

Atelier B

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Administrator Manual

version 3.7



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Chapter 1

Introduction

This document describes the procedures to follow to:

- Install Atelier B.
- Install and use the Atelier B licence management system.
- Configure and parameter Atelier B.

We recommend that you read the entire document before starting the Atelier B installation procedure.

The installation must be performed by the system administrator, as some operations must be performed by the “super-user” (creating login accounts, etc.).

The next chapter contains all the information necessary for selecting the machine and the filesystem where Atelier B will be installed. It also contains explanation on how to use Atelier B on a network.

Chapter 3 provides a detailed description of the procedure to follow in order to read the Atelier B files supplied on CD-ROM.

Chapter 4 explains how to install and use the Atelier B floating licence system.

After performing the operations described above, Atelier B and its user accounts must be configured. These operations are described in chapter 5.

Chapter 6 contains all the information necessary for customizing Atelier B.

The last chapter explains the procedure to follow so as to ease the port of B projects developed with a previous version of Atelier B.

Chapter 2

Preparing the installation

This section explains how to:

- Select the machine to install,
- Use Atelier B on a network,
- Create the Atelier B manager account,
- Select the filesystem where the Atelier B files will be installed.

2.1 Resources required before installation

2.1.1 Operating System

To install and use Atelier B, you must have one of the following operating systems available:

- Linux (with glibc version 2.2 or greater),
- Solaris 6 or greater

2.1.2 Distribution Media

Atelier B is distributed on one CD-ROM, which includes software for all supported platforms.

2.1.3 Memory Requirements

It is recommended to have at least 512 Mo of RAM.

The necessary memory space is strongly dependent of the other applications running on your workstation and of the size of the developments made with Atelier B.

2.1.4 Disk Space Requirements

To install Atelier B, you need about 500 Mo of disk space.

The disk space occupied by a project developed with Atelier B depends on the size of the B source files. The disk space occupied by the files generated automatically by Atelier B equals about 25 times the disk space of all the B source files.

2.1.5 Dynamic Libraries

Dynamic libraries used by Atelier B depend on the type of system.

For Sun Solaris systems and HP, Atelier B uses the standard libraries provided with the operating system.

For Linux systems, Atelier B requires the following libraries so as to work correctly :

Libraries	Minimum version required
libXt	6.0
libXext	6.4
libX11	6.2
libSM	6.0
libICE	6.3
glibc	2.4

If you do not have at least these versions for the libraries, you must update your system so as to be able to use Atelier B. These library versions are generally available on distribution web sites.

2.1.6 Displaying systems

Atelier B supports a variety of hardware configurations for displaying via the X Window System. These includes workstations and X-terminals.

Atelier B operates correctly with the following window managers: `olwm`, `mwm`, `CDE`, `KDE`, `GNOME`, `XFCE`, `vuewm`, `fvwm2`, `Afterstep`, `Enlightenment`, `WindowMaker` and `blackbox`.

2.1.7 External tools

To use the on-line help and Atelier B source navigator, you need an HTML browser (Mosaic, Netscape, Arena, etc.).

Atelier B also produces files that can be worked on with the following tools:

Tool	Version	Type	Vendor
VCG	3.0	Graph visualization	Free software
DaVinci	2.1	Graph visualisation	M.Froehlich and M. Werner at Bremen University (Germany)
L ^A T _E X	2 ϵ	Word processor	Free software
Word	7	Word processor	Microsoft

You can use Atelier B without these tools, they are only used by the Atelier B documentation tools. The `DaVinci` tool is also used in a function of the interactive prover, but this one is not essential.

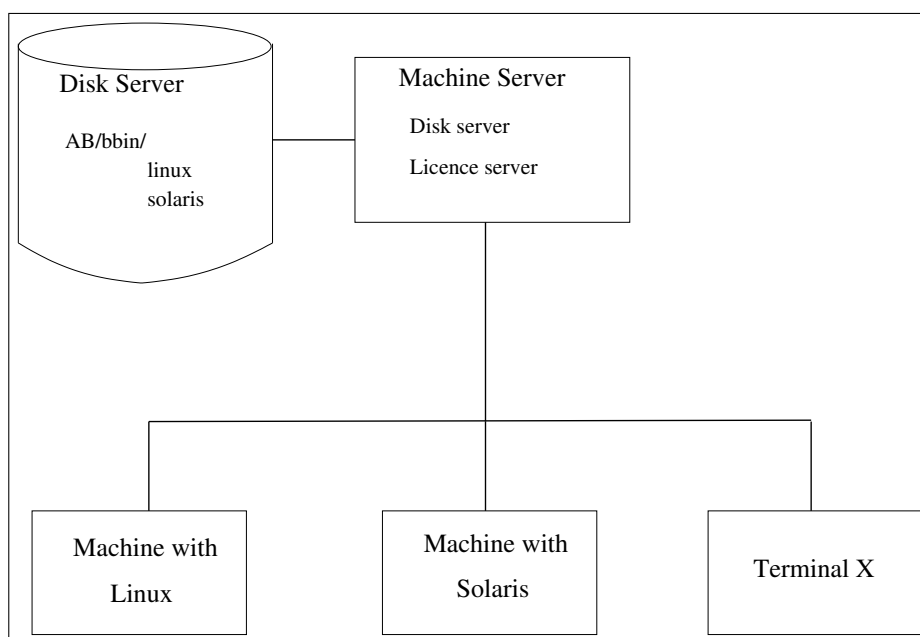


Figure 2.1: Example of a network system

The **vcg** tool is available on the Atelier B CD-ROM.

The **DaVinci** tool is free for non-commercial use. You can download this tool at the following address :

<http://www.informatik.uni-bremen.de/~davinci>.

2.2 Using Atelier B on a multi-platform network

You can install Atelier B on a network of machines that use a common file server. All the users of systems supported by Atelier B can share an installation directory. This manual contains instructions for installing Atelier B on a multi-platform network.

Figure 2.1 on page 5, shows an example of a network installation.

In this example, Atelier B is installed on a server machine.

Several machines, with various operating systems use Atelier B. The routing according to the type of system used is performed automatically by the Atelier B start-up scripts.

2.3 Creating the Atelier B manager account

Atelier B can be used simultaneously by several users. The users can share projects and work on the same project at the same time.

The sharing of projects by several users means that the UNIX files must be shared between these users and therefore causes the usual problems of access rights between the users.

To avoid compromising system security, Atelier B uses a specific Unix user and group named *atelierb*.

Before installing Atelier B, you must therefore create an *atelierb* account and a group with the same name.

This user and this group must be defined on all the machines where Atelier B is likely to run.

The user *atelierb* has privileged rights on all the projects created via Atelier B. All intermediate files generated by Atelier B during a development will belong to the *atelierb* group.

The two Atelier B user interfaces are executable files with the “set-group-id” bit. Regardless of the user who executes them, Atelier B will have the rights of the *atelierb* group.

On the other hand, the user source files (B sources, proof rules files) will have the rights assigned by the users. They can therefore be protected with the standard UNIX access rights.

We recommend that you follow the procedures defined by the constructors for creating this account and this group:

- use `admintool` for SUN systems,
- use `sam` for HP-UX systems,
- use `adduser` or `linuxconf` for Linux systems.

We recommend using the directory selected in the sub-section below as the home directory of this account.

2.4 Choosing the Installation Directory

If you install Atelier B for several users, you must choose a directory where the users will have read and execute access. This directory must also be visible to all machines that are likely to run Atelier B.

To install the Atelier B files, you must have the write access to this directory.

We recommend that you install the Atelier B files in a directory named *atelierb* in the disk partition where you normally install applications.

To install Atelier B you will need 40 Mbytes.

2.4.1 Users of Previous Version

If you already have a previous version of Atelier B installed, you must install the new version in a different directory or in a different sub-directory of the previous directory.

Please refer to chapter 7 of this document.

2.4.2 Creating the Directory

Use the `mkdir` command to create the directory. For example, type the command:

```
mkdir /usr/atelierb
```

Warning: In the rest of this document the directory that you have just created will always be named *atelierb_directory*. Type the full path for this directory when you will encounter *atelierb_directory* in a command.

2.4.3 UNIX Directory Rights

The installation directory must belong to the *atelierb* user and to the *atelierb* group created in the previous section. If this is not the case, change its owner and its group by typing the following commands:

```
chown atelierb atelierb_directory
chgrp atelierb atelierb_directory
```

2.4.4 Installation on a Read-only Partition

If for greater security you choose a disk partition that is "mounted" on other machines in read-only mode, you must follow a specific procedure when installing Atelier B.

By default, Atelier B uses a directory where the users must be able to write files. These files contain information on the projects created by the users.

This directory named **bdb** represents the *Atelier B data base*.

By default, this directory is located in the Atelier B installation directory. If the installation partition is read-only, you will have to use an Atelier B data base on another disk partition (refer to sub-section 5.3).

Chapter 3

Installing Files

This section describes the Atelier B installation procedure and its options, for a workstation or a server.

After installing the files, you will need to install the user licences and configure the operating environments for Atelier B users. These operations are described in section 4 and in sub-section 5.2.

3.1 Choosing the Files to Install

As Atelier B is available for several systems with various options, the distribution media may contain a number of files that you will not need; you can therefore save space on disk by not installing these files.

You should copy the options that you wish to install to your `atelierb_directory` directory.

3.1.1 Choosing the Options to Install

Choose the options that you have purchased a licence for.

You can also install the options that you do not have a licence for, you will be able to purchase and install these licences later.

You can install, in the same directory, Atelier B software for several operating systems. Read carefully sub-section 2.2 before performing this kind of installation.

3.2 Media Contents

The CD-ROM contains compressed `tar` format files.

There is one file for each option and type of system.

The following files are present:

File	Description
tarExeAB.sun5.6.Z	Complete Atelier B for Solaris 6 or greater
tarTRADCPP.sun5.6.Z	C/C++ translator for Solaris 6 or greater
tarTRADADA.sun5.6.Z	ADA translator for Solaris 6 or greater
tarTRADHIA.sun5.6.Z	HIA translator for Solaris 6 or greater
tarOPR.sun5.6.Z	User rules proof tools for Solaris 6 or greater
tarExeAB.lin.tgz	Complete Atelier B for Linux
tarTRADCPP.lin.tgz	C/C++ translator for Linux
tarTRADADA.lin.tgz	ADA translator for Linux
tarTRADHIA.lin.tgz	HIA translator for Linux
tarOPR.lin.tgz	User rules proof tools for Linux

A **README** file may also be present. This file contains “last minute” information that have not been written in this document.

3.3 Installation from the CD-ROM

This sub-section explains how to:

- “mount” the CD-ROM from a local or a remote drive,
- copy the files to your hard disk.

You can install from a local CD-ROM drive or one present in another machine accessible via your network.

Warning: some of the operations described in the following sections must be performed in super-user mode.

3.3.1 Loading from a Local Drive

The following operations must be performed on the machine where Atelier B has to be installed (on a local file management system). If this machine does not have a CD-ROM drive, proceed to sub-section 3.3.2.

1. Login as *root*.
2. Insert the CD-ROM in the drive.
3. "Mount" the CD-ROM.

The table below provides an example for each type of system:

Platform	Command
Solaris	<code>mount -F hsfs -r /dev/sr0 /cdrom</code>
Linux	<code>mount -t iso9660 -o ro /dev/cdrom /cdrom</code>

For more information refer to the documentation supplied with your system.

4. Exit by typing: `exit`.

Now you can proceed to sub-section 3.3.3, page 12 to copy the program to your hard disk.

3.3.2 Loading from a Remote Drive

When you use a remote drive, the installation starts on the machine with the drive and is completed on the machine where Atelier B has to be installed.

Go to the machine with the drive and perform the following operations:

1. Login as *root*.
2. Insert the CD-ROM in the drive.
3. "Mount" the CD-ROM following the instructions provided in the previous sub-section.
4. Check that the `/cdrom` directory is visible from the other machines.

The table below gives an example for each type of system:

Platform	File ...	must contain ...
Solaris	<code>/etc/dfs/dfstab</code>	<code>share -F nfs -o ro /cdrom</code>
Linux	<code>/etc/exports</code>	<code>/cdrom (ro)</code>

5. If the file listed in the table above does not exist, create it.

If the command is not present, add the line.

In both cases, must type the following command so that your system takes your modification into account:

Platform	Command
Solaris	<code>/usr/sbin/shareall</code>
Linux	re-start the nfs server or the machine

Move to the machine where you wish to install Atelier B and perform the following operations:

1. Login as *root*.
2. “Mount” the */cdrom* partition on this machine by typing the following command:
`mount -r host:/cdrom /cdrom`
where *host* is the name of the machine with the drive.
3. Exit by typing the command: `exit`.

3.3.3 Copying Files from the CD-ROM

To install files from the CD-ROM the procedure below must be followed:

1. Log in as *atelierb*
2. Go to the directory `atelierb_directory`
`cd atelierb_directory`
3. Start the installation script of Atelier B : `/cdrom/install_atelierb`
The following screen is displayed :

ATELIERB Installation Procedure

Machine : machine_name
Operating System : Linux 2.6.17
Most of the questions that you will be asked have a default answer enclosed in brackets, for instance:

Do you understand [yes]?

To use the default answer, just type ‘‘return’’.

Would you like to continue [yes]?

Type “return” or “yes” to continue.

4. The following menu is then displayed :

Installation procedure steps :

- 1 - Read files from CDROM
- 2 - Install licence management system
- 3 - Configure and parameter Atelier B products
- q - Quit installation procedure

Go to step number : [1]?

Type "return" or "1" to go to step 1.

5. Type the full path of the directory where the distribution for Atelier B is. By default it is the /cdrom directory.
6. Type the full path of the directory where Atelier B has to be installed. By default, it is the directory where the script has been launched.

You can give the path of a subdirectory that doesn't exist, the script will then create it automatically.

7. The product selection menu is displayed:

Choose products :

- [] 0 - All products
- [] 1 - Atelier B basic version
- [] 2 - ADA Translator
- [] 3 - C/C++ Translator
- [] 4 - High Integrity ADA Translator
- [] 5 - User rules proof tools
- p - proceed

Select/Deselect product number : [0]?

In this menu, select the products you wish to install, by giving their number. Each time a product is selected a "*" character appears next to its name.

To select the products to install, refer to section 3.1.1.

8. After selecting the products, type "p" to install the files corresponding to the selected products.

The script uncompresses and reads the selected files on the CD-ROM, and messages of the following kind are displayed:

```
./AB/AtelierB
./AB/bbin/Xdefault_atelierb
./AB/bbin/bprint
./AB/bbin/linux/benv
./AB/bbin/linux/bbatch
./AB/bbin/linux/BBeautifuler
./AB/bbin/linux/pk
./AB/bbin/linux/krt
./AB/bbin/linux/PO.kin
...
```

You can also install the files without using the Atelier B installation script. For that, the procedure below must be followed:

1. Log in as *atelierb*
2. Go to `atelierb_directory`
`cd atelierb_directory`
3. “List” the contents of the CD-ROM
`ls /cdrom`
4. To install the `tar` file,
 - For Sun, type the command : `zcat /cdrom/tarxxx.Z | tar xvf -`
 - For Linux, type the command : `tar xzvf /cdrom/tarxxx.tgz`
The files in `tarfile` are written in `atelierb_directory`.
5. Repeat the above operation for each `tar` file that you wish to install.

You should then:

- install the Atelier B licence management system (refer to section 4) then,
- configure Atelier B (refer to sub-section 5.1)

Chapter 4

Using licences

To use Atelier B, you must install the licences supplied by ClearSy. The installation procedure contains three steps:

1. obtaining licence numbers,
2. creating the licence file,
3. installing the Atelier B licence server.

These three steps are described in this section.

This section also explains how to:

- display information on Atelier B usage,
- analyze error messages related to the use of the licences,
- retrieve a lost licence.

4.1 Obtaining Licence Numbers

To obtain one or more Atelier B licences, you must send the licence request form found in the Appendix. You can do this by fax (+33 (0)4 42 37 12 71) or by email (maintenance.atelierb@clearsy.com).

In this form, you must specify the characteristics of the machine that will be used as the licence server. This machine is not necessarily the machine that Atelier B will be run on, but it must be visible to all the machines that will run Atelier B.

For a licence server under Solaris, you must provide the “hostid” of the machine. The “hostid” is obtained by typing the command: `hostid`

For a licence server under Linux, you must provide the Identifiant of the machine. This Identifiant is obtained by typing the command: `/etc/hosts` from the root of the CDROM.

4.2 Creating the Licence File

To create the licence file with the help of the Atelier B script installation, you must follow the following procedure:

1. If the Atelier B installation script has already been started up, go directly to step 4.
2. Log in as *atelierb*
3. Start the Atelier B installation script:
`/cdrom/install_atelierb` or
`atelierb_directory/install_atelierb`
4. Select step 2 : “*Install the licence management system*”
5. Answer “yes” to the question : “ Do you wish to create a licence file ”.
6. Type the full path of the directory where the licence file has to be created. We recommend the use of the directory `atelierb_directory/AB/bbin`.
7. Type each of the passwords which are on the licence form which we will have been sent back to you (refer to section 4.1).
8. After typing the last password, type “q”. The script will create the licence file, refer to section 4.7 if it displays an error message.

If there is no error, the script displays the contents of the licence file. Refer to section 4.3 for a description of the licence file.

The script then automatically launches the Atelier B licence server. Follow the instructions in section 4.4.2 so that the licence server is automatically launched every time the machine is started up.

You can also create the licence file “manually”, with the program named `licence` provided with Atelier B.

It is used in the following way:

1. Choose, and if necessary create, the directory where the licence file will be located. We recommend using `atelierb_directory/AB/bbin`.
2. Set the environment variable `LICENCE_PATH`.
 For example with `csh`:
`setenv LICENCE_PATH <licence file directory>` and with `sh`:
`LICENCE_PATH=<licence file directory> export LICENCE_PATH`
3. Log-on to the machine that will be the licence server (the one specified on the licence request form).
4. Go to the directory of Atelier B executables:
`cd atelierb_directory/AB/bbin/<system>` with
`<system> = sun5.6` for a machine with Solaris 6 or greater,
`<system> = hp10` for a machine with HP-UX,
`<system> = linux` for a machine with LINUX.

5. Execute the licence program: `licence <password>`
where `<password>` is the number given by CLEARSY. This program creates a `licence.dat` file in the `$LICENCE_PATH` directory.
6. If there is an error refer to section 4.7.

4.3 Licence file description

The `licence.dat` file contains all the information on the available licences.

In this file, lines that start with `#` are comments.

The information comprises:

- The name of the server machine. For example:
`Server name: SERVER`
- The number of the port used by Atelier B for communication with the licence server.
You can change this number if it is already used by another application.
`Communication port number: 5010`
- For each available licence:
 - the application name,
 - the application identifier (internal),
 - the number of available licences,
 - the licence deadline, or “Unlimited” if the licence does not have a deadline.
 - The “All” indicator showing that the licence can be used on all the machines in the network,
 - The licence password.

Example of a licence file:

```
# Atelier B licence file
Server name: MARION
Communication port number: 5010
# Fields in lines below:
# Application name - Application number - Number of licences - Expiration date
# HostId - licence number
Atelier B 3.7 - 1 - 30 - Unlimited - All - JDGEBAEGSBKAGREC
C Translator - 4 - 30 - Unlimited - All - JDMANHMRJBGACLSS
```

4.4 Installing a Licence Server

The licence server is an executable program named `lic_manager` that reads the licence file created during the previous step.

This program is queried by Atelier B each time it is used.

You can therefore:

1. start the program before the first use of Atelier B, or
2. configure your server machine so that the program is started automatically upon startup.

4.4.1 Starting the licence server manually

To manually start the Atelier B licence server, simply type the following command in a UNIX window:

```
atelierb_directory/AB/bbin/<system>/lic_manager &
```

You must first have positioned the `LICENCE_PATH` environment variable to the licence file directory.

You can then check the server operation by accessing the trace file named `licence.log` present in the `$LICENCE_PATH` directory.

4.4.2 Starting the licence server automatically

You can also configure your system so that the licence server will be run automatically when the system is started.

Warning: this configuration must be performed by the system administrator as super-user privilege is required.

1. Log-on as super-user,
2. Edit the configuration file:
For Solaris: `atelierb_directory/AB/INSTALL/etc/solaris/rc.atb`
For Linux: `atelierb_directory/AB/INSTALL/etc/other/rc.atb`
3. In this file, change the values of the following variables:
`ATELIERB_HOME` : Atelier B installation directory.
`LICENCE_PATH` : directory containing the licence file.
4. Save the changes made.
5. Then set the system parameters as follows, for:

Solaris type the following commands:

```
cd atelierb_directory/AB/INSTALL/etc/solaris
./rc.atb install
```

This command creates the necessary files in the `init.d`, `rc*.d` directories.

Linux add the contents of the file at the end of the `/etc/rc.local` file.

4.5 Displaying information on licence use

The Atelier B licence server creates two files used to obtain information on licence use:

- the `licence.log` file, and
- the `licence.sta` file.

4.5.1 Using the licence.log file

The `licence.log` file in the `$LICENCE_PATH` directory is updated each time the licence server assigns or releases a licence. For each operation, it displays:

- the date and the time,
- the type of operation performed: `BEGIN` for assigning a licence, `END` for releasing a licence.
The `IN` and `OUT` codes correspond to assigning or releasing a licence for a separate executable program.
- The type of licence assigned or released,
- The user characteristics (login name, machine name, X11 display).

Example:

When user `user1` starts Atelier B on machine `mach_name`, the following messages will be printed in the `licence.log` file:

```
04/12/1996 10:10 BEGIN: <Atelier B 3.7 - Principal> by user1@mach_name(:0)
04/12/1996 10:11 IN: <Atelier B 3.7 - logic_solver> by user1@mach_name(:0)
04/12/1996 10:12 OUT: <Atelier B 3.7 - logic_solver> by user1@mach_name(:0)
04/12/1996 10:12 END: <Atelier B 3.7 - Principal> by user1@mach_name(:0)
```

The `IN` and `OUT` messages correspond to the opening of a project.

4.5.2 Using the licence.sta file

The `licence.sta` file present in the `$LICENCE_PATH` directory contains the list of Atelier B users.

This file is updated each time a user starts or quits Atelier B.

It contains:

- The date and time of the last update,
- For each type of licence:
 - the type of licence,
 - the user's characteristics (login name, machine, X11 display, ...),
 - the number of unused licences available.

Example:

```
04/10/2006 10:25
-----
ADA Translator
10 free licences
C Translator
10 free licences
Atelier B 3.6
```

```

user1@machine1(machine1:0.0) [gpid = 15847]
    ''Atelier B'' ''Principal'' user1 machine1 machine1:0.0 15847
    ''Atelier B'' ''krt'' user1 machine1 machine1:0.0 15847
user2@server(server:terminal1:0.0) [gpid = 10998]
    ''Atelier B'' ''Principal'' user2 server terminal1:0 10998
8 free licences

```

4.6 Retrieving Lost Licences

It is possible that Atelier B licences may not be released correctly; for example, when Atelier B is suddenly stopped (e.g., with the *kill -9* command).

In this case, there are two methods available for retrieving licences that have not been released:

1. The first solution is to manually stop, then re-start the licence server:
 - (a) Ask all Atelier B users to quit the application.
 - (b) Identify the *process* number of the licence server:


```
ps -ef | grep lic_manager
```
 - (c) Stop the licence server by “killing” the *process*:


```
kill <num_process>
```
 - (d) Re-start the licence server by following the instructions in sub-section 4.4.1.
2. The second solution uses the *lic_retrieve* program supplied with Atelier B:
 - (a) Determine the characteristics of the licence to retrieve by referring to the *licence.sta* and *licence.log* files.
 - (b) Go to the directory of Atelier B executables:


```
cd atelierb_directory/AB/bbin/<type>
```
 - (c) Run the *lic_retrieve* program giving the characteristics of the licence to retrieve as parameters, e.g.:


```
lic_retrieve ''Atelier B'' ''Principal'' user1 machine machine:0 15847
```

 You can copy the parameters from the file *licence.sta*.
 - (d) Check that the licence was correctly released by referring to the *licence.sta* and *licence.log* files.
 Warning, if Atelier B was stopped while a project was opened, the licence corresponding to the *krt* program must also be released:


```
lic_retrieve ''Atelier B'' ''krt'' user1 machine1 machine1:0
```

4.7 Error Messages

This sub-section describes the error or warning messages that are caused by incorrect use or incorrect operation of the Atelier B licence management system.

The messages are sorted in alphabetical order. For each message, the various causes that triggered the error condition as well as the corrective action required are described.

Cannot access LICENCE_PATH directory

It is not possible to access the directory specified in the LICENCE_PATH variable.

If this directory does not exist, the value of the environment variable must be changed.

If this directory exists and is not accessible to all Atelier B users, then its access mode must be changed.

Cannot access licence file

The directory specified in the LICENCE_PATH variable does not contain a licence.dat file.

The value of the LICENCE_PATH variable must be changed or the licence file must be created using the program named licence.

Cannot contact licence server

This message is displayed when the tools do not receive any answer from the licence server.

The licence server is probably not running.

Cannot contact licence server: unknown address

The machine does not know the machine where the licence server is running.

The name of this machine is given in the second line of the licence file.

This machine must be added to the list of machines known by your machine (for instance, in the `/etc/hosts` file).

Cannot read licence file

The licence file cannot be read.

The licence.dat file present in the directory specified by the LICENCE_PATH variable is not accessible in read mode.

This file must be accessible in read mode for all Atelier B users.

Cannot write licence file

This message is only displayed when the program named licence, is used for updating the licence file.

This program is normally used only when adding new licences.

The access rights to this file must be changed so that it can be modified by the user who modifies the licence file.

Communication error: address already used

This error occurs when the port number used by the licence server is already being used by another application.

The port number is specified in the licence file.

To change it:

- stop the licence server,
- edit the licence.dat file
- change the port number in the third line
- re-start the licence server

Invalid licence file

The data present in the licence file is incorrect.

The only solution is to re-create the licence file by giving again all the licence passwords to the licence program.

Invalid licence number

The licence file contains an incorrect licence password.

The licence file must be re-created using the program named licence and the licence passwords supplied by CLEARSY.

Ensure that the licence passwords in the licence.dat file do correspond to the passwords supplied by CLEARSY.

If this is the case, contact CLEARSY for new passwords.

No licence available

This is the most frequent message when using Atelier B or a translator.

If there are licences for this tool, and if they are all busy, the list of tool users is given in the following format:

<user name>@<machine name>(<display>)

Example:

No licence available

Users :

jerome@atb(atb:0)

christophe@terre(terminal1:0)

Unknown licence file path

You forgot to set the

LICENCE_PATH environment variable to the directory containing the licence file.

Licence has expired

This message is displayed when your licence is no longer valid.
The licence file contains for each licence a deadline or the
“Unlimited” character string if not.

Example:

```
licence.dat :
=====
# licence available until 01/09/2006
C Translator - 4 - 1 - 01/09/2006 - All - FCKMFDHPRSDSMKNDKCEBLCEBJEEDJFEJ
# Unlimited licence
Atelier B 3.6 - 0 - 1 - Unlimited - All - GEHFFSRFSMCLJPJG
```

This machine is not allowed

Some licences are restricted to specific machines
(4 different machines max.).
The list of machines allowed is specified in the licence file.

```
licence.dat :
=====
# unlimited licence
Atelier B 3.7 - 1 - 1 - Unlimited - All - PRNGMDGSJGHSHDBN
# licence available only for hostid :
# - 8030A39D
# - 778A2926
# - 8073FF18
# - 8073DD20
Animator - 8 - 1 - Unlimited - 8030A39D 778A2926 8073FF18 8073DD20 -
LPLAHEPGEANNARENPAEFMLKNERRMGNKFEFLNMSBGHAHPJPP
```


Chapter 5

Installing Atelier B

This section describes the procedures to follow in order to:

- configure Atelier B and its options,
- configure the account of a user of Atelier B,
- start Atelier B.

This section also comprises a sub-section describing the scripts and configuration files used by Atelier B upon startup.

5.1 Configuring Atelier B and its options

You will need to configure Atelier B so that it can easily access:

- external tools for which it produces files (*vcg*, \LaTeX , etc.),
- system resources required for its operation,
- optional tools (translators, etc.)

The installation script will ask you the following questions:

Question	Typical location
Location of \LaTeX executables	/usr/local/bin
Location of <i>vcg</i>	/usr/local/bin
Location of a HTML browser	/usr/local/bin
Location of <i>daVinci</i>	/usr/local/bin

These tools are optional. Before configuring Atelier B, ask your system administrator whether these tools are present and where they are located.

In order to configure Atelier B and its options for your system, perform the following operations :

1. If the Atelier B installation script has already been started up, go directly to 4.

2. Log-on as *atelierb*
3. Start the Atelier B installation script:
`/cdrom/install_atelierb` or
`atelierb_directory/install_atelierb`
4. Select step 3 : “*Configure and parameter the Atelier B products*”
5. Give the path of the directory where the Atelier B files are installed.
6. The configurable products menu is then displayed:

Select products :

```
[ ] 0 - All products
[ ] 1 - Atelier B basic version
[ ] 2 - ADA Translator
[ ] 3 - C/C++ Translator
[ ] 4 - High Integrity ADA Translator
[ ] 5 - User rules proof tools
    p - proceed
```

Select/Deselect a product number : [0]?

7. Select the products you wish to configure, then type “p” to start the configuration.

For each product, the script will check that all the files necessary for its functioning are in present, with correct access mode.

For Atelier B basic version, the script will ask you questions about the location of external optional tools. From this information, it will construct the Atelier B starting files, which are described in sub-section 5.4.

For translators and the rule proof tools, the script will parameter Atelier B so that it can use them.

Warning: If you use Atelier B on a network of heterogeneous machines (refer to sub-section 2.2) you must configure Atelier B for each type of system.

You can then start Atelier B using the following start-up scripts:

- `atelierb_directory/AB/bbin/startAB` for the Motif interface.
- `atelierb_directory/AB/bbin/startBB` for the command line interface.

5.2 User environment

This sub-section describes all the environment variables required for optimal use of Atelier B.

- Accessing Atelier B executable programs:

Add to your `PATH` variable, the path of the directory of Atelier B executable programs:

```
setenv PATH ${PATH}:atelierb_directory/AB/bbin
```

or

```
PATH=${PATH}:atelierb_directory/AB/bbin export PATH
```

- Access to the licence file:

The `LICENCE_PATH` environment variable is used by Atelier B to retrieve the licence file. If your licence file is present in the usual location, type the following command:

```
setenv LICENCE_PATH atelierb_directory/AB/bbin
```

or

```
LICENCE_PATH=atelierb_directory/AB/bbin export LICENCE_PATH
```

- Access to Motif dynamic libraries:

Dynamic libraries are automatically loaded by Atelier B. However, you must check that they are correctly installed in your system (refer to sub-section 2.1.5).

According to the type of installation, you may have to modify the `LD_LIBRARY_PATH` environment variable.

- Accessing \LaTeX executable files

Atelier B uses \LaTeX for its documentation functions, therefore the user must configure his environment for using \LaTeX .

\LaTeX is usually supplied with a configuration file named `texenv.csh` or `texenv.sh`. It is generally located in the directory `/usr/local/lib/texmf/bin`.

Therefore, simply type:

```
source /usr/local/lib/texmf/bin/texenv.csh
```

or

```
. /usr/local/lib/texmf/bin/texenv.sh
```

5.3 Using a remote Atelier B data base

The *Atelier B data base* is a directory that contains information on the projects created by Atelier B users.

By default it is located in the `atelierb_directory/AB/press/bdb` directory.

This directory must be accessible in write mode for the *atelierb* group so that users can create projects.

If you install Atelier B on a read-only filesystem, then you will need to “*relocate*” this directory onto another filesystem that is accessible in write mode.

If `bdb_dir` is the access path to the directory that you have selected.

To configure Atelier B, edit the `AtelierB` file that is in directory `atelierb_directory/AB`.

In this file, replace the line :

```
ATB*ATB*Atelier_Database_Directory: atelierb_directory/AB/press/bdb
```

with the line :

```
ATB*ATB*Atelier_Database_Directory: bdb_dir.
```

5.4 Starting Atelier B

Atelier B is started up by the two (Bourne-shell) scripts below:

- `atelierb_directory/AB/bbin/startAB` for the Motif interface.
- `atelierb_directory/AB/bbin/startBB` for the command line interface.

The script determines the type of system where it is started up, using the system command `uname`.

```
machine='uname -a | awk '{print $1}''
systeme='uname -a | awk '{print $3}''
short_systeme='echo $systeme | cut -d'.' -f1-2'
if [ "$machine" = "SunOS" ]
then
if [ "$systeme" = "5.6" ]
then
type="sun5.6"
.....
elif [ "$machine" = "Linux" ]
then
.....
fi
else
echo "Warning: unknown operating system : $machine"
fi
```

After this operation, the script starts the user interface passing as parameter the location of the `AtelierB` global resource file.

Chapter 6

Customizing Atelier B

This section describes how the user can set Atelier B parameters in order to customize the:

- appearance of Atelier B (colors, fonts, etc.),
- external tools used by Atelier B (editor, HTML browser, etc ...),
- memory amount used by Atelier B,
- parameters of Atelier B tools,
- printing script used for documents generated by Atelier B,

6.1 Configuring your Window manager

Some window manager characteristics must be changed so that Atelier B can be used in most favorable conditions.

These characteristics are:

- placing of windows on initialisation,
- size of icons,
- windows selection mode.

File `AB/bbin/Xdefault_atelierb` contains parameters for some of the supported window managers (`mwm`, `olwm`, `fvwm`, `vuewm`).

You must copy the parameters for your window manager to the `.Xdefault` file present in your `$HOME` directory for them to take effect.

6.2 Modifying Atelier B parameters

6.2.1 Presentation of the customization system

Atelier B parameters are, by default, defined in file `AB/AtelierB`. This file contains parameters shared by all `atelierb` users. It is also possible to define specific parameters for a

user or a project (refer to *Atelier B User Manual*)

This file has the following format : Lines beginning with an exclamation mark ! or a hash sign # are comments; other lines contain the name of a resource followed by its value.

The file contains the following parts :

- Graphical resources :
benv*<resource_name>
- Localisation of internal tools :
ATB*ATB*<resource_name>
- Localisation of optional tools :
ATB*OPT_TOOLS_<system>*<resource_name>
where <system> is LINUX for a Linux machine, HP10 for HP-UX 10.20, SUN5_6 for Solaris 6 or greater.
- Parameters for internal tools :
ATB*<internal_tool>*<resource_name>.

Examples :

benv*background : gray85

This resource gives the background color of the graphical user interface

ATB*OPT_TOOLS_LINUX*HTML_Viewer_Path: /usr/local/netcape/netcape

This resource gives the path of the HTML browser to be used on a Linux machine.

ATB*POG*Generate_Obvious_PO: FALSE

When the value of this resource is FALSE, Atelier B doesn't save obvious proof obligations.

To modify a resource for all Atelier B users, the procedure is :

1. Log-in as **atelierb**,
2. Go to the Atelier B installation directory :
cd atelierb_directory/AB
3. Edit the file named **AtelierB**
4. Change the line corresponding to the resource with the new value.
5. Save your changes.

6.2.2 Modifying Motif resources

The term resources covers fonts, background and foreground colors, thicknesses and various graphical attributes for each object of the Atelier B Motif interface.

The user has two options for modifying them:

1. Modification for all Atelier B users:
Modify the resources in the **AB/AtelierB** file supplied.

2. Modification for a specific user:
 Copy the `AB/AtelierB` file in another place;
 modify the resources in this new file;
 type the command: `xrdb new_file`

6.2.3 Modifying the external tool paths

By default, Atelier B uses the external tools selected during installation.

To modify one of these tools for all Atelier B users, you have to modify the value of its resource :

Outil	Ressource
Text Editor	ATB*OPT_TOOLS_LINUX*Editor_Path
L ^A T _E X	ATB*OPT_TOOLS_LINUX*Latex_Binary_Directory ATB*OPT_TOOLS_LINUX*Latex_Viewer ATB*OPT_TOOLS_LINUX*Latex_Postscript_Translator
VCG	ATB*OPT_TOOLS_LINUX*VCG_Path
DaVinci	ATB*OPT_TOOLS_LINUX*DaVinci_Path
HTML browser	ATB*OPT_TOOLS_LINUX*HTML_Viewer_Path

You can also write arguments to the command, for example :

ATB*OPT_TOOLS_<SYSTEM>*Editor_Path: /usr/openwin/bin/textedit -bg black -fg white
 for an editor with a white foreground and a black background.

If a user wants to have a different resource from the ones used by the other users, he has to follow the procedure described in *Atelier B - User Manual*.

6.2.4 Modifying memory allocation

Configuring the Logic Solver

Modifications of the Logic Solver parameters are required in the following cases:

- Your machine does not have enough memory to execute Atelier B.
 Message type:

```
Cannot launch the Logic Solver
(check if there is enough memory)
```
- The complexity of your B project, forces you to increase the memory size.
 Message types:

```
Compiler Memory Full
SEQUENCE ID NUMBERS OVERFLOW
SEQUENCE MEMORY OVERFLOW
SEQUENCE _chn ID NUMBERS OVERFLOW
SEQUENCE _chn MEMORY OVERFLOW
stopping forward because ...
OBJECTS OVERFLOW
MAXIMUM NUMBER OF THEORIES xx REACHED
GOAL STACKS OVERFLOW
SYMBOLS OVERFLOW at <symp>
```

To set Logic Solver parameters for all Atelier B users, it is necessary to modify the value of the resource named `ATB*ATB*Logic_Solver_Command` in file `AB/AtelierB` (Refer to section 6.2.1).

Depending on the size you need, you have to replace the line

```
ATB*ATB*Logic_Solver_Command: krt
```

with one of the following ones:

- for a small Logic Solver :
`ATB*ATB*Logic_Solver_Command: krt -a m700000e40`
- for a medium Logic Solver :
`ATB*ATB*Logic_Solver_Command: krt -a m1000000e40`
- for a large Logic Solver :
`ATB*ATB*Logic_Solver_Command: krt -a m4000000e40`
- for an extra-large Logic Solver :
`ATB*ATB*Logic_Solver_Command: krt -a m6000000e40`

If a user wants a Logic Solver with another size (different from the size used by all Atelier B users), he must write its value for the resource `ATB*ATB*Logic_Solver_Command` in a file named `.AtelierB` in his home directory. The procedure for creating this file is described in *Atelier B - User Manual*.

Configuring the K parser

Modification of the K parser parameters must be performed if your B source files are very large or if these files contain a large number identifiers:

Messages like:

```
SEQUENCE ID NUMBERS OVERFLOW
SEQUENCE MEMORY OVERFLOW
SEQUENCE _chn ID NUMBERS OVERFLOW
SEQUENCE _chn MEMORY OVERFLOW
SYMBOLS OVERFLOW at <symb>
```

To modify the K parser parameter settings, please follow the same procedures as above, using the resource named `ATB*ATB*KParser_Command`.

6.2.5 Configuring Atelier B internal tools

Resources for configuring Atelier B internal tools are described in the document *Atelier B - User Manual*. These resources can also be added to the file `AB/AtelierB` to be shared by all Atelier B users.

6.2.6 Configuring the printing script

By default, the printing script used by Atelier B is the script named `atelierb_directory/AB/bbin/bprint`

To use another printing script:

1. create a new script file
2. modify the value of the resource `ATB*ATB*Print_Command` in the file `AB/AtelierB` with the full path of the new script file.

Chapter 7

Previous versions of Atelier B

This section describes the procedure to follow so as to retrieve the projects developed with the previous version of Atelier B (versions 3.6.x).

The procedure to follow is:

1. Archiving projects: With the previous version of Atelier B, you must archive the projects you wish to retrieve. To do this, use the “Archive project” function described in the “User Manual”. You need only archive B source files and proof files.
2. Installing the new version of Atelier B: Follow the instructions of this manual to fully install the new version of Atelier B.
3. Restoring projects: With the new version of Atelier B, restore the projects which were archived previously using the “Restore Project” function as described in the user’s manual.

Warning, licences for version 3.4 are different from licences for the previous versions. You have to install the new licence server to use this version.

For Linux platforms, this version of Atelier B is now compatible with the dynamic libraries present in current Linux distribution. It is not necessary anymore to install specific C library files in order to use Atelier B.