INSTRUCTION MANUAL

LoggerNet for Linux Installation Guide

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1. Introduction

LoggerNet for Linux is a port of the Campbell Scientific LoggerNet server product and some clients to the Linux Operating System along with one copy of LoggerNet Remote for Windows. This package does not provide Linux based GUI client applications to administer the LoggerNet server or to monitor data from the same. These client applications are available in the LoggerNet Remote software under Windows and are able to communicate with a Linux based LoggerNet server. Additional information on the LoggerNet Remote clients can be found in the LoggerNet manual. The following services are provided by this product:

1.1 LoggerNet Server

Provides communication with the dataloggers over various media including serial ports, TCP/IP connections, and Linux compatible phone modems. Besides services provided to LoggerNet clients, this server also provides automatic (scheduled) data collection. This program is installed as a daemon and will be automatically started when the host computer is started.

1.2 CoraScript Interpreter

This native Linux client connects to the server and, through command line interaction with the user, allows the user to administer the LoggerNet network map including settings and allows the user to perform maintenance operations on devices such as program file send, clock check/set, etc.

1.3 Logger Data Monitor Protocol Server (LDMP)

This native Linux client provides a simple text-based protocol to export data from the LoggerNet server via TCP connections as that data is collected. This server can be configured to allow the connecting client to specify what data will be sent and supports any number of concurrent client connections.

1.4 Logger Data Export Protocol Server (LDEP)

This native Linux client provides a simple text-based protocol to export data from the LoggerNet server via TCP connections as that data is collected. This server differs from the monitor server in that it supports only one client connection at a time and the data that is sent is dependent upon its command line options and the data that it has previously sent.

2. Installing LoggerNet for Linux

2.1 Locate the RPM for Your Distribution

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

Distribution	RPM File Name
Red Hat	loggernet-4.1-24.i386.rpm
Suse	loggernet-suse-4.1-24.i386.rpm

The RPM files are located in the root directory of the LoggerNet Linux CD-ROM.

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.

2.3 Use RPM to Install the Software

The following command line demonstrates use of the RPM utility to install LoggerNet for Linux:

```
rpm --install loggernet-4.1-24.i386.rpm
```

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 loggernet
```

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 Installs

Installing the LoggerNet for Linux RPM results in the following actions:

- Copies binary executables and user documentation to the /opt/CampbellSci/LoggerNet directory.
- Copies configuration files to the /etc/opt/CampbellSci directory.

- Copies daemon init scripts to directories appropriate for your distribution and registers the csilgrnet, csildep, and csildmp daemons so that these will start automatically when the host operating system boots (please note that these daemons will not be immediately started when the RPM is installed).

- Creates the loggernet user and makes that user a member of the uucp group (this action provides access to serial ports without needing permissions on those device files to be re-assigned).

- Ensures that the LoggerNet working directory at /var/opt/CampbellSci/LoggerNet is created and that the loggernet user is the owner of that directory.

4. Usage Notes

4.1 Starting and Stopping the Daemons

The details of starting and stopping daemon processes can be distribution specific. The daemons can be started or stopped by invoking their init scripts with appropriate command arguments. The following example demonstrates this using the csilgrnet daemon:

```
/etc/init.d/csilgrnet start
```

This example shows how the service can be started. Note that this must be run with root privileges. The daemon can be stopped by replacing the command, start, with the command, stop. Alternatively some distributions provide a service manager GUI application to start and stop daemons. In CentOS, this can be accessed by choosing System | Administration | Server Settings | Services from the desktop menu.

4.2 Configuring the Server

The configuration options for the server are in the csi_registry.xml file found in /etc/opt/CampbellSci. The WorkDir value under the HKEY_LOCAL_MACHINE/SOFTWARE/Campbell Scientific/LoggerNet key path specifies the working directory that the LoggerNet server will use for its configuration and data files. The IpPort value under the same key will tell the server the TCP port on which it is to offer its service. If this value is not specified, the value will default to a value of 6789.

If you change any of these values in the registry, it will be necessary to re-start the server daemon in order for these changes to be effective. This process is described in the previous section.

Depending on selections made during the operating system install, a firewall application may have been enabled by default on the Linux PC. The firewall was enabled to protect the PC from invasion by outside, unauthorized programs that may try to connect via a socket using TCP/IP. Remember, however, that LoggerNet is a client-server application that uses TCP/IP as the link between clients and the server. This means that the LoggerNet Remote clients for Windows such as Setup, Connect, Status, RTMC, etc., need to access the LoggerNet server on Linux via a TCP port. Therefore, you must allow remote

TCP connections for the specific server port, 6789 by default, access through any firewall on the LoggerNet server PC or on the network between the remote client PC and the LoggerNet server PC.

You should read the installation guide for your distribution of Linux to understand the firewall application and how to grant or deny access for the LoggerNet server TCP port.

Once remote TCP connections to the LoggerNet server are allowed through the firewall, the LoggerNet Remote Windows clients can access the LoggerNet server on Linux by specifying the IP address or qualified domain name of the LoggerNet server PC. If you don't know the IP address of your Linux PC, the "ifconfig" command issued in a terminal window will display the IP address and properties of the network interface.

NOTE By default, security is disabled in the LoggerNet server, which means all LoggerNet Remote clients can access the LoggerNet server with full administrator rights. If security is a concern, use the Security Manager client in LoggerNet Remote to enable security in the LoggerNet server. For more information, read the section about the Security Manager in the LoggerNet manual.

4.3 Configuring the Export Daemons

The init scripts for the LoggerNet data export daemons start these daemons in such a way that the configuration files, ldep.conf and ldmp.conf in /etc/opt/CampbellSci, are read when the daemons start. These configuration files are simple text files and are filled with comments that document the options that are available. On-line documentation (in PDF format) is also available for these daemons in the /opt/CampbellSci/LoggerNet directory.

Depending on selections made during operating system installation, SELinux may be enabled on the Linux PC. SELinux limits the actions of both users and programs by enforcing security policies throughout the operating system. One policy for SELinux does not allow ports at or under 1024 to be opened by a non-root process. Since the default port used by LDMP, 1024, falls within that range of disallowed ports, you must either change the ldmp.conf file to use a different port or you must disable or change the SELinux policies before the LDMP daemon will start. You should read the installation guide for your distribution of Linux and understand SELinux if you plan to make changes or disable this security feature.

4.4 Running CoraScript

The CoraScript interpreter executable is /opt/CampbellSci/LoggerNet/cora_cmd and can be run with no special permissions using that path on the command line. It is recommended that an alias be created as follows:

```
alias cora_cmd=/opt/CampbellSci/LoggerNet/cora_cmd
```

By placing this line in your .bashrc file, you will be able to run cora_cmd without always specifying the path.

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