# Instructions for Installing
# C* Version 6.0.3

## Introduction

This is the installation guide for C* Version 6.0.3. Read it completely before attempting the installation.

## Planning the Installation

### General

Perform the installation as superuser.

The installation may be run from any directory to which you have write access as super user.

When answering any question during the installation, you can accept the default (which is indicated in square brackets) by simply pressing the RETURN key in response to the question. In addition, you may escape to a subshell at any time by entering ! (exclamation) in response to a question.

### Choosing a Tape Drive

The installation may be performed from either a local or a remote tape drive. You should decide on which type you will use. In general, a local tape drive is preferred.

Next, find the name of the non-rewinding tape device that you will be using for the installation. On an Ultrix system, the reel tape is often /dev/nrmt0h. On a Sun, the reel tape is often /dev/nrmt8, and the cartridge tape is often /dev/nrst8. If you are not sure of the device name for your tape drive, check with your system administrator.

Last, if you have decided to use a remote tape drive, make sure that you have root access to the remote system by executing the following command on the system where C* is to be installed:

```
#   rsh remote_host_name date
```

If you receive a "Permission denied" message, you need to add the name of your machine to the / .rhosts file on the remote machine.

## Installation Components

The entire installation (including optional components) uses about 4Mb of disk space. Each component is described below. The description includes the approximate size of each component and the suggested location into which the component should be installed.

## Compiler Executables

This component contains the driver script and the C* compiler proper. It is a required component that needs about 1.4Mb of disk space. We suggest that this component be placed in **/usr/local/bin**.

## Header Files

The header file component is a directory with all of the C*-specific header files used by the compiler. It is a required component that needs approximately 90Kb of disk space. We suggest that this component be placed in **/usr/include**.

## Runtime Library

The runtime library component contains three versions of the C* runtime library: the standard version, the performance monitoring (**pg**) version, and a version for performance analysis with Prism. This required component needs approximately 1Mb of disk space. We suggest that this component be placed in **/usr/local/lib**.

## Manual Pages

The manual pages are required and need approximately 15Kb of disk space. We suggest that the man pages be placed in the traditional repository for local manual pages, `/usr/man/man1`.

## Example Programs

This component contains a number of example C\* programs along with a **dbxinit** file that users will find useful for debugging C\* programs with **dbx**. The example programs are an optional (but strongly recommended) component that require approximately 60Kb of disk space.

## Contributed Software

This optional component require approximately 2.0Mb of disk space. See the release notes for a list of its contents. We recommend this optional component as well, if you have the disk space for it.

# Reading the Tape

As mentioned earlier, the C\* installation may be done from either a local or remote tape drive. In either case, the first step is to read the installation script off the tape.

To do this, first become super user and change to the directory from which you will do the installation. If you are doing the installation from a remote tape drive, skip to the section "Reading a Remote Tape." If you are using a local tape drive, continue to the next section.

## Reading a Local Tape

To unload the installation procedure from a local tape drive, issue the following commands:

```
# mt -f tape_device rew
# mt -f tape_device fsf
# tar xf tape-device
```

where *tape_device* is the name of the non-rewinding tape drive that you are using for the installation.

For example:

```
# mt -f /dev/nrmt0h rew
# mt -f /dev/nrmt0h fsf
# tar xf /dev/nrmt0h
```

You can now skip the section "Reading a Remote Tape," below, and continue with the section "Installing C* Version 6.0.3."

## Reading a Remote Tape

To unload the installation procedure from a remote tape drive, issue the following commands:

```
# rsh remote_host_name mt -f tape_device rew
# rsh remote_host_name mt -f tape_device fsf
# rsh remote_host_name dd if=tape_device ibs=bs | tar xpBf -
```

where:

> *remote_host_name*   is the name of the machine with the tape drive.
>
> *tape_device*       is the device name of the remote non-rewinding tape drive.
>
> *bs*               is the blocksize to use when reading the tape. If you are reading from a reel (9–track) tape, then *bs* is 20b. If you are using a Sun cartridge, *bs* is 126b.

For example:

```
# rsh cmns mt -f /dev/nrmt0h rew
# rsh cmns mt -f /dev/nrmt0h fsf
# rsh cmns dd if=/dev/nrmt0h ibs=20b | tar xpBf -
```

# Installing C* Version 6.0.3

## Issuing the Command

To install C*, issue this command:

```
# ./csinstall 6.0.3
```

## Answering the Questions

First you will be asked a set of questions about the tape drive that you are using. Having gotten this far in the installation process, the answers will be obvious to you. The questions are listed below.

```
Is this a remote installation? [n]
Enter the name of the tapeserver host [no default]
What is the name of your non-rewinding tape drive device? [/dev/nrst8]
Is the distribution on a cartridge tape? [y]
```

Next, you may then elect to see the name of each file as it is extracted from the tape. If you want a detailed list of the files being installed, then answer **yes** to this question.

```
Should the files be extracted from the tape verbosely? [n]
```

You will then be asked to make sure that the tape is mounted and ready. Don't be alarmed that the procedure is asking for Tape 1; the C* installation uses only one tape.

```
Is tape 1 mounted and ready to go?
[Type carriage return when ready]
```

The next set of questions take care of installing each of the required components of the C* compiler. After each question is answered, the installation script will unload that component into the specified location.

```
Where do you want to put the C* Compiler Executable [/usr/local/bin]?
Where do you want to put the C* Header Files [/usr/include]?
Where do you want to put the C* Runtime Library [/usr/local/lib]?
Where do you want to put the C* Manual Pages [/usr/man/man1]?
```

Questions about the optional components are asked next. We recommend that you install both of these components.

```
Do you want the Example C* Programs ?
Where do you want to put the Example C* Programs [.]?
Do you want the Contributed C* Software ?
Where do you want to put the Contributed C* Software [.]?
```

Everything has now been read from the tape. The next set of questions asked by the procedure are used to customize the installation to the environment at your site. Each of these questions will ask for a pathname that is valid from a user's point of view. The pathnames that you specify in this section might be different from those that you specified when you unloaded the tape. This might be the case, for example, if you are installing C* onto a server that will be exporting the C* directories to client machines from which users will be running C*. In this case, the pathname used to access a directory on the server may be different from the pathname used to access that same server directory from the client.

The questions are shown below. The first three deal with the C* components that were just installed from tape. The last two questions ask about how the CM System Software has been installed at your site. To work correctly, C* must be able to find both the Paris libraries and the CM header file directory.

```
Where would a user find the C* Compiler Executable [/usr/local/bin] ?
Where would a user find the C* Runtime Library [/usr/local/lib] ?
Where would a user find the C* Header Files directory [/usr/include] ?
Where would a user find the PARIS Libraries [/usr/local/lib] ?
Where would a user find the CM Header Files directory [/usr/include] ?
```

The final question asks where you want to put the C* release notes and bug-update files.

```
With each software release Thinking Machines will now be sending an ASCII
bug-update file that lists fixed bugs and outstanding bugs for C*. We
will also be sending monthly updates to this file.

The bug-update file for this release is called cstar-6.0.3.bugupdate.

In addition, Thinking Machines will now be sending an ASCII version of
the C* release notes for each release.  The file for this release is
called cstar-6.0.3.releasenotes.

Where would you like to install the bug-update file and release notes
[/usr/cm/doc] ?
```

After you have answered this question, the installation procedure will perform some final customizations and then exit. The installation of C\* is now complete.

## After the Installation

We suggest that you verify the installation by compiling and running one of the supplied example programs. To compile and run the program, move to the directory containing the C\* example programs and issue the following commands.

```
% rehash
% cs -o primes primes.cs
% cmattach primes
```

The rehash may be necessary to update the shell's hash tables to see the newly installed **cs** command.

The output from running the program **primes** is a long list of prime numbers, beginning and ending as follows:

```
The next prime number is 2
The next prime number is 3
The next prime number is 5
The next prime number is 7
The next prime number is 11
The next prime number is 13
The next prime number is 17
The next prime number is 19
[...]
The next prime number is 16349
The next prime number is 16361
The next prime number is 16363
The next prime number is 16369
The next prime number is 16381

%
```