

INSTRUCTION MANUAL



CSI Web Server for Linux Installation Guide

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CSI Web Server for Linux Installation Guide

1. Introduction

CSI Web Server for Linux is a port of the Campbell Scientific CSI Web Server product to the Linux Operating System along with one copy of Web Publisher for Windows. This package does not provide a Linux based Web Publisher. The Web Publisher is installed on a Windows machine and used to publish RTMC projects to the Linux based CSI Web Server.

Packages have been built for Red Hat (or Cent OS) version 6.1 and newer, SUSE Linux version 11.4 and newer, Debian version 6 and newer, and Ubuntu version 11.04 and newer.

The Debian and Ubuntu version also includes a CSI Web Server Administrator package. Due to difficulties in supporting the requisite version of the wxWidgets package on the other platforms, they must be administered by editing the configuration file directly.

This document focuses mainly on the installation and configuration of the CSI Web Server for Linux. For additional information on using the CSI Web Server as well as the CSI Web Server Administrator and the Web Publisher see the CSI Web Server manual.

2. Installing CSI Web Server for Linux

2.1 DEB Installation (Debian and Ubuntu)

2.1.1 Installing the Web Server

2.1.1.1 Locate the DEB File

Locate the DEB file, `csiweb-debian*_i386.deb`. The DEB file is located in the root directory of the CSI Web Server for Linux CD-ROM.

2.1.1.2 Log In as a Root User

The `dpkg` utility requires root privileges on the host computer in order to change the state of the DEB database. You can gain root privileges by using the `su` or `sudo` command or by logging in to a terminal as the root user.

2.1.1.3 Use dpkg to Install the Software

The following command line demonstrates use of the `dpkg` utility to install CSI Web Server for Linux:

```
dpkg --install csiweb-debian_1.1-29_i386.deb
```

NOTE The package name contains version and revision numbers, and, therefore, may differ from that shown above.

The utility can also be used to delete the package by using the following command line:

```
dpkg --remove csiwebserver
```

2.1.1.4 Alternatives to the dpkg Command Line

Instead of installing from the command line, most Linux distributions now provide a GUI program that performs the same types of operations. Note that you will still be required to provide the password for the root account in order to use this application.

2.1.2 Installing the Admin Utility

The web server admin package for Ubuntu and Debian has dependencies on wxWidgets version 2.8 which must be installed before installing the admin utility. The web server must also be installed before the admin utility is installed. In order to set up wxWidgets, you need to add the software repository for wxWidgets.

NOTE For Debian 7 (Wheezy) and Ubuntu 11.10 (Oneiric) and later, the software repository for the required version of wxWidgets (2.8) is already available in the standard distribution and you can skip the below steps up to the installation of the WxWidgets library package.

Set up software repositories appropriate for your Linux version. For example, for Ubuntu Natty Narwhal, the following lines need to appear in `/etc/apt/sources.list`:

```
deb http://apt.wxwidgets.org/ natty-wx main
deb-src http://apt.wxwidgets.org/ natty-wx main
```

You also need to install the certificate from `http://apt.wxwidgets.org/key.asc` as follows:

```
curl http://apt.wxwidgets.org/key.asc | sudo apt-key add -
```

Once these steps are complete, you can install the wxWidgets library package as follows:

```
sudo apt-get install wxgtk2.8-0
```

NOTE The above step can take several minutes and may appear to hang before actually performing the installation.

With this done, you can now install the web server admin package:

```
sudo dpkg --install csiwebadmin-debian_1.1-29_i386.deb
```

NOTE The package name contains version and revision numbers, and, therefore, may differ from that shown above.

The wxWidgets and web server admin packages can be removed using the following command lines:

```
sudo apt-get remove wxgtk2.8-0
```

```
sudo dpkg --remove csiwebadmin
```

NOTE To use the sudo command the user must be part of the sudo group. Otherwise, you can use the su command or log in as the root user to install the wxWidgets library and web server admin package.

2.2 RPM Installation (SUSE and Red Hat)

2.2.1 Locate the RPM for Your Distribution

The following table shows the Linux RPM distributions that are supported and the RPM file that supports each:

Distribution	RPM File Name
Red Hat	csiweb-redhat_*_i386.rpm
SUSE	csiweb-suse_*_i386.rpm

The RPM files are located in the root directory of the CSI Web Server for Linux CD-ROM.

2.2.2 Log In as a Root User

The RPM utility requires root privileges on the host computer in order to change the state of the RPM database. You can gain root privileges by using the su command or by logging in to a terminal as the root user.

2.2.3 Use RPM to Install the Software

The following command line demonstrates use of the RPM utility to install CSI Web Server for Linux:

```
rpm --install csiweb-redhat_1.1-31_i386.rpm
```

NOTE The package name contains version and revision numbers, and, therefore, may differ from that shown above.

The RPM utility can also be used to upgrade an already installed version by replacing the --install option with the --upgrade option on the command line.

The utility can also be used to delete the package by using the following command line:

```
rpm --erase csiwebserver
```

2.2.4 Alternatives to the RPM Command Line

Instead of installing from the command line, most Linux distributions now provide a GUI program that performs the same types of operations. On CentOS, for instance, the Package Manager application can be accessed by clicking the “Add/Remove Software” item on the “Applications” menu. Note that you will still be required to provide the password for the root account in order to use this application.

3. What the RPM/DEB Installs

Installing the CSI Web Server for Linux RPM or DEB results in the following actions:

- Copies binary executables and user documentation to the `/opt/CampbellSci/CsiWebServer` directory.
- Copies configuration files to the `/etc/opt/CampbellSci` directory.
- Copies daemon init scripts to directories appropriate for your distribution and registers the `csiwebd` daemon so that it will start automatically when the host operating system boots.
- Ensures that the CSI Web Server working directory at `/var/opt/CampbellSci/CsiWebServer` is created.

4. Usage Notes

4.1 Starting and Stopping the Web Server

On those platforms where the CSI Web Server Administrator (CSIWebAdmin) is available, the easiest way to start and restart the web server is by clicking on its icon on the CSIWebAdmin's Status tab. Clicking on this icon will toggle the started state of the server. Alternatively, the web server can be started and stopped from the command line.

RedHat/Fedora

The server can be started or stopped using the `/sbin/service` command as follows:

```
/sbin/service csiwebd start
```

```
/sbin/service csiwebd stop
```


Other Distributions

The server can be started or stopped using the daemon's init script as follows:

```
/etc/init.d/csiwebd start
```

```
/etc/init.d/csiwebd stop
```

Note that these commands must be run with root privileges. Alternatively, some distributions provide a service manager GUI application to start and stop daemons.

4.2 Launching the CSIWebAdmin Package

The CSIWebAdmin package can be launched using the application launcher found at `/usr/share/applications/CSI Web Server Admin`.

4.3 Changing the Web Server Configuration File

4.3.1 Location of the Web Server Configuration File

The web server looks for its main configuration file, `config.xml`, in the `sys` subdirectory of its application directory. If the web server cannot find a configuration file, it will generate its own default configuration and write it at the specified directory. By default, the configuration file is:

```
/var/opt/CampbellSci/CsiWebServer/sys/config.xml
```

4.3.2 Organization of the Configuration File

The configuration file is in XML format. Its root element is expected to have the name, `CsiWebServer`. This element does not expect any attributes but it does expect to contain an `http-settings` child and can optionally contain a `log-settings` element child.

4.3.2.1 *http-settings* Element

This element describes the configuration settings for the HTTP server. The following attributes are required:

service-port	This attribute specifies the TCP port on which the HTTP server will offer its service. This value will default to TCP port 80 (the default port for the HTTP protocol).
home-dir	This attribute specifies the directory that the HTTP server will use as its root. If specified as an empty string (the default), the home directory will default to the application working directory.

The http-settings element has a child element, https that will specify the configuration of the HTTPS server stack. This child element must have the following attributes:

enabled	A boolean value that will specify whether the HTTPS stack is enabled for the web server.
service-port	Specifies the TCP port on which the web server will accept HTTPS connections.
key	Specifies the path to the file that contains the HTTPS private key.
password	Specifies the password which is needed in order to decrypt the HTTPS private key.
cert	Specifies the path to the file that contains the HTTPS certificate.

4.3.2.2 log-settings Element

The server can be optionally configured to track its progress in one or more baled log files. This feature is enabled when there is log-settings element in the server configuration. This element recognizes the following attributes:

mode	<p>Specifies the mode that will be used to control how log files are written by the server. The following values are recognized for this attribute:</p> <p>disabled--Specifies that log files will not be created.</p> <p>time--Specifies that the log files will be baled based upon the passage of time and the interval specified by the interval attribute.</p> <p>size--Specifies that the log files will be baled based upon the size of the file and the maximum size specified by the bale-size parameter.</p>
dir	This attribute specifies the directory where the log file(s) will be kept. If not specified or is specified as an empty string, this attribute value will default to the application working directory.
file	This attribute specifies the base name that will be used when generating log files. If this attribute is not specified or is specified as an empty string, then it will default to csiwebd\$.log. The dollar sign character in this string marks the part of the name that will get changed when the log file is baled.

interval	This attribute specifies the interval, in milliseconds, at which the log files will get baled. If this attribute is not specified, it will default to a value of 86400000 (one day in milliseconds). The server will not honour any interval that is less than 10 seconds (it will clamp it to this minimum interval). This parameter will be ignored unless the mode attribute is set to time.
bale-size	This attribute specifies the maximum size, in bytes, that the active log file will be allowed to reach before baling occurs. It will be ignored unless the mode attribute is set to size.
bale-count	Specifies the maximum number of baled files that will be kept by the web server before the oldest baled file is overwritten during a baling event.
report-headers	Specifies that HTTP headers that are sent or received should be written in the log files. This can be a useful troubleshooting tool but can increase the amount of data logged per web transaction dramatically.

4.3.3 Editing the Configuration File

On those platforms where CSIWebAdmin is available, the configuration file can be edited using CSIWebAdmin as explained in Section 1, *CSI Web Server Administrator*, in the CSI Web Server manual.

For those platforms that do not include CSIWebAdmin, the config.xml file must be edited directly using a text editor.

4.3.4 Configuration File Auto-Update

When the web server reads the configuration file, it will also save the date/time when that file was last changed. It will check the file approximately every fifteen seconds to see if the file has changed since the last time that it was read. If its has changed, the server will read the file again and reinitialise itself with its contents.

4.4 Security

Users and their website access rights are controlled through .csipasswd files.

Each user can be given one of the following access levels (the numbers in parentheses are used when editing the configuration file manually):

None (0) – No access is allowed. The account is disabled.

Read Only (3) – Allowed to view data. No values can be changed.

Read/Write (2) – Allowed to view data, make changes to writeable values in a datalogger's Public or Status table or a virtual data source, and set a datalogger's clock.

All (1) – Allowed to view data, make changes to writeable values in a datalogger's Public or Status table or a virtual data source, set a datalogger's clock, use the API FileControl command, and publish websites.

Section 3.1, *PC Websites*, in the CSI Web Server manual explains how to create and edit .csipasswd files from CSIWebAdmin or the Web Publisher. The csipasswd command can be used from the command line to edit the .csipasswd file.

Adding a User

In order to add a user with csipasswd, invoke the command as follows:

```
/opt/CampbellSci/CsiWebServer/csipasswd --password=johnpasswd  
--access=1 /var/opt/CampbellSci/CsiWebServer/.csipasswd john
```

This command will add an account named john with a password of johnpasswd and an All access level.

Changing a User's Password

In order to change the password for an existing user, invoke the command as follows:

```
/opt/CampbellSci/CsiWebServer/csipasswd --password="johnsnewpasswd"  
/var/opt/CampbellSci/CsiWebServer/.csipasswd john
```

This command will change the password for user john to johnsnewpasswd

Changing a User's Access Level

In order to change the access level for an existing user, invoke the command as follows:

```
/opt/CampbellSci/CsiWebServer/csipasswd --access=3  
/var/opt/CampbellSci/CsiWebServer/.csipasswd john
```

This will assign a Read Only access level to the account john

Deleting an Account

In order to remove an account with csipasswd, invoke the command as follows:

```
/opt/CampbellSci/CsiWebServer/csipasswd --delete  
/var/opt/CampbellSci/CsiWebServer/.csipasswd john
```

Changing the Realm String

In order to change the realm string specified in the .csipasswd file, you can use the --realm= option as follows:

```
/opt/CampbellSci/CsiWebServer/csipasswd --realm="New Realm"  
/var/opt/CampbellSci/CsiWebServer/.csipasswd
```

4.5 Command Line Options

Advanced Linux administrators may have reasons to modify the provided init scripts, create their own, or use other methods for launching the daemon. The `csiwebservice` executable supports the following command line options:

- `--AppDir=path`: Controls the location where the server will look for its configuration file and will also control the default location of the web server home directory as well as its log files. If this option is not specified, the value will be read from the registry. If not specified in the registry, it will default to `/var/opt/CampbellSci/CsiWebServer`.
- `--run-option=<standalone|daemon>`: `Standalone` specifies that the program will run within the console from which it was started. In this mode, it will write its log events to the `stdout` device. This mode is very useful for debugging and/or troubleshooting. `Daemon` is the default if the `run-option` option is not specified on the command line and will make the program run as a daemon. This will force the program to fork (create another process) and then stop. The forked process will close its `stdio` handles and then execute as a daemon.

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