C-TOOLS help
& instructions

Installation of C-TOOLS on a Mac Server

0. About this Document

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1. Introduction

These instructions for the installation and running of C-TOOLS on a Mac Server have been designed to be as non-intrusive as possible on the operating system. The installation approach here is to place the majority of files and associated applications into a regular user's home directory. Be advised, however, that administrator-level privileges are required to complete a successful installation of the C-TOOLS software. This set of installation instructions is meant for a full-scale C-TOOLS server installation. For a reduced applet-only test drive installation of the C-TOOLS software, please visit http://ctools.msu.edu/pub/software/ctools/

Of special note in terms of dependencies, C-TOOLS can be delivered with a modified version of httpi and this removes the need for configuring and relying on the complex Apache web server. There is also a significant amount of external dependencies (e.g., MySQL) and middleware (e.g., Zope) upon which the C-TOOLS resource runs. While the C-TOOLS' development approach allows for some flexibility and efficiency in feature customization upon the current code base, the usage of different middleware solutions creates significant complexity with overall software installation and administration. Please be forewarned that the variety of components and options associated with a full-scale C-TOOLS

installation would call for an experienced system administrator and web master (to, for example, set up an Apache web server) to fully configure, optimize and test all aspects of the installation, and that producing a fully configured, optimized and tested implementation of a C-TOOLS server may take up to a week's worth of time.

After completing a C-TOOLS server installation, you would point your web browser to http://127.0.0.1:8080/.   The recommended browser for C-TOOLS is Mozilla Firefox (http://www.mozilla.org), although the general experience with C-TOOLS (and the basis for the applet code's design) is to work across a wide variety of web browsers. Please also see the system administration instructions for a checklist of functionalities to test on a C-TOOLS server.

2. Getting the Software

C-TOOLS software is available from
http://ctools.msu.edu/pub/software/ctools

Select the full-scale installation link.

Download the http://ctools.msu.edu/pub/softwaredep/ctools/ctools-1.0a.tar.gz file and, as desired, obtain software packages from the dependencies directory (http://ctools.msu.edu/pub/softwaredep).

Depending on your browser configuration, you may need to recompile the java applet with IP address for your machine.
ConceptWebClient.java

Recommended compilation of the java applet file into class files would be with jdk version 1.3. See the inside of the ConceptWebClient.java file for more information on java compilation and browser compatibility.

3. Dependencies

Your operating system must be Mac OS 10.3 or greater. This set of installation instructions has been tested against Mac OS 10.3.
To build and install C-TOOLS on a Mac OS/X system, you will likely need operating system development packages such as 'BSD.pkg', 'DevSDK.pkg', and 'DevTools.pkg'.

Dependencies for C-TOOLS are grouped as being external dependencies or internal dependencies. The external dependencies typically require the user to have administrative-level privileges, and the internal dependencies are bundled with the C-TOOLS download for Mac OS/X. The C-TOOLS external dependencies are ActivePerl, MySQL, Plone/Zope, and Subversion. The C-

TOOLS internal dependencies are httpi, various ActivePerl modules, A-A-P, and the C-TOOLS patched version of neomail.

Each dependency is listed below with the associated version number. You may consider using more up-to-date versions of dependencies, but this may effect overall cross-compatibility between software components.

To open up a Mac terminal application: you can access a Mac terminal through the Finder (typically leftmost icon on the bottom toolbar), select Applications, Utilities, and then "Terminal."

3.1 External dependencies:

You may find the file packageinstall3.pl to be a helpful guide to the following procedure.
http://ctools.msu.edu/pub/softwaredep/ctools/packageinstall3.pl

ActivePerl (version 5.8.8.819)
http://downloads.activestate.com/ActivePerl/MacOSX/5.8/ActivePerl-5.8.8.819-darwin-8.7.0-gcc-267479.dmg
http://ctools.msu.edu/pub/softwaredep/ActivePerl
Installation instructions:
Install the package by double-clicking the .dmg file, then double-clicking on the ActivePerl package.

Note: most of the ActivePerl content is placed inside the /usr/local/ActivePerl-5.8 directory on your system.

Perl modules are available from
http://ctools.msu.edu/pub/softwaredep/ctools_ppm/

MySQL (version 5.0)
http://dev.mysql.com/doc/refman/5.0/en/mac-os-x-installation.html
http://dev.mysql.com/downloads/mysql/5.0.html
Example download file: mysql-standard-5.0.26-osx10.3-powerpc.dmg
http://dev.mysql.com/doc/refman/5.0/en/post-installation.html
Installation instructions:
You probably want to get the most recent version of MySQL (get the "standard" version).

Mount the disk image by double clicking on the download file.
First install MySQL, and then the Startup Item (so that the MySQL server processes start each time you start your computer).

Or just add the following line to /etc/hostconfig
MYSQLCOM=-YES-

Enter these commands from a Terminal.
/usr/local/mysql/bin/mysql –u root mysql -p
UPDATE mysql.user SET PASSWORD=PASSWORD ('something') WHERE user='root';
DELETE FROM user WHERE host!='localhost';
INSERT INTO user (Host, User, Password) VALUES ('localhost','www',password('localhostkey'));
DELETE FROM mysql.user WHERE Host='localhost' AND User='';
CREATE DATABASE ctools;
FLUSH PRIVILEGES;
GRANT ALL ON ctools.* TO 'www'@'localhost';
FLUSH PRIVILEGES;

After setting up MySQL, you can define the tables by inputting this file into mysql:
http://ctools.msu.edu/pub/softwaredep/mysqlctoolsv3.dump

Subversion (version 1.4.0)
http://ctools.msu.edu/pub/softwaredep/Subversion
Subversion-1.4.0.pkg.zip
Installation instructions:
Install the package by double-clicking the .zip file, then double-clicking on the Subversion package.

This version of Plone can be installed on Mac 10.3 systems and work with ZMySQL to access the C-TOOLS MySQL database
http://ctools.msu.edu/pub/softwaredep/Plone2

You will need to import the following files into Plone
(from http://ctools.msu.edu/pub/softwaredep/Plone2)
ctools_assignment.zexp
ctools_robograder.zexp

You may also want to install and use
http://ctools.msu.edu/pub/softwaredep/Batik/batik-1.6.zip
C-TOOLS needs to rasterize SVG files into PNG files.

3.2 Internal dependencies

These dependencies are installed as part of the C-TOOLS installation process.

httpi (a significantly customized version of httpi is used to support CGI)
Purpose: Web server.

A-A-P
Purpose: Handle installation and updating of C-TOOLS software on your system.

Various ActiveState perl modules (installed with ppm)
Purpose: Extend the capabilities of ActiveState perl to support C-TOOLS.

4. Installing

First, install all external dependencies as described in section #3.1, "External Dependencies".

Open up a Mac terminal application. You can access a Mac terminal through the Finder (typically leftmost icon on the bottom toolbar), select Applications, Utilities, and then
"Terminal."

Type these commands:
curl –O http://ctools.msu.edu/pub/softwaredep/ctools/ctools-1.0a.tar.gz
tar xzvf ctools-1.0a.tar.gz
cd ctools-1.0a
cd util
bash INSTALL.sh

At the end of the installation script, you will be asked to enter the superuser password.

The web user (by default www) needs advanced capabilities on the operating system in order to provide online access to user information. There is the default assumption that the only user that should have read/write permission to C-TOOLS user information is www. In order to prevent other users (i.e. root) from inadvertently alterating filesystem ownerships on the operating system, many of the scripts check to see which user is invoking them. For example, if user root tries to run /usr/local/ctools/bin/ctools_users_directory_check, a non-zero exit value is returned along with the message **** ERROR **** This script needs to run as www.

Another class of usage involves regular system administration tasks. These system administration tasks (e.g. /usr/local/ctools/bin/ctools_backup) need to be performed by the adminCTOOLS user (which should be configured with advanced sudo capabilities in order to have root-level capabilities when necessary.

5. Running

To run the C-TOOLS web server software on your Mac OS 10.3+ machine, you must first ensure that background programs are active. You can either start the requisite background processes manually from a Mac terminal application, or you

can configure your machine to auto-start the C-TOOLS web server (see section #6 of this document, "Configuration").

You must then point your web browser to http://127.0.0.1:8080/

You are strongly encouraged to download and use Mozilla Firefox (http://www.mozilla.org) as the web browser for C-TOOLS.

6. Configuration

6.1 Manual launching of background processes

httpi should be started by the installation process. In case you need to start it yourself,
/Users/user/Desktop/ctoolswebapplication/httpi

6.2 Autostarting background processes

httpi should be inside the /etc/rc.local directory

7. System administration appendix

C-TOOLS is sensibly designed to use various standard lower-level components to handle concept mapping data. You can verify and inspect the C-TOOLS system through various commands targeted to these lower-level components.

MySQL
Launch the MySQL interpreter
/usr/local/mysql/bin/mysql
use ctools;
show tables;
describe usercmapindex;

ActiveState Perl
Launch the ActiveState perl interpreter.
/usr/local/ActiveState-5.8/bin/perl

User Archives
Inspecting the history of a user's C-TOOLS archive with subversion.
Become the web user (www),
cd /WEBDIRPATH/ctools/users/
The user directories are arranged into a three-level hierarchy based on the first three characters of a user's name. A user named Tiberius would have their versioned contents of concept maps inside
/WEBDIRPATH/ctools/users/T/i/b/Tiberius.
cd /WEBDIRPATH/ctools/users/T/i/b/Tiberius/versions

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svn log
svn log MAP1.cmap
etc