synergy backup programs, and managing space utilization.

Many of these tasks can be automated, but Telelogic Synergy database administrator is responsible for reviewing the results and ensuring smooth operation. Specifically, the tasks involved in this role include:

- "Telelogic Synergy database backup and recovery" on page 71
- "Repair a database" on page 76
- "Create, modify, and delete a Telelogic Synergy database" on page 76
- "Manage Telelogic Synergy database space" on page 83
- "Perform database maintenance" on page 88

Telelogic Synergy database discussion

The following subsections explain the foundation of the database so that you are able to make informed decisions about how to administer it.

Caution You must check and back up your database at least once a day 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.

Supplied Telelogic Synergy databases (pack files)

The following databases are provided with the installation program. They are installed in the *CCM_HOME\packfiles* directory.

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 it 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. For more information about this database, see the *Telelogic Synergy Upgrade Instructions*.

Database directory structure

Each Telelogic Synergy database directory typically contains several 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`

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.

Database integrity check

Use the `ccmdb check` command to verify the integrity of the database's meta data. The command checks both at the RDBMS level and at the semantic level. Your database may never fail an integrity check, but if a failure does occur, you will want to know about it immediately so that you can correct it to avoid data loss. So, you should run the `ccmdb check` program on each database daily, and also after you reboot your system from a hardware failure or system OS crash.

Note that if you run the `ccmdb backup` command, a `ccmdb check` is performed automatically prior to the back up.

You must be working as the *CM Administrator* to perform this command. You must run this command on the machine where the database server resides.

1. Check the database.

   ```
   > ccmdb check database_path
   ```

   The command will report any problems that are found. If a problem is found, call IBM Rational Software Support.

2. Log off from the Telelogic Synergy administrator.

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, call IBM Rational Software Support.

Telelogic Synergy database naming restrictions

Each Telelogic Synergy database carries the following naming restrictions:

- If two databases use the same database server, they cannot have the same name, where the name is the leaf directory in the full path name of the database.

- A database name can contain letters, digits, spaces, and underscores only.

- Uppercase and lowercase characters are equivalent.

- A database name must be 18 characters or fewer.

- The database name must begin with a letter.

Telelogic Synergy database backup and recovery

Database backup methods

A Telelogic Synergy database has two portions: metadata, which is held in Informix, and a file system. To protect your data, you must back up both portions of your databases regularly.

Telelogic Synergy provides the following three methods for backing up databases:

- Packing databases

- Dumping databases

- Archiving database servers

You must 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, you should test it, and then automate it. Remember to test the backup method's corresponding restore procedures, as well.

The methods discussed here 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.

The following sections describe the Telelogic Synergy backup methods.

Pack databases

Packing individual databases is the recommended backup method because this method creates a pack (.cpk) file that contains a complete backup of both the file system and metadata portions of your database.

A pack file is also useful when you upgrade from one release of Telelogic Synergy to the next: you can pack a database using an older release and unpack it under a new release as part of the upgrade process.

You can move the pack file to different machines, and usually to different architectures. (You can move a pack file from one UNIX platform to another UNIX platform, or from UNIX to Windows, but not from Windows 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`. The `ccmdb check command` also runs `ccmdb update_statistics`, which improves the speed of database queries. If you use `ccmdb pack`, you can run `ccmdb check` independently.

See "ccmdb backup" on page 115, "ccmdb pack" on page 132, or "ccmdb check" on page 118 for more about the 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 and metadata portions of the backup 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.

Schedule and script backups

You should develop a backup plan that enables you to back up each active production database daily. Because the file system portions of the databases are included in the pack files, you should exclude these areas from any other backups.

If you choose database packing as your backup method, you should write a script batch file that includes `ccmdb backup` or `ccmdb pack` for each of your production databases, and you should run this script batch file according to your backup plan.

Recover using a pack file

Recover from system failure by deleting the current and 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, the lost changes can be recovered by reconciling copies of checked-out and recently checked-in files from the work area.

See "ccmdb unpack" on page 143 for more 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 because 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 portion independent of the metadata backup. The metadata dump is not incremental, but the size of this is much less than that for the file system data, so both the time and disk space required for each backup can be considerably less than a full pack file.

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 82.

Note Never back up Telelogic Synergy metadata using non-Telelogic Synergy backup tools.

Dump file

Create a database dump file by executing the `ccmdb dump` command.

The `ccmdb dump` command does not copy file system data. Therefore, it is your responsibility to back up the file system data using other tools, such as those included with the operating system.

See "ccmdb dump" on page 126 for more about the command.

Database locking and data consistency

To ensure consistency between the metadata and file system portions of these two separate backups, 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 portions of the databases are 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 batch file that includes `ccmdb dump` for each of your production databases, and you should run this script batch file according to your backup plan. The script batch file also can include the file system backup commands, or you can perform the file system backups using a separate script batch file. (The latter method will not, of course, ensure consistency between metadata and the file system.)

Recover using a dump file

Recover from complete system failure by deleting the database, reloading the metadata from the dump file using the `ccmdb load` command, and then restoring the file system data from its separate backup.

Although the work performed in the file system since the last dump is lost, because the metadata dumps are relatively small and fast, you can perform dumps frequently and limit the amount of work lost since the last dump.

Recover from metadata loss by reloading the saved metadata using `ccmdb load` with the overwrite option. If the failure occurred in the file system, you can restore from the file system backup without having to restore the metadata. Either of these partial restorations might leave the metadata and file system inconsistent. Use `ccm fs_check` to locate areas where these inconsistencies are serious.

See "ccmdb load" on page 130 for more about the command.

Archive database servers

Archiving and restoring the server is the most complex—and the most difficult—way to back up and restore databases. Therefore, avoid using the server archive and restore commands unless you are familiar with database logging techniques and neither of the methods discussed previously is practicable in your environment.

Because the administrative complexities of this backup method are considerable, it might be more cost effective for you to invest in hardware solutions for high availability, such as disk mirrors or other RAID capabilities, and to use one of the other backup methods to protect against complete system failure and satisfy other backup requirements.

A server archive creates an archive (`servername`) file containing only the metadata for the server's databases, instead of producing a pack file that contains the file system data as well as the metadata or a dump file that contains metadata for a single database.

The only significant advantage to server archive is that it enables incremental or even continuous online backup of the metadata.

You cannot use a server archive to upgrade to a new release of Telelogic Synergy.

Archiving

Create a database server archive file by executing the `ccmsrv archive` command. Note that the entire Informix server is archived. This means that you cannot back up or restore just one database, but all the databases in the entire server. As an option, you can put each Telelogic Synergy database in its own server.

The `ccmsrv archive` command archives only the databases' metadata. Therefore, it is your responsibility to back up each database's file system data using other tools, such as those included with the operating system.

See "ccmsrv archive" on page 149 for more about the command.

Also, see "Archive and restore a database server" on page 49 for more information.

Database locking and data consistency

To ensure consistency between the metadata and file system portions of these two separate backups, you must shut down the databases before archiving the server and performing the file system backup.

Scheduling backups

You can arrange for incremental backups by running `ccmsrv archive` at regular intervals, and you can augment these incremental backups with logical log backups. You can write the logical log backups directly to tape while the system is running.

Repair a database

In the rare event that a database has been corrupted, call [IBM Rational Software Support](#).

Create, modify, and 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, then you can use the `base.cpk` pack file to create new databases. You can unpack the `base.cpk` pack file to another database name. A database can be stored in two formats: standard and pack file. Pack files have the extension `.cpk` and must be unpacked with the `ccmdb unpack` command before they can be used.

Create through unpack

You can create a new database easily and quickly by unpacking the `base` database from the pack file that is shipped with the Telelogic Synergy software. For further information see "ccmdb unpack" on page 143.

Before you unpack a database, note the following:

• When typing the database path to the location where you want the database unpacked, type the path using the universal naming convention (UNC). Additionally, ensure that you are unpacking to a directory on an NTFS drive.

• The directory you unpack into must be a valid share point or a subdirectory of a valid share point. Also, you must have Full Control permissions of the directory.

You must be working as *local administrator* to perform this command. You must be logged on to a machine where the Admin Tools are installed, such as on a server machine.

1. Log on as the Telelogic Synergy administrator.

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

   ```
   > ccmdb unpack packfile /to database_path
   ```

   `packfile` is the name of the file you want to unpack.
   `database_path` is the path name to your new database. Type the path using the universal naming convention (UNC).

   For example, to restore `base` to a database named `test`, type the following:

   ```
   > ccmdb unpack base.cpk /to \\loon\ccmdb\test
   ```

3. Optionally, you can change the case keyword from `LOWER` to `PRESERVE`.

Caution Do not change the case mode of a database in which any upper-case or mixed-case objects have been created. Doing so causes inaccurate or incomplete query results.

Telelogic Synergy supports case sensitive file names in two ways. `PRESERVE` maintains the case preserving default setting. (Case sensitive means that you must **always** type the file or project name exactly the way you created it, i.e., `Foo.c`, never `foo.c` or `FOO.C`.) `LOWER` causes file and directory names to be stored in the Telelogic Synergy database in lower case.

The default is `LOWER`.

If you do not need to change the case, skip this step.

a. Set the CASE keyword to PRESERVE.

```
> ccmdb info database_path /keyword case /value preserve
```
b. Check the CASE keyword.

```
> ccmdb info database_path /keyword case
CASE=PRESERVE
```

4. If you want to change the delimiter for this database, it is strongly recommended that you do so now. See the delimiter command in Telelogic Synergy CLI Help for more information on this command.

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

```
> ccm start /d database_path /r ccm_admin
```
OR

Double-click the Telelogic Synergy icon. When the session is up, change your role to *ccm_admin* in the Telelogic Synergy Classic **Project View**'s **Role** list.

b. Change the delimiter to the new character to be used in this database.

```
> ccm delim ","
```

5. If you need to add users to the Telelogic Synergy database, this is a good point to do so. Refer to "Add users to 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.

6. Stop the Telelogic Synergy session.

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

8. Log off from the Telelogic Synergy administrator.

Caution You must check and back up your database at least once a day 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.

Certain considerations regarding database location are important in configuring your system. See "Manage Telelogic Synergy database space" on page 83 for more information.

Rename (or move) a database

The `ccmdb copy` command enables you to rename a Telelogic Synergy database or to move a database from one location to another. You can copy a packfile from UNIX to Windows but not from Windows to UNIX.

When you rename a database, note the following restrictions:

• If two databases use the same database server, they cannot have the same name.

• A database name can contain letters, digits, and underscores only.

• Uppercase and lowercase characters are equivalent.

• A database name can contain 18 or fewer characters.

• The database name must begin with a letter.

When moving a Telelogic Synergy database, you can pack it in one version, and then unpack it in a higher version. Unpacking to a higher version requires additional steps. See the Telelogic Synergy *Upgrade Instructions* for further details.

Note After moving 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 moved database's properties.

You must be working as the *local administrator* to perform this operation. You must be logged on to a machine where the Admin Tools are installed. A main server and additional server include the Admin Tools.

1. Log on as the Telelogic Synergy administrator.

2. Copy the database to a new location.

   > `ccmdb copy` *`src_database_path dest_database_path`*

   `src_database_path` specifies the source path of the database.
   `dest_database_path` specifies the destination path of the new database (UNC).

   For example:

   > `ccmdb copy \\loon\ccmdb\prod_db \\loon\ccmdb\tstgonzo`

3. Verify that the new database is usable.

   Run this command on the database server machine.

   > `ccmdb check database_path`

   Telelogic Synergy protects the database so that users do not log on to it, and then unprotects it when the check is over.

4. Pack the new database.

   Modify your backup plan.

   > `ccmdb pack database_path /to packfile`

   `database_path` is the path (full or relative) to the database. `packfile` is a path to the directory where the backup files will be written. You should use a path that goes to a directory that is regularly backed up through normal file system backup procedures or a path that goes to a directory on an independent file system.

5. Remove the old database.

   > `ccmdb delete database_path`

6. Log off from the Telelogic Synergy administrator.

Delete a database

Telelogic Synergy databases are a combination of file system and RDBMS data, so it is important to remove them using the *ccmdb delete* command. If a Telelogic Synergy database was accidently removed with a `del` command, see the "ccmdb drop" on page 125.

You must be working as *local administrator* to perform this operation. You must be logged on to a machine where the Admin Tools are installed, such as on a server machine.

1. Log on as the Telelogic Synergy administrator.

2. Remove the Telelogic Synergy database.

   ```
   > ccmdb delete \\bulldog\ccmdb\tststar
   ```

Caution Never use the `del` command to remove a Telelogic Synergy database.

3. Log off from the Telelogic Synergy administrator.

Move a database from UNIX to Windows

You can move a database from a UNIX server to a Windows server by packing the database on the UNIX database server, copying the packfile to the Windows server, and then unpacking the database on the Windows server.

You must be working as *local administrator* to perform this operation. You must be logged on to the machines where the database servers are installed.

1. Log on to the UNIX database server.

2. Set user to the Telelogic Synergy administrator.

3. Pack the UNIX database.

   If you are moving the database at the same time as upgrading from an older to a newer release, use the older release to pack the database.

   $ `ccmdb pack` database_path `-to` *packfile_path*

   or

   $ `ccmdb backup` *database_path* `-to` *packfile_path*

4. On Windows, copy the pack file from UNIX to Windows using `rcp`.

5. Log on to the Windows database server as the Telelogic Synergy administrator.

6. Unpack the `packfile_path` file on the Windows database server.

If you are upgrading from an older to a newer release, use the new release to unpack the database.

7. If you are upgrading from an older to a new release, run the `ccmdb upgrade` command as described in the *[Telelogic Synergy Upgrade Instructions](#)* for the new release.

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 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 DCM.

You can read a brief description about "ccmdb upgrade" on page 148. For a detailed description and usage instructions, see the *Upgrade Instructions*.

Manage Telelogic Synergy database space

Space management is an on-going task. While Telelogic Synergy goes to great lengths to conserve space, most project teams find that they like having multiple versions and variants online (e.g., all debug and optimize versions of their object code), so there is typically the desire to keep large amounts of data available online.

You need to monitor two forms of space: the database space and the file system space.

You can take the following actions when file system space runs low:

- Delete obsolete product files.

  See "Delete product files from Telelogic Synergy" on page 84.

- Delete obsolete source files from the cache.

  See "Delete cache files" on page 85.

- Save files offline, and then delete them.

  See "Save Offline and Delete Tool" on page 87.

- Delete obsolete data.

  See "Other housekeeping activities" on page 87.

Additionally, allocate enough space at installation for your company's growth. For more information about gauging the amount of space you need, see the "Installation Instructions."

You can do one of two things when database space runs low:

- Increase the size of the dbspace. See `ccmsrv expand` on page 154 for more information.

- Delete objects or projects in databases.

  Verify that the objects and projects you want to delete are not in use by using the `ccm finduse` command, described in Telelogic Synergy CLI Help, or the Find operation, described in Telelogic Synergy Help.

- Delete unused databases.

Delete product files from Telelogic Synergy

The `ccm collapse` command enables you to delete one or more obsolete products based on a set of selection criteria. Use this command to reclaim disk space used by obsolete products.

You must be working as the *CM administrator* to perform this operation.

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

    ```
    > ccm start /d \\loon\ccmdb\testrme /r ccm_admin
    ```

2. Query for all products not used in any projects.

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

3. Collapse the object versions.

    ```
    > ccm collapse @
    ```

    Alternatively, you could develop a batch file comprised of commands such as query and collapse, and then automate product file deletion using the Scheduler.

4. Change back to your previous role.

Delete cache files

The `ccm clean_cache` command enables you to delete previously archived source files from the cache directory. This command is useful for reclaiming disk space used by files that are archived and rarely used.

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

The Telelogic Synergy administrator can use the `ccm clean_cache` command to remove these archived cache files on demand, with the capability to select which cache files will be removed. Any deleted archived cache file are restored to the cache whenever it is needed for a Telelogic Synergy command.

You must be working as the *CM administrator* to perform this operation.

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

You must use the command line interface to delete cache files. The `ccm clean_cache` command is described in detail in Telelogic Synergy CLI Help.

- Delete all cache files of archived objects that have not been accessed in the last month.

  ```
  > ccm clean_cache /c -30:0:0:0
  ```

- 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"
  ```

Monitor the database space

Informix pre-allocates space for its databases. You can monitor this pre-allocated space to determine whether you need to increase its size or remove unneeded objects.

You must be working as *local administrator* to perform this operation. You must be logged on to the machine where the database server is installed.

1. Log on as the Telelogic Synergy administrator.

2. Monitor the size of a database.

   ```
   > ccmdb info /k size \\loon\ccmdb\database_name
   ```

3. Monitor the space utilization status of the database server named `tonnyx`.

   ```
   > ccmsrv status /dbspace
   ```

4. Log off from the Telelogic Synergy administrator.

To increase the Informix dbspace, refer to "Increase the dbspace of the database server" on page 48. Another section of interest is "Informix database server" on page 36, which explains the Informix Dynamic server and the dbspace chunk files.

Delete unused databases

Use the `ccmsrv status` command to view all databases. See "Database server usage" on page 22 for information on listing current databases. To remove any unnecessary databases, see "Delete a database" on page 81.

Save Offline and Delete Tool

In addition to using the `ccm collapse` or `ccm clean_cache` commands 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 Classic 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 userid 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 called **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.

See the *Telelogic Lifecycle Solutions - Licensing Guide* for instructions on checking the Telelogic License Server 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. Backups help queries to run more quickly. This also updates the database statistics.

1. Log on to the database server as the Telelogic Synergy administrator.

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, and update statistics.

   ```
   > ccmdb backup database_path /to destination_dir
   ```

Weekly

Repair database indices for all tables to reduce disk fragmentation.

1. Log on to the database server as the Telelogic Synergy administrator.

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 95 for information about options and arguments. You should run a full ccm fs_check at least once a month.

9. > End your session.

   ```
   > ccm stop
   ```

10. 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. 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
    ```

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

    ```
    > ccmdb check database_path
    > ccmdb pack database_path /to destination_dir
    ```

3. Delete the database.

    ```
    > ccmdb delete database_path
    ```

4. Unpack the database, using the pack file you created in step 2.

    ```
    > ccmdb unpack packfile /to database_path
    ```

6

Administrative Commands

This chapter contains a quick reference to the Telelogic Synergy administrative commands. Usage examples of these commands are available in the following chapters:

- "General System Administration" on page 11
- "CCM Server Administration" on page 31
- "Database Server Administration" on page 35
- "CCM Server Administration" on page 31

Command summary

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

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

Command	Description
ccm admin_user_name	Displays the user domain and user name of the Telelogic Synergy administrator. See page 94.
ccm fs_check	Checks the file consistency of a Telelogic Synergy database. See page 95.
ccm message	Notifies users directly or by broadcast. See page 99.
ccm monitor	Displays status information. See page 101.
ccm ps	Obtains process status information. See page 104.
ccm version	Displays the version of Telelogic Synergy. See page 108.
ccm_server	Starts the Telelogic Synergy CCM server. See page 106.
ccmadm admin_user	Updates the name of the Telelogic Synergy administrative user for Windows. See page 109.
ccmadm config_admin	Sets up the permissions of the local installation area so that the Telelogic Synergy administrative user has the necessary access. See page 111.
ccmadm password	Changes the Telelogic Synergy administrator and *informix* users passwords. See page 112.

Command	Description
`ccmdb backup`	Checks, and then backs up a database (recommended command). See page 115.
`ccmdb check`	Tests the integrity of a database. See page 118.
`ccmdb copy`	Copies a database. See page 120.
`ccmdb create`	Creates a root database. See page 122.
`ccmdb delete`	Deletes a database. See page 124.
`ccmdb drop`	Removes a database from the database server when the database's path, or other database information, has been removed accidentally. See page 125.
`ccmdb dump`	Dumps the database's meta data excluding the file system in the *database_path* area. Seepage 126.
`ccmdb info`	Reports the characteristics of a database. See page 127.
`ccmdb load`	Restores a database from a `.dmp` file created by `ccmdb dump`. See page 130.
`ccmdb pack`	Dumps a database's contents to a single, portable file. See page 132.
`ccmdb prepare_admin_user_change`	Prepares a database to accept a new Telelogic Synergy administrator name. See page 134.
`ccmdb protect`	Protects a database from new sessions. See page 137.
`ccmdb refresh`	Refreshes back-end sessions for Web mode sessions. See page 138.
`ccmdb repair`	Repairs database indexes. See page 139.
`ccmdb shutdown`	Shuts down all active sessions, and then protects a database. See page 141.
`ccmdb unpack`	Restores a database from a `ccmdb pack` file. See page 143.
`ccmdb unprotect`	Unprotects a database. See page 146.
`ccmdb update_statistics`	Updates system catalog tables with information used to determine optimal query plans. See page 147.
`ccmsrv archive`	Archives a database server. See page 149.
`ccmsrv create`	Creates a database server. See page 151.
`ccmsrv delete`	Deletes a database server. See page 153.
`ccmsrv expand`	Increases the size of a database server. See page 154.

Command	Description
`ccmsrv modify`	Changes the number of users allowed in the database server. See page 156.
`ccmsrv offline`	Takes a database server offline. See page 157.
`ccmsrv online`	Brings a database server online. See page 158.
`ccmsrv quiescent`	Puts a database server in the Quiescent state. See page 159.
`ccmsrv restore`	Restores a server from an archive device. See page 160.
`ccmsrv status`	Shows the status of a database server. See page 161.

ccm admin_user_name

Synopsis

```
ccm admin_user_name
```

Description and uses

The `ccm admin_user_name` command displays the user domain and user name of the Telelogic Synergy administrator.

If you want to change the password for the Telelogic Synergy administrator, see "ccmadm password" on page 112.

If you want to change the name of the Telelogic Synergy administrator, see "ccmadm admin_user" on page 109.

Options and arguments

This command has no options or arguments.

Example

View the Telelogic Synergy administrator's user domain and user name.

```
> ccm admin_user_name

marathon\cmadmin
```

See also

"ccmadm admin_user" on page 109

"ccmadm config_admin" on page 111

"ccmadm password" on page 112

"ccmdb prepare_admin_user_change" on page 134

ccm fs_check

Synopsis

```
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 static file, project, or directory has an entry in the archive.

- Every non-static file, project, or directory has an entry in the cache.

- 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 because 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 are suppressed.

Also, 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. For assistance in removing unwanted extra cache and archive entries, contact [IBM Rational Software Support](#).

All users can perform this operation. However, you must be in the *ccm_admin* role to perform the `-fix` option. You must start a session (using the `ccm start` command) before running this command.

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 ensures 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.

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.

`/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 archives (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 correctly upgraded 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.

`/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.

`-z|-zero_counts`

In the summary at the end, zero counts (reporting conditions not seen) are normally suppressed. If you use the **-z** option, all counts are printed, including those with zero values. This can be useful when the output of `fs_check` is being analyzed by another program.

Example

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

1. Log on as the Telelogic Synergy administrator.

2. Check the file system consistency of the database.

> `ccm fs_check` **/v**

See also

"ccmdb check" on page 118

"ccmdb backup" on page 115

ccm message

Synopsis

```
ccm message [/attr value][/d|/database database][/rfc_address
address]
              [/u|/user username]
```

Description and uses

The `ccm message` command communicates a message directly or broadcasts the message to users who are running a Telelogic Synergy session.

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` switch.

For more information, see "Broadcast system messages" on page 22.

Options and arguments

`/attr value`

Enables you to send a broadcast message to a specific audience by specifying one of the following values in place of the `/attr` switch: `process`, `display`, `pid`, `user`, `host`, `database`, `engine_address`, and `pwa_path`.

`/d|/database database`

Specifies that all users of `database` will be sent the message.

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 the message will be sent. RFC supports machines with multiple IP addresses.

The RFC address used must be the exact RFC address of the target process. This address can be determined by running the `ccm ps` command.

The format for machines with a known host name is:

`hostname:port:ip[: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*

Specifies the user to whom the message will be sent.

Example

Send a message to the `\\joe\ccmdb\juno` database.

```
> ccm message /d \\joe\ccmdb\juno "Server going down for repair
in 2 minutes."
```

Caveats

If the specified `/rfc_address` is for an engine, the `ccm message` command will fail.

See also

"ccm monitor" on page 101

"ccm ps" on page 104

ccm monitor

Synopsis

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

Description and uses

The `ccm monitor` command provides a network-wide view of Telelogic Synergy user and process information including:

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

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., the machine that was running the process has gone down or the process is hung.

If a delay in response is due to a busy machine, the exclamation point disappears when the operation that is using the machine is finished.

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, refer to "Users" on page 22.

Options and arguments

`/attr` *value*

>Specifies the name of the field to be monitored. The possible `/attr` switch values are as follows: `process`, `display`, `pid`, `user`, `host`, `database`, `engine_address`, and `pwa_path`.

`/d|/database` *database*

>Specifies that all users of `database` will be 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. RFC supports machines with multiple IP addresses.

The rfc address used must be the exact RFC address of the target process. This address can be determined by running the `ccm ps` command.

The format for machines with a known host name is:

`hostname:port:ip[: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*

Specifies the user to be monitored.

Examples

- Monitor user `ann`'s engine processes.

```
> ccm monitor /user ann /process engine
Telelogic Synergy process monitor...2 process(es) located:
user       process   host    port    pid  database path
----       -------   ----    ----    ---  -------------
ann        engine    marlin  34728   21182  \\fish\ccmdb\ann_test
ann        engine    marlin  34725   21181  \\fish\ccmdb\ann_eval
```

- Monitor `process` with a host address of `guppy.telelogic.com`.

```
> ccm monitor /host guppy.telelogic.com
Telelogic Synergy process monitor...1 process(es) located:
user     process   host    port   pid    database path
----     -------   ----    ----   ---    -------------
ann      gui       guppy   34725  21181  \\fish\ccmdb\ann_eval
```

ccm ps

Synopsis

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

Description and uses

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

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

Name shown by `ccm monitor`	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, refer to "Process status" on page 22.

Options and arguments

`/attr value`

> Specifies the name of the field to be monitored. The possible `/attr` *values* are as follows: `process`, `display`, `pid`, `user`, `host`, `database`, `engine_address`, and `pwa_path`.
>
> You can use only one switch at a time.

`/d|/database database`

> Specifies that all users of *database* will be 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. RFC supports machines with multiple IP addresses. The format for machines with a known host name is:
>
> `hostname:port:ip[: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 101

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 31.

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.

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
```

Files

```
>CCM_HOME/log/synergy_host_port.log
```

See also

"ccm monitor" on page 101

ccm version

Synopsis

```
ccm version [/a|/all] [/c|/ccm] [/d|/dbschema] [/i|/informix]
```

Description and uses

The `ccm version` command displays the version of Telelogic Synergy that is running. If you specify `ccm version` alone, Telelogic Synergy is the default.

Options and arguments

`/a|/all`

Displays the versions of the current database schema, the Informix database server, and the Telelogic Synergy release.

`/c|/ccm`

Displays the version of the Telelogic Synergy release.

`/d|/dbschema`

Displays the version of the database schema.

`/i|/informix`

Displays the version of the database server.

Example

Show the version of the current database schema, the Informix database server, and the Telelogic Synergy release that are running.

```
> ccm version /a

INFORMIX Dynamic Server Version 10.00.TC5X5
Telelogic Synergy Version 7.0
Telelogic Synergy Schema Version 0111
```

ccmadm admin_user

Synopsis

```
ccmadm admin_user
```

Description and uses

The `ccmadm admin_user` command changes the name of the Telelogic Synergy administrator for Windows.

Before you change the name of the Telelogic Synergy administrator, back up the databases ("Telelogic Synergy database backup and recovery" on page 71), and then prepare the databases ("ccmdb prepare_admin_user_change" on page 134).

After you change the name of the Telelogic Synergy administrator, you must run the `ccmadm config_admin` command on each Windows Telelogic Synergy server installation.

The first time you open a database after changing the Telelogic Synergy administrator user name, Telelogic Synergy updates the ownership of the database files. This causes the startup time to be slower. The startup time depends on the size of the database, and might be significant for large databases.

If you want to change the password for the Telelogic Synergy administrator, see "ccmadm password" on page 112.

Options and arguments

This command has no options or arguments.

Example

The following example shows all of the steps necessary to change the name of the Telelogic Synergy administrative user.

1. Log on as the current Telelogic Synergy administrator.

2. Back up all databases from the database server machine to an existing directory where you perform regular backups.

   ```
   > ccmdb backup \\bulldog\ccmdb\database /to d:\backup_directory
   ```

3. Prepare the databases to accept the new Telelogic Synergy administrator name.

   ```
   > ccmdb prepare /d domain /u new_admin_name
   \\bulldog\ccmdb\database
   ```

   Portions of the preparation might take some time, depending on the size of your databases. See "ccmdb prepare_admin_user_change" on page 134 for more information.

4. Log on as *local administrator*.

5. Change the name of the Telelogic Synergy administrator.

   ```
   > ccmadm admin_user
   ```
   a. You will be prompted to continue or exit.

   b. You will be prompted to enter the new admin user name.

   c. You will be prompted to enter the new password, and then asked to confirm it.

   d. You will be prompted to exit.

6. Set up the permissions of the local installation area so that the Telelogic Synergy administrator has the necessary access.

   a. Log on as *local administrator*.

   b. Issue this command on each relevant Windows database server.

   ```
   > ccmadm config_admin
   ```

7. Log on as the new Telelogic Synergy administrator.

8. Unprotect each database.

   ```
   > ccmdb unprotect \\database_name
   ```

See also

"ccm admin_user_name" on page 94

"ccmadm config_admin" on page 111

"ccmadm password" on page 112

"ccmdb prepare_admin_user_change" on page 134

ccmadm config_admin

Synopsis

```
ccmadm config_admin
```

Description and uses

The `ccmadm config_admin` command sets up the permissions of the local installation area so that the Telelogic Synergy administrator has the necessary access.

You need to run this command on each additional server after you change the Telelogic Synergy administrative user name with the `ccmadm admin_user` command. Running this command updates permissions, which allows the Telelogic Synergy administrator to access this installation. However, you do not need to restart the `ccm7.0_ess` service.

You must be logged on as a *local administrator* to use this command.

Options and arguments

This command has no options or arguments.

Example

An example of this command's usage is part of the example for "ccmadm admin_user" on page 109.

See also

"ccm admin_user_name" on page 94

"ccmadm admin_user" on page 109

"ccmadm password" on page 112

"ccmdb prepare_admin_user_change" on page 134

ccmadm password

Synopsis

```
ccmadm password /admin_user
ccmadm password /informix [database_servers_computer_names]
```

Description and uses

The `ccmadm password` command updates Telelogic Synergy and Informix services after the passwords for the *informix* and *admin_user* users have been changed for Windows.

You must run the `ccmadm password` command for the Telelogic Synergy server to operate after the passwords have been changed for the *informix* and *admin_user* users.

After changing the *admin_user* password on or in Windows, you must run the `ccmadm password` command on a machine in the domain.

Before you change the Telelogic Synergy administrator user password, protect all Telelogic Synergy databases. After changing the Telelogic Synergy administrator password in Windows, you must run the `ccmadm password` command on a machine in the domain.

Before you change the *informix* user password, shut down all Telelogic Synergy databases and Informix services because you need to stop, and then start all Informix database servers, including the main server and all additional servers. After changing the Informix password in Windows, you must run the `ccmadm password` command on the main and/or additional servers where you changed the *informix* password.

The command prompts you for the new password twice. If both password entries match, the Telelogic Synergy and Informix services are updated. Keep in mind that you must type the passwords correctly. The program will not check them.

The user for this command **must be** a local administrator on the server.

Satisfy the following prerequisites:

• The *informix* and the Telelogic Synergy administrator passwords must have been changed for Windows.

• Run this command on the main server machine.

> **Note** If you need to change the server IP address and are
> unable to restart the router after the change, you need to
> teach the router about the new address.
>
> Change the IP address for the server in the
> `_router.adr` file, located in the `CCM_HOME\etc`
> directory, and then restart the router.

Options and arguments

`/admin_user`

> Updates the Telelogic Synergy services after the Telelogic Synergy
> administrator user password has changed.

`/informix [`*`database_servers_computer_names`*`]`

> Updates the Telelogic Synergy services after the *informix* user password.
> You must restart all Informix services throughout the network. The
> *`database_servers_computer_names`* option is a list of computers
> that house the main server and all additional servers that are installed.

Examples

- Change the password for the Telelogic Synergy administrator.

1. Log on as the Telelogic Synergy administrator.

2. Protect all Telelogic Synergy databases.

   ```
   > ccmdb protect \\bob\ccmdb\tools
   ```

3. Change the Telelogic Synergy administrator password.

4. Run the `ccmadm password` command on the main server to update the
   Telelogic Synergy services.

   ```
   > ccmadm password /admin_user
   ```

   You will be prompted to enter the new password, and then asked to confirm
   it.

5. Unprotect all Telelogic Synergy databases.

   ```
   > ccmdb unprotect \\bob\ccmdb\tools
   ```

- Change the password for user *informix*.

1. Shutdown all databases.

   ```
   > ccmdb shutdown \\bob\ccmdb\tools
   ```

2. Take the Informix server offline.

   ```
   > ccmsrv offline
   ```

3. Change the Windows password for user *informix*.

4. Run the `ccmadm password` command on the main server to update the Informix services.

   ```
   > ccmadm password /informix main_server
   ```

5. Bring the Informix server online.

   ```
   > ccmsrv online
   ```

6. Unprotect all Telelogic Synergy databases.

   ```
   > ccmdb unprotect \\bob\ccmdb\tools
   ```

See also

"ccm admin_user_name" on page 94

"ccmadm admin_user" on page 109

"ccmadm config_admin" on page 111

"ccmdb prepare_admin_user_change" on page 134

ccmdb backup

Synopsis

```
ccmdb ba|backup  database_path [/no_check]
                 [/o|/outfile filename] [/t|/to packfile]
```

Description and uses

The `ccmdb backup` command verifies the integrity of a Telelogic Synergy database, and then creates a compressed backup file (`.cpk`-format file) of a Telelogic Synergy database.

Note This command performs the same actions as executing a `ccmdb check` command followed by a `ccmdb pack` command. If the check fails, the database is still packed. The `ccmdb check command` also runs `ccmdb update_statistics`, which improves the speed of database queries.

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

Note 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.

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 protected when they attempt to start a new session while a backup is in progress. Users already in a session being backed up cannot perform any operation 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, refer to "Backup preparations" on page 60.

The user for this command is the Telelogic Synergy administrator, if backing up from the command prompt.

Satisfy the following prerequisites:

- This command must be run from the database server machine.

- You can schedule this command with the Scheduler. The Scheduler requires that the user scheduling a command be *local administrator* on the database server machine. You need to enable the NT Schedule service, change the startup mode to automatic, and have the Schedule service log on as the system account.

Options and arguments

`/no_check`

> Suppresses the database integrity verification. If you do not specify this option, `ccmdb check` is called, and an update statistics operation is performed automatically.

`database_path`

> Specifies the full, relative, or UNC path to the database. A full path is required if you are scheduling this command with the Scheduler.

`/o|/outfile` *filename*

> Specifies the absolute path to a file, where you want the output of the command to be written. Always use this option if you schedule this command.

> By default, output is written to standard output.

`/t|/to` *packfile*

> Specifies the full path or the directory in which the backup file will be created. (The backup file is called the "pack file.") This path should be to a directory that is regularly backed up through your normal file system backup procedure. The backup should be done to a different file system than the one on which the database resides.

Examples

- Check and back up a database named `tstbill`.

1. Log on as the Telelogic Synergy administrator.

2. Back up `tstbill` to an existing directory where you perform regular backups, called `backups`.

   ```
   > ccmdb backup \\bulldog\ccmdb\tstbill /to d:\backups
   ```

- Schedule a daily database backup at 6:00 a.m., on the `north` database server, using the NT `AT` command.

  ```
  > at \\north 06:00 /every "f:\ccm\bin\ccmdb backup
  \\north\ccmdb\prod_db /to \\north\backup\prod_db.cpk /o
  \\north\backup\prod_db.out"
  ```

  For a description of the `AT` command's switches, refer to your Microsoft documentation or see the help file by typing `AT /?`.

Note Do not rely on file system backup utilities alone. Use the `ccmdb backup` command to guarantee reliable data recovery.

See also

"ccmdb check" on page 118

"ccm fs_check" on page 95

"ccmdb pack" on page 132

"ccmdb unpack" on page 143

"ccmdb update_statistics" on page 147

"Telelogic Synergy database backup and recovery" on page 71

ccmdb check

Synopsis

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

Description and uses

The `ccmdb check` command verifies the integrity of a database. The command checks at both the RDBMS and the semantic level. You can perform checks at the Synergy level, the Informix level, or both levels. If no option is specified, both checks are run.

The command reports any problems that are found. If a problem is found, call [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 situation immediately. To this end, run the `ccmdb check` program daily, on each database, and after the system reboots from a hardware failure or system OS 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 because a check is in progress.

For more information, see "Telelogic Synergy database backup and recovery" on page 71.

The user for this command is the Telelogic Synergy administrator.

Satisfy the following prerequisite:

• Run this command from the database server machine only.

Options and arguments

database_path

> Specifies the full or relative path to the database being checked.

\c

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

\d

> Specifies checks at the Informix database level, including consistency and index checking.

Example

Check the project1 database.

```
> ccmdb check \\data\ccmdb\project1
```

See also

"ccmdb backup" on page 115

"ccm fs_check" on page 95

ccmdb copy

Synopsis

```
ccmdb co|copy    src_database_path dest_database_path
                 [/p|/space destdbspace]
```

Description and uses

The `ccmdb copy` command copies a full Telelogic Synergy database.

Note The new database resides on the same database server as the source database, but you can use any *dest_database_path*, as long as it is on an NTFS file system.

Before you copy a database, note the following:

* Know the file limit option setting.

  If you give the new database a name that does not conform to the file limit option setting, the `ccmdb copy` command will exit with the following error message:

  ```
  Destination database name name does not conform to file_limit
  file name format.
  ```

  To view the file limit option setting for your database, see "ccmdb info" on page 127.

* When typing the database path to the location where you want the database created, type the path using the universal naming convention (UNC).

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.

The user for this command is the Telelogic Synergy administrator.

Options and arguments

`dest_database_path`

> Specifies the destination path of the new database. Type the path using the universal naming convention (UNC).

`/p│/space` *destdbspace*

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

`src_database_path`

> Specifies the source path of the database.

Example

Copy the `base` database to `tstgonzo`.

```
> ccmdb copy \\loon\ccmdb\base \\loon\ccmdb\tstgonzo
```

Caveats

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

See also

"ccmdb backup" on page 115

"ccmdb check" on page 118

"ccmdb create" on page 122

"ccmdb unpack" on page 143

ccmdb create

Synopsis

```
ccmdb cr|create   [/e|/empty] database_path
                  [/p|/space dbspace][/s|/server servername]
```

Description and uses

The `ccmdb create` command creates a Telelogic Synergy `root` database, which is used for a new model installation. This command creates a database **without** a model, which means that it contains **no** roles, types, users, etc. It is intended for model developers **only**.

If you want a database with a model, see "ccmdb unpack" on page 143 or "Create through unpack" on page 77. Both sections describe how to unpack a Telelogic Synergy database that contains a model.

The user for this command is the Telelogic Synergy administrator.

Options and arguments

`/e|/empty`

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

`database_path`

Specifies the path to which the database is being created. Type the path using the universal naming convention (UNC). Additionally, verify that you are running on an NTFS system.

`/p|/space dbspace`

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

`/s|/server servername`

Specifies the database server. If you do not specify this switch, the new database is created on the current computer, if it is a database server. If not, then the new database is created on the main server.

Example

Create a root database called `test_ccm`.

```
> ccmdb create \\macky\ccmdb\test_ccm
```

See also

ccmdb delete

Synopsis

```
ccmdb delete database_path [/y]
```

Description and uses

The `ccmdb delete` command removes a database from the system. You must use this command and **not** the standard `del` command.

If you do remove a database path with the `del` command, refer to "Troubleshooting" on page 28.

The user for this command is the Telelogic Synergy administrator.

Options and arguments

`database_path`

Specifies the path to the database that you want to remove.

`/y`

Executes the command without displaying confirmation messages.

Example

Delete the `test_ccm` database.

```
> ccmdb delete \\bulldog\ccmdb\test_ccm
```

Note Do not remove a Telelogic Synergy database using standard Windows commands, nor by using the File Manager or Explorer. Each Telelogic Synergy database contains data that exists in the file system and on the database server. Using the `del` command, the File Manager, or Explorer removes the file system copy only.

See also

"ccmdb create" on page 122

"ccmdb unprotect" on page 146

ccmdb drop

Synopsis

```
ccmdb drop database_name [/s|/server servername] [/y]
```

Description and uses

The `ccmdb drop` command drops a database from the database server but does not remove the Telelogic Synergy database in the file system.

The user for this command is the Telelogic Synergy administrator.

Satisfy the following prerequisite:

• This command must be run from the database server machine or on a client with admin tools installed.

Options and arguments

database_name

> Specifies the name of the database to be dropped.

/s|/server *servername*

> Specifies the name of the database server. If not specified, the servername defaults to the host_name.

/y

> Executes the command without displaying confirmation messages.

Example

Drop the sandbox database from the hawk server.

```
> ccmdb drop \\bulldog\ccmdb\sandbox /s hawk
```

See also

"ccmdb delete" on page 124

ccmdb dump

Synopsis

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

Description and uses

The ccmdb dump command dumps **only** the database's meta data (excluding the file system) in the *database_path* area. If a destination argument is not provided, Telelogic Synergy creates a dumpfile in the current directory named *database_name*.dmp where *database_name* is the last directory name of *database_path*.

The user for this command is the Telelogic Synergy administrator.

Satisfy the following prerequisite:

- This command must be run from the database server machine or on a client with admin tools installed.

Options and arguments

database_path

Specifies the path to the database that you want dumped.

/t|*/to dumpfile*

Specifies the destination of the database dump.

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

Example

Dump the \\loon\ccmdb\test_ccm database to the mad50.dmp file.

```
> ccmdb dump \\loon\ccmdb\test_ccm /t mad50.dmp
```

See also

"ccmdb backup" on page 115

"ccmdb load" on page 130

ccmdb info

Synopsis

```
ccmdb i|info database_path [/k|/keyword keyword [/v|/value value]]
```

Description and uses

The ccmdb info command reports or modifies the characteristics of the specified database.

The user for this command is the Telelogic Synergy administrator and any user. Any user can obtain information about the database by using the keyword switch. However, only the Telelogic Synergy administrator can change the database information with the value switch.

Options and arguments

database_path

Specifies the database for which characteristics are being reported.

/k|/keyword *keyword*

Obtains database information. By default, all keyword database information is shown. Keywords are case insensitive.

Use any one of the following keywords to designate the kind of database information you will receive:

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

- active shows whether or not users have sessions on the specified database.
- 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, which is always Informix.
- dbpath is the full UNC path to the db directory of the database.
- hostname is the database server host.
- 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, WINDOWS_XP.
- protect shows whether a database is protected or unprotected.

- `schema` displays the database schema version.
- `size` calculates and reports the size of the Informix database, the storage root, and then the total, all in kilobytes.
- `version` is the version of the database schema.

`/v|/value` *value*

You must use any one of the following keyword settings to change database information:

`[hostname | dbpath | case | next_cvid]`

Note For each of these values, you must run as the Telelogic Synergy administrator.

`-k hostname -v` *value*

Enables you to change the hostname. This would be required if a machine name is changed or a database is copied.

`-k dbpath -v` *value*

Enables you to change the database path. This would be required if the file system or a shared name is changed.

The following two keyword settings have special values you should know about.

`-k case -v` *value*

Enables you to change a Telelogic Synergy database between two modes: `LOWER` or `PRESERVE`.

The default `LOWER` mode causes file and directory names to be stored in lower case. The `PRESERVE` mode maintains the case preserving setting.

Caution Do **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.

For a detailed description of these two modes, see "Create through unpack" on page 77.

```
-k next_cvid -v value
```

> Sets the next cvid number to the given value. Note that the value passed must be greater than the maximum cvid currently in use. You cannot adjust the next cvid counter downwards.

Examples

- Set the ORHOST to bill so that the database can use an object registrar that is running on bill.

```
> ccmdb info \\orbit\ccmdb\test_ccm /k ORHOST /v bill
```

- In the database called \\bulldog\ccmdb\alpha, change the case mode setting to PRESERVE.

```
> ccmdb info \\bulldog\ccmdb\alpha /k case /v preserve
```

- Display the characteristics of the \\boon\ccmdb\test_db database.

```
> ccmdb info \\boon\ccmdb\test_db
        VERSION=7.0
        PLATFORM=WINDOWS
        HOSTNAME=vortex
        ORHOST=vortex
        DBPATH=\\boon\ccmdb\test_db
        DATABASE=informix
        PROTECT=unprotected
        ACTIVE=YES (database is active)
        CASE=PRESERVE
        SIZE=2992 KBYTES
        SCHEMA= 0109
```

- 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|/nocreate][/o|/overwrite]
[/p|/space dbspace_name][/s|/server servername] /t|/to database_path

ccmdb load stdin [/n|/nocreate] [/o|/overwrite]
[/p|/space dbspace_name] /t|/to database_path [/s|/server servername]
```

Description and uses

The `ccmdb load` command restores a database from a `.dmp` file created by `ccmdb dump`. By default, this command creates a protected empty database, loads the `dumpfile` to the database, creates indices, and then unprotects the database.

The user for this command is the Telelogic Synergy administrator.

Satisfy the following prerequisite:

• This command must be run from the database server machine or on a client with admin tools installed.

Options and arguments

`/n|/nocreate`

> Does not create a new database. Use this option if a database already exists in the database server.

`/o|/overwrite`

> Overwrites the `database_path` if one exists. If this option is specified, Telelogic Synergy reuses the `database_path` that is specified for the upgrade.

`/p|/space dbspace_name`

> Specifies the name of the dbspace. If not specified, the `dbspace_name` defaults to the `ccm` dbspace.

`/s|/server servername`

> Specifies the name of the database server. If not specified, the `servername` defaults to the `host_name`.

`stdin`

> Read from standard input.

`/t|/to database_path`

> Specifies the path and name of the database to be restored.

Example

Load the `test_ccm.dmp` file into the `sandbox` database from the `hawk` server.

```
> ccmdb load test_ccm.dmp /t \\boon\ccmdb\sandbox /s hawk
```

See also

"ccmdb dump" on page 126

ccmdb pack

Synopsis

```
ccmdb pa|pack database_path [/t|/to packfile]
```

Description and uses

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

Note 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.

Note that you can move a database from a UNIX server to a Windows server by packing the database using the `ccmdb pack` command, and vice versa, but you must run `ccmdb upgrade /w` after moving from Windows to UNIX.

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 because it is being packed.

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

For more information, refer to "Telelogic Synergy database backup and recovery" on page 71.

The user for this command is the Telelogic Synergy administrator.

Options and arguments

database_path

Specifies the path to the database you want to pack.

/t|/to packfile

Specifies the name of the pack file to be created.

packfile is the name of the database's portable file. The default pack file is *database_name*.cpk in your current directory.

Example

Generate a pack file called `test_ccm.cpk` under the `c:\data\ccmdb` directory.

```
> ccmdb pack \\bulldog\ccmdb\test.ccm /to
c:\data\ccmdb\test_ccm.cpk
```

Caveats

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

See also

"ccmdb backup" on page 115

"ccmdb unpack" on page 143

ccmdb prepare_admin_user_change

Synopsis

```
ccmdb pauc|prepare|prepare_admin_user_change /d domain /u user_name
                                    database_path
```

Description and uses

The `ccmdb prepare_admin_user_change` command prepares a database to accept a new Telelogic Synergy administrator name. When the command is invoked, the preparations include the following:

- Databases are shut down.

- Permission of all database objects is modified to allow the new Telelogic Synergy administrator user name to have access.

This step might take some time, depending on the size of the database.

You need to run the `ccmdb prepare_admin_user_change` command for each database that will run under the new Telelogic Synergy administrator user name.

Note that you must be logged in as the current Telelogic Synergy administrator to run this command.

Options and arguments

`/d domain`

Specifies the name of the domain of the Telelogic Synergy administrator.

`/u username`

Specifies the new name of the Telelogic Synergy administrator.

`database_path`

Specifies the path to the database that you want to prepare.

Example

Prepare the database `\\cmserv\ccmdb\db` for a new Telelogic Synergy administrator name with a domain of `MYDOMAIN` and a user name of `my_cmadmin`.

```
> ccmdb prepare /d MYDOMAIN /u my_cmadmin \\cmserv\ccmdb\db
```

Caveats

If the Telelogic Synergy administrator name was changed without first preparing a database for that change, you need to fix the permissions of the database files so that the new Telelogic Synergy administrator can take ownership of the files. You also need to fix the permissions of the Informix database so that the new Telelogic Synergy administrator can access the database.

The following sets of steps show you how.

To fix the permissions of the database files:

1. Log on as *local administrator*.

2. In Windows Explorer, open the properties of the database path folder.

3. Select the **Security** tab.

   You might see the following message:

   ```
   You only have permission to view the current security
   information on dbname.
   ```

   Click **OK** to proceed.

4. Press the **Advanced** button, and then select the **Owner** tab.

   Change the owner to **Administrators**. Include subcontainers.

   Click **OK** in the **Access Control Settings** dialog box, and again in the **Properties** dialog box.

5. Open the **Properties** dialog box of the database path folder again. Select the **Security** tab again. Type the new Telelogic Synergy administrator name, and then grant him full control. Click **OK**.

To fix the permissions of the Informix database:

1. Log on as user *informix*.

2. Change directories to the *informix* subdirectory under the Telelogic Synergy installation
   (cd /d %CCM_HOME%\informix).

3. Run the setenv.cmd command.

4. Run the dbaccess command.

5. Type Q to select Query-language.

6. Use the up and down arrow keys to select the database to fix, and then click **Enter**.

7. Press **N** to select **New**.

8. Type `grant dba to` *`name`*

   where *`name`* is the Telelogic Synergy administrator name. (Do not include the domain.)

   Press **Esc** when you have finished typing.

9. Press **R** to select **Run**.

   The message `Permission granted` should appear at the bottom of the screen.

10. Exit `dbaccess` by pressing **E** twice.

See also

"ccm admin_user_name" on page 94

"ccmadm admin_user" on page 109

"ccmadm config_admin" on page 111

"ccmadm password" on page 112

ccmdb protect

Synopsis

```
ccmdb pr|protect database_path
```

Description and uses

The `ccmdb protect` command prevents users from starting new sessions on the protected database.

You want to prevent users from starting new sessions if a database is corrupted or if you are installing a model into a database.

The user for this command is the Telelogic Synergy administrator.

Options and arguments

database_path

Specifies the path to the database that you want to protect.

Example

Protect the `\\boon\ccmdb\test_ccm` database.

```
> ccmdb protect \\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" on page 141.

See also

"ccmdb shutdown" on page 141

"ccmdb unprotect" on page 146

ccmdb refresh

Synopsis

```
ccmdb refresh database_path
```

Description and uses

Use the `ccmdb refresh` command to refresh 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 does 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.

For more information, see "CCM Server Administration" on page 31.

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

Options and arguments

database_path

Specifies the path to the database's Web server that you want to refresh.

Examples

Refresh the `\vol\orbit1\ccmdb\base` database.

```
orbit% ccmdb refresh \vol\orbit1\ccmdb/base
\vol\orbit1\ccmdb\base\db successfully refreshed.
```

See also

"ccmdb info" on page 127

"ccmdb shutdown" on page 141

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

The `ccmdb repair` command repairs indexes and tables at the Informix level in a Telelogic Synergy database.

For more information, refer to "Telelogic Synergy database backup and recovery" on page 71.

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 Informix error. (For information on shutting down a database, see "ccmdb shutdown" on page 141.)

The user for this command is the Telelogic Synergy administrator.

Back up your current database **before** you run this command.

Options and arguments

database_path

Specifies the path to the database to be protected.

`/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

Assume that ccmdb check reports an index corruption in the attrib table. Fix the inconsistency by running the following command:

```
> ccmdb repair \\bulldog\ccmdb\primo /repair_index attrib
```

ccmdb shutdown

Synopsis

```
ccmdb shutdown database_path
```

Description and uses

The `ccmdb shutdown` command automates several important steps required to bring down all Telelogic Synergy user sessions safely, and to ensure that a database is in a protected state. Use this command to close down a Telelogic Synergy database for maintenance.

This program operates on the database that you specify. The `ccmdb shutdown` command does the following:

1. Prevents new users from starting sessions. See "ccmdb protect" on page 137.

2. Notifies active users with a series of warning messages that the database will be brought down.

3. Issues remote `exit` commands to sessions that have not exited.

4. Waits until all users have exited or successfully shut down.

After you have started the `ccmdb shutdown` command, only an interrupt keyboard sequence can stop the shutdown from happening.

The user for this command is the Telelogic Synergy administrator.

Options and arguments

`database_path`

Specifies the path to the database to be shut down.

The `database_path` will be the same path on the user interface machine unless you specified a user interface database path in the **Startup Info** dialog box. (To display the database path, run the `ccm monitor` command. The output displays the correct UNC path.)

Example

Shut down a Telelogic Synergy database.

1. Display a list of active sessions by executing the `ccm monitor` command.

    ```
    > ccm monitor
    ```

2. Send out a broadcast message telling users that you are shutting down the `test_ccm` database.

    ```
    > ccm message /database "?test_ccm" "Shutting down server in 15
    minutes. Close sessions!"
    ```

3. Shut down the `test_ccm` database.

    ```
    > ccmdb shutdown \\data\ccmdb\test_ccm
    ```

See also

"ccm monitor" on page 101

ccmdb unpack

Synopsis

```
ccmdb unpa|unpack   packfile [/p|/space dbspace] [/s|/server servername]
                    /t|/to database_path
```

Description and uses

The ccmdb unpack command restores a database from a .cpk file created by ccmdb pack or ccmdb backup.

Before you unpack a database, note the following:

- When typing the database path to the location where you want the database unpacked, type the path using the universal naming convention (UNC). Additionally, verify that you are unpacking to a directory on an NTFS drive.

- The directory you unpack into must be a valid share point or a subdirectory of a valid share point. Also, the directory must be writable by the Telelogic Synergy administrator.

  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.

For more information, see "Create, modify, and delete a Telelogic Synergy database" on page 76.

The user for this command is the Telelogic Synergy administrator.

Options and arguments

/p|/space *dbspace*

Specifies the name of the dbspace. If not specified, the dbspace name defaults to the ccm dbspace.

packfile

Specifies the file to be unpacked.

/s|/server *servername*

Specifies the database server. If you do not specify this switch, the new database is created on the current computer, if it is a database server. If not, then the new database is created on the main server.

/t|/to *database_path*

> Specifies the path and name of the database to be restored. Type the path using the UNC. Additionally, verify that you are running on an NTFS system.

Example

Unpack the training database to a new database named `train70`.

```
> ccmdb unpack packfiles/training.cpk /t \\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: sys
Enter password:
Unpacking database \\orbit1\ccmdb/train70.
Creating Telelogic Synergy database \\orbit1\ccmdb\train70.
Database create succeeded.
Extracting pack file
\\pulsar2\ccmred\ccmred.sol\cmred_odd\packfiles\training.cpk.
Loading database.
loading Telelogic Synergy dump file version 7.0 platform UNIX
...
loading table attrib...
..............................3380 records.
loading table bind...
...343 records.
loading table bsite...
..223 records.
loading table compver...
...368 records.
loading table control...
0 records.
loading table relate...
..224 records.
loading table release...
10 records.
loading table acckeys...
22 records.
Database unpacked successfully.
```

See also

"ccmdb backup" on page 115

"ccmdb check" on page 118

ccmdb unprotect

Synopsis

```
ccmdb unpr|unprotect database_path
```

Description and uses

The `ccmdb unprotect` command unprotects a database that was protected with the `ccmdb protect` command.

The user for this command is the Telelogic Synergy administrator.

Options and arguments

`database_path`

Specifies the path to the database to be unprotected.

Example

Unprotect the `\\bulldog\ccmdb\tstgonzo` database.

```
> ccmdb unprotect \\bulldog\ccmdb\tstgonzo
```

See also

"ccmdb protect" on page 137

ccmdb update_statistics

Synopsis

ccmdb update_statistics *database_path* [/l|/low]

Description and uses

Use the ccmdb update_statistics regularly to update Informix system tables so that your queries execute more quickly. This command is run for you as part of the ccmdb check, ccmdb load, and ccmdb unpack commands.

The user for this command is the Telelogic Synergy administrator.

Satisfy the following prerequisite:

- The command must be run from the database server machine or on a client with admin tools installed.

Options and arguments

database_path

Specifies the path to the database containing the system tables to be updated.

/l|/low

Causes the command to perform a quicker, less comprehensive system catalog table check and update. The default is to perform the most comprehensive table check and update, which executes more slowly.

Example

Perform a quick update of the Informix system tables to the \\bulldog\ccmdb\tstgonzo database.

> ccmdb update_statistics /low \\bulldog\ccmdb\tstgonzo

ccmdb upgrade

The following is a brief description of the `ccmdb upgrade` command. For a detailed description and usage instructions, see the *Telelogic Synergy Upgrade Instructions for Windows*.

The upgrade program converts a database from Releases 6.4 or 6.5 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\Windows\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 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.

ccmsrv archive

Synopsis

```
ccmsrv archive /l|/level archive_level /d|/device archive_device
               [/s|/server servername][/size device_size] [/y]
```

Description and uses

The `ccmsrv archive` command archives a database server.

For a full discussion of this command, along with Telelogic Synergy recommendations for archiving a database server, see "Archive and restore a database server" on page 49.

Caution Ensure that you have a blank tape for every archive. This command overwrites any previous archives on your tape.

The users for this command are *Informix-Admin group member* and *local administrator*.

Satisfy the following prerequisites:

- Run this command on the machine where the Informix server resides.

- Use this command as part of a backup plan that includes a backup of the files under the Telelogic Synergy database directories.

Options and arguments

`/d|/device archive_device`

Specifies the archive device. The archive device must be a tape device name. Once you specify the archive device with the `/d` switch, it becomes the default for both archive and restore commands. Once you specify the default, you do not need to specify this parameter again, unless you want to change the default.

`/l|/level archive_level`

Specifies the archive level, 0, 1, or 2.

`/s|/server servername`

Specifies the name of the database server. The default is the server of the current machine.

```
/size device_size
```

> Specifies the size of the archive device in KBytes. Once you specify the size with the `/size` switch, it becomes the default. This is typically the size of the tape, if you use a tape device.
>
> The default size is 10240.

> **Note** The recommended command for database backup is `ccmdb backup`, which is described on page 115 or `ccmdb dump`, which is described on page 126. Use `ccmsrv archive` if either `ccmdb backup` or `ccmdb dump` is not possible or not practical, because of the size of your database.

```
/y
```

> Executes the command without displaying confirmation messages.

Example

Create a Level 0 archive using the tape device `\\.\TAPE0` with a 1 GB tape for the database server.

1. Insert the tape.

2. Type the archive command.

   ```
   > ccmsrv archive /level 0 /size 1000000 /device \\.\TAPE0
   ```

   The size of the tape device you specify should match the capacity of the tape.

Caveats

When you archive the server, back up the Informix server configuration file, `ONCONFIG`, as well. This file is necessary to run or restore the Informix server.

The file `ONCONFIG` server configuration file resides in `CCM_HOME\informix\etc\ONCONFIG`.

ccmsrv create

Synopsis

```
ccmsrv create [/f|/file parameter_file] [/y]
```

Description and uses

The `ccmsrv create` command creates a database server. Generally, you will use the Telelogic Synergy installation program to create database servers. This command is included for special cases, for example, in case the server creation fails during installation. If this occurred, the installation would complete, but you would need to create the database server as a separate step.

Note You can install one and only one main server before you can install additional servers.

The users for this command are *Informix-Admin group member* and *local administrator.*

Satisfy the following prerequisite:

*   You must have tried to install a main server or an additional server on this machine.

Options and arguments

`/f|/file parameter_file`

Specifies the path to the parameter file, which is shown in "Create the Informix Dynamic Server" on page 39. If you do not specify this switch, you are prompted for the following:

*   maximum number of users
*   `root` dbspace storage location
*   `log` dbspace storage location
*   `ccm` dbspace storage location
*   `temp` dbspace storage location

To read the complete creation script message and to know what information you need to provide, see "Create the database server" on page 39.

`/y`

Executes the command without displaying confirmation messages.

Example

An example of this command is available in "Informix database server" on page 36.

Caveats

The Informix server name cannot contain a dash and must start with an alpha character. The default is the name of the host.

ccmsrv delete

Synopsis

```
ccmsrv delete [/y]
```

Description and uses

The `ccmsrv delete` command deletes the database server on the current computer. This operation removes the configuration file, the record of the database server in the `sqlhosts` registry entry, and all chunk files.

Caution Avoid data loss by backing up all Telelogic Synergy databases **before** you delete a database server.

For a full discussion of this command, see "Delete a database server" on page 47.

The users for this command are *Informix-Admin group member* and *local administrator*.

Satisfy the following prerequisite:

• Run this command on the machine where the database server resides.

Options and arguments

`/y`

Executes the command without displaying confirmation messages.

Example

An example of this command is available in "Delete a database server" on page 47.

ccmsrv expand

Synopsis

```
ccmsrv expand /size kbytes [/d|/dbspace dbspacename] /p|/path chunk_path
              [/y] [/s|/server servername]
```

Description and uses

Use the `ccmsrv expand` command to increase the database server's dbspace capacity. This command expands a dbspace of a database server by adding a chunk file. This is useful when you want to increase the size of a server that is running out of room in a dbspace.

Caution Do not use an existing file.

For a discussion of this command, see "Increase the dbspace of the database server" on page 48.

The users for this command are *Informix-Admin group member* and *local administrator*.

Satisfy the following prerequisites:

• Run this command on the machine where the Informix server resides.

• The path you specify must be a local NTFS path.

Options and arguments

`/d|/dbspace dbspacename`

Specifies the dbspace. If not specified, the dbspace defaults to the `ccm` dbspace. Possible dbspace names are as follows: `rootdbs`, `log`, `temp` and `ccm`.

`/p|/path chunk_path`

Specifies the path to the new chunk file.

You can give the full path of the new chunk file, or you can give a directory path. If you specify a directory, the default next name (e.g., `ccm.001, ccm.002, ccm.003`) will be the name of the new chunk file.

`/s|/server servername`

Specifies the name of the database server. The default is the server on the current machine.

`/size kbytes`

Specifies the chunk size in Kbytes.

/y

>Executes the command without displaying confirmation messages.

Example

Increase the ccm dbspace by 100,000 KB, and use the following chunk path:
c:\ifmxdata

```
> ccmsrv expand /size 100000 /path c:\ifmxdata /dbspace ccm
```

ccmsrv modify

Synopsis

```
ccmsrv modify /u|/user max_users [/y] [/s|/server servername]

ccmsrv modify /p|/parameter parameter [/s|/server servername]
              /v|/value value [/y]
```

Description and uses

The ccmsrv modify command modifies the number of users or other parameters allowed in the database server.

The users for this command are *Informix-Admin group member* and *local administrator.*

Satisfy the following prerequisite:

•   Run this command on the machine where the database server resides.

Options and arguments

/p|/parameter *parameter*

> Specifies parameters to be modified in the Informix server configuration file. Valid parameters are LTAPEDEV or LTAPESIZE.
>
> Use /p for logical log backups. For information on logical log backups, see "Logical log files" on page 58.

/s|/server *servername*

> Specifies the name of the database server. If a server is not specified, it defaults to *host_name*.

/u|/users *max_users*

> Specifies the maximum number of users allowed in the database.

/v|/value *value*

> Specifies the value of *parameter*, for example, the name of the tape device or the size of the tape.

/y

> Executes the command without displaying confirmation messages.

Example

Change the maximum number of users allowed in the database to fifty.

```
> ccmsrv modify /user 50
```

ccmsrv offline

Synopsis

```
ccmsrv offline [/s|/server servername][/y]
```

Description and uses

The `ccmsrv offline` command takes the database server offline.

Use this command when you want to make a database server unavailable to all users. You should send a broadcast message warning users of your intention to take the server offline. For instructions about sending a broadcast message, refer to "ccm message" on page 99.

Caution   This command disconnects all users who are currently connected to the server.

The users for this command are *Informix-Admin group member* and *local administrator*.

Satisfy the following prerequisite:

• Run this command on the machine where the database server resides.

Options and arguments

`/s|/server servername`

Specifies the name of the database server. The default is the name of the current machine. This option is required when the Informix *servername* does not match the machine name.

`/y`

Executes the command without displaying confirmation messages.

Example

An example of this command is available in "Take a database server offline" on page 47.

ccmsrv online

Synopsis

```
ccmsrv online [/s|/server servername][/y]
```

Description and uses

The `ccmsrv online` command brings the database server online.

Use this command when you want to make a database server available to all users.

The users for this command are *Informix-Admin group member* and *local administrator*.

Satisfy the following prerequisite:

• Run this command on the machine where the database server resides.

Options and arguments

`/s|/server servername`

Specifies the name of the database server. The default is the name of the current machine. This option is required when the Informix *servername* does not match the machine name.

`/y`

Executes the command without displaying confirmation messages.

Example

An example of this command is available in "Bring a database server online" on page 44.

ccmsrv quiescent

Synopsis

```
ccmsrv quiescent [/s|/server servername][/y]
```

Description and uses

The *ccmsrv quiescent* command puts the database server in a quiescent state so that you can perform administrative tasks.

Caution All active Telelogic Synergy sessions will lose connections to the database server. You should run a `ccmdb shutdown` command first.

The users for this command are *Informix-Admin group member* and *local administrator*.

Satisfy the following prerequisite:

• Run this command on the machine where the database server resides.

Options and arguments

```
/s|/server servername
```

Specifies the name of the database server. The default is the name of the current machine. This option is required when the Informix `servername` does not match the machine name.

```
/y
```

Executes the command without displaying confirmation messages.

Example

Put the server in the quiescent state.

1. Send out a message to all users of the `tstgonzo` database that you are about to put the server in the quiescent state.

   ```
   > ccm message /database "?tstgonzo" "Putting server in quiescent
   state in 15 minutes. Close sessions!"
   ```

2. Shut down all databases. (In this example, there is only one database.)

   ```
   > ccmdb shutdown \\sue\ccmdb\tstgonzo
   ```

3. Put the database server in a quiescent state.

   ```
   > ccmsrv quiescent
   ```

ccmsrv restore

Synopsis

```
ccmsrv restore [/d|/device archive_device]
```

Description and uses

The `ccmsrv restore` command enables you to restore a server from an archive device.

The users for this command are *Informix-Admin group member* and *local administrator*.

Satisfy the following prerequisite:

- Run this command on the machine where the database server resides.

Options and arguments

`/d|/device archive_device`

Specifies the archive device. The archive device must be a tape device name.

Once you specify the archive device with the `/d` switch, it becomes the default for both the archive and restore commands. Once you specify the default, you do not need to specify this parameter again, unless you want to change the default.

Example

Restore the database server from archive tape `TAPE0`.

```
> ccmsrv restore /device \\.\TAPE0
```

Caveats

If one or more of the Informix chunk files were deleted, you need to create a zero-length file in its place. Without the zero-length file, `ccmsrv restore` will not work.

See also

"ccmsrv archive" on page 149

ccmsrv status

Synopsis

```
ccmsrv status [/a|/all] [/d|/dbspace] [/l|/log]
```

Description and uses

Use the `ccmsrv status` command to display the current status of the database server.

The user for this command is *Informix-Admin group member.*

Satisfy the following prerequisite:

• Run this command on the machine where the database server resides.

Options and arguments

`/a|/all`

Displays all information.

`/d|/dbspace`

Displays dbspace information.

`/l|/log`

Displays logical log information.

Example

An example of this command is available in "Display status of a database server" on page 44.

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